



# Two hundred years of plant blindness in Baden (Germany) - from C.C. Gmelin's 1817 "Nothülfe gegen Misswachs" to the post Covid-19 foraging hype, including a preliminary Checklist of the Flora of Karlsruhe

Rainer W. Bussmann, Lea Müller, Selin Özcan, Jonas Bänsch, Carolin Obel, Lorraine Staub, Laura Bellemann, Audrey Lennox, Maren Riemann, Rainer Petry, Peter Müller, Josef Franz

## Correspondence

Rainer W. Bussmann<sup>1,2</sup>, Lea Müller<sup>1</sup>, Selin Özcan<sup>1</sup>, Jonas Bänsch<sup>1</sup>, Carolin Obel<sup>3</sup>, Lorraine Staub<sup>1</sup>, Laura Bellemann<sup>4</sup>, Audrey Lennox<sup>4</sup>, Maren Riemann<sup>1,4</sup>, Rainer Petry<sup>1</sup>, Peter Müller<sup>1</sup>, Josef Franz<sup>5</sup>

<sup>1</sup>Department of Botany, State Museum of Natural History, 76133 Karlsruhe, Germany

<sup>2</sup>Institute of Botany and Bakuriani Alpine Botanical Garden, Iliia State University Botanical Str. 1, 0105 Tbilisi, Georgia

<sup>3</sup>Karlsruhe Institute of Technology (KIT), Institute of Geography and Geoecology, Kaiserstrasse 12, 76131 Karlsruhe

<sup>4</sup>Joseph Gottlieb Kölreuter Institut für Pflanzenwissenschaften, Abteilung Molekulare Zellbiologie, Fritz-Haber-Weg 4, 76131 Karlsruhe

<sup>5</sup>Freundeskreis Botanischer Garten am KIT e.V., Am Fasanengarten 2, Ecke Adenauerring, 76131 Karlsruhe, Germany

\*Corresponding Author: rainer.bussmann@smnk.de; rainer.bussmann@iliauni.edu.ge

**Ethnobotany Research and Applications 32:9 (2025)** - <http://dx.doi.org/10.32859/era.32.9.1-360>

Manuscript received: 03/09/2025 – Revised manuscript received: 16/09/2025 - Published: 17/09/2025

## Review

### Abstract

*Background:* Plants have been used for centuries in almost all cultures worldwide as traditional medicines to cure many chronic infections, including viral diseases. In recent decades, scientists have been attempting to scientifically validate the health-improving potential of functional and nutraceutical foods. At the same time, lockdowns due to SARS-CoV-2 had a profound influence on urban foraging behavior. On the other hand, 21 century plant blindness has been well documented. Our hypothesis however was that this is not the case, and that plant blindness, especially in more urban environments, is not a new phenomenon at all. During the curatorial work it became evident that the first director of the collection, CC Gmelin also focused on ethnobotanical topics to improve livelihoods and increase government revenue, publishing a foraging volume in 1817 to remedy the effects of the Napoleonic Wars and the "Summer without harvest" caused by the 1815 Tambora eruption. The pure fact that such a volume was of interest in 1817 seems to proof our hypothesis that plant blindness is by no means a recent phenomenon. Thus, we decided to have a closer look at the volume and to compare the indications given with more recent uses of the respective species.

*Methods:* For this review we used a manual transcript made from using a digital facsimile edition from the British Library. For most recent uses of species we consulted the broader global literature, especially the recent series "Ethnobotany of Mountain Regions". To elucidate if Gmelin indeed referenced the species he promoted, correctly identified the material, and to review the current availability of the species, we reviewed the complete currently accessible spermatophyte, lycophyte and pteridophyte plant collection in KR (about 250000 specimens), and used this resource to elaborate a first preliminary checklist of the Flora of Karlsruhe including vouchered material from 1785 - 2025.

*Results:* Gmelin's 18 century foraging handbook contains 169 species (144 plants, 23 fungi, 2 lichens) belonging to 122 genera (104 plants, 16 fungi, 2 lichens), in 54 families (38 plants, 14 fungi, 2 lichen). Of these 143 are recommended for food, 88 for fodder, and 14 for utensils. All the species had contemporary uses, mostly in Eastern Europe, while only very few have contemporary uses in the original region. The Flora of Karlsruhe has been vouchered since 1785, but despite decades of discussion no preliminary checklist had been published. We take this opportunity of review of Gmelin's "Nothülfe" book to present a first preliminary, voucher based, Checklist of the Flora of Karlsruhe 1785-2025 including almost 2600 species.

*Discussion:* The publication of Gmelin is certainly interesting, because it underlines first, that plant blindness is by no means a problem of the 21. century. Apparently over 200 years ago citizens had similar issues. It is however not entirely clear why Gmelin wrote this volume. Certainly, Carl Christian Gmelin was not only Director of the Natural History Museum and the Botanical Gardens in Karlsruhe, but also Privy Councilor of the Grand Duchy of Baden and published his guide at a time when the still young Grand Duchy of Baden was struggling with particularly serious social, economic, ecological, and political conflicts. What is striking though is that all species that Gmelin mentioned in his 1817 volume are still used in the wider European and Mediterranean region.

*Conclusion:* Our review indicates that "plant blindness" is by no means a phenomenon of the 21. century. Already over 200 years ago, a guidebook was necessary to allow "ordinary" citizens, not only in urban, but also rural areas, the identification of wild plants as food and forage, to remedy years of bad harvests. Herbarium collections are essential to allow for a detailed revision of such publications, and have the potential to elucidate both genetic, as well as metabolic changes in species, e.g. important for food and medicine. The foraging and self-medication craze during and after SARS-CoV-2 underlines the dire need for better taxonomic assessment of plants used by the wider public. Our presented Checklist of the Flora of Karlsruhe 1785-2025 will serve as baseline for future analyses of this urban flora.

*Keywords:* CC Gmelin, foraging, historic plant use, Baden, plant blindness

## Background

The relatively recent outbreak of SARS-CoV-2 led to a great need to propose effective preventive therapeutic measures that might alleviate the risk of infection until a vaccine or other antiviral agents could be designed (Fan et al. 2020). Plants have been used for centuries in almost all cultures worldwide as traditional medicines to cure many chronic infections, including viral diseases. In recent decades, scientists have been attempting to scientifically validate the health-improving potential of functional and nutraceutical foods. At the same time, lockdowns due to SARS-CoV-2 had a profound influence on urban foraging behavior (Clouse 2022). Additionally, today, we are increasingly confronted with the consequences of climate change in the global food sector, as well as the influence of bellicose developments on global prices. Crop failures, famines, and high food prices dominate the news. On the other hand, 21 century plant blindness has been well documented (Achurra 2022). A wide variety of "Foraging manuals" have been published in recent years, indicating that the wider public is unable to collect useful plant species without guidelines, insinuating that plant knowledge is indeed rudimentary in a wide part of the population. The regular hypothesis is thus that plant blindness is a relatively new phenomenon, i.e., that older generations held "vast traditional knowledge" and applied it in their daily life. Our hypothesis however was that this is not the case, and that plant blindness, especially in more urban environments, is not a new phenomenon at all.

The city of Karlsruhe turned out to be an excellent location for testing this hypothesis. The vascular plant collection at the Herbarium Karlsruhe (officially KR) contains collections from all over the world, including thousands of specimens from C.C. Gmelin, the first director of the collections, from the years 1779-1835, although since the post-war period a focus of the collections has been southwest Germany. While the herbarium has always served as a collection of evidence for the region, the collections are much more extensive and reflect the global commitment of the museum. The vascular plant herbarium currently contains around 300000 specimens. After decades of negligence, the herbarium was moved to a new location in 2022. Since then, the most important task was the protection of the existing material to preserve it for the future, as well as databasing the collection.

During the curatorial work it became evident that the first director of the collection, CC Gmelin, not only published the first flora of the wider region, in a very modern way crossing boundaries and combining Badenia and Alsace in the effort (*Flora Badensis Alsatica*, Gmelin 1805; 1806; 1808, 1826), but also focused on ethnobotanical topics to improve livelihoods and increase government revenue (Gmelin 1809). Surprisingly, Gmelin also became the first "modern" ethnobotanist and ethnozoologist in Germany by publishing a foraging volume in 1817 to remedy the effects of the Napoleonic Wars and the "Summer without harvest" caused by the 1815 Tambora eruption. The pure fact that such a volume was of interest in 1817 seems to prove our hypothesis that plant blindness is by no means a recent phenomenon. Thus, we decided to have a closer look at the volume and to compare the indications given with more recent uses of the respective species.

Dr. Carl Christian Gmelin (1762–1837) was a physician, botanist, director of the Botanical Gardens in Karlsruhe, and founder and director of the Karlsruhe Natural History Museum. He was also involved in government work for the Grand Duchy of Baden—today, one would say he was something like a "Minister of Agriculture." His book "Nothülfe bei Misswachs" (Fig. 1.) was published in February 1817 (presumably in a hurry) to help his fellow countrymen escape the severe food shortages that had developed in southwest Germany because of the Napoleonic Wars and several years of bad weather. The advice Gmelin offers is worth considering and evaluating from today's perspective. An original of the volume can be seen at the Baden State Library in Karlsruhe (call number: 44A875). For this review we used a manual transcript made from using a digital facsimile edition from the British Library ([www.bl.uk](http://www.bl.uk); system number: 017458393).

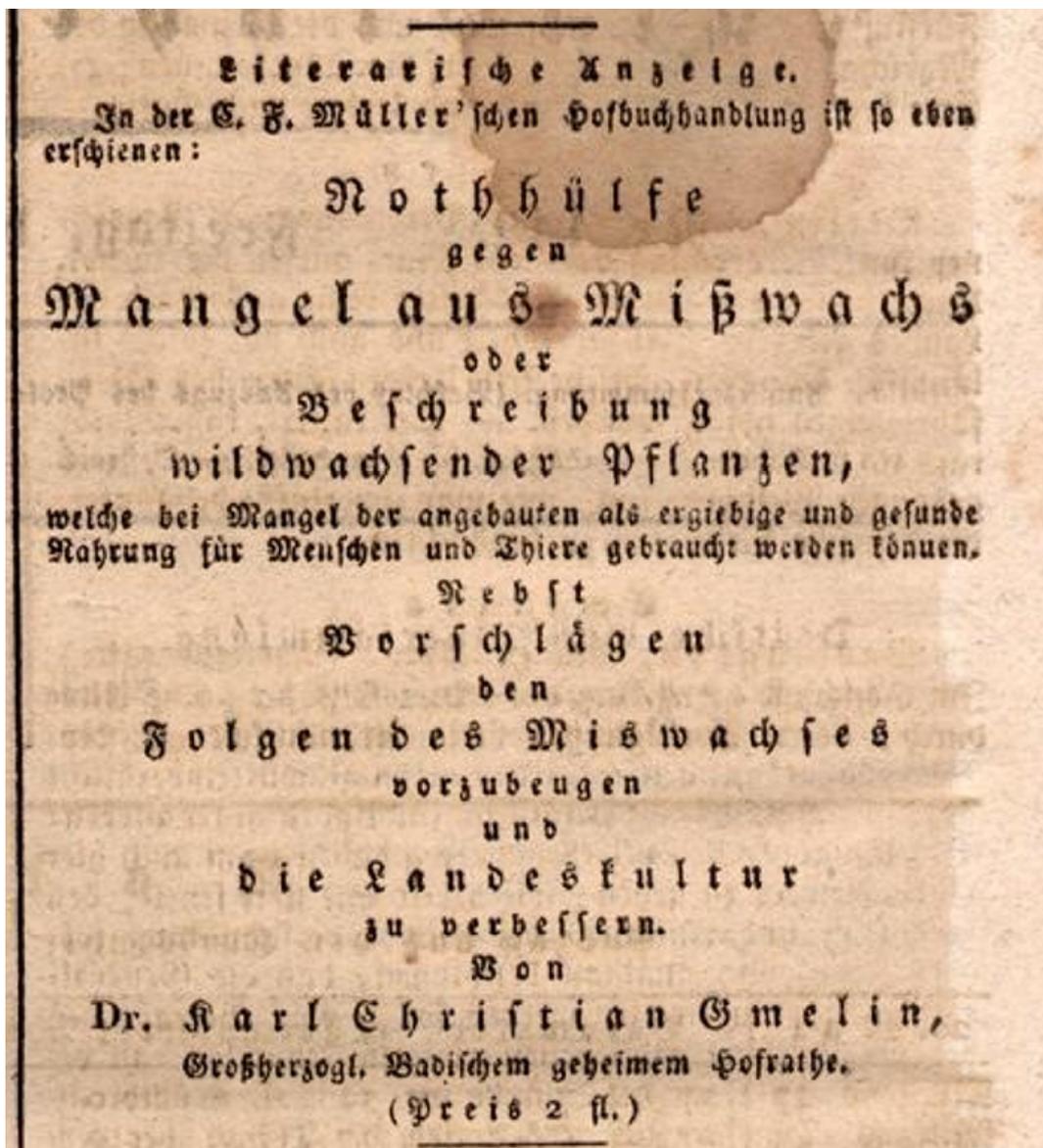


Figure 1. "Nothülfe bei Misswachs" cover (Photo SMNK).

From Gmelin's own foreword:

*"I hope that these suggestions will be of use, especially to those who, due to flooding in the Rhine and other regions, must now forgo many commonly cultivated foods for themselves and their domestic animals, as well as to the inhabitants of the mountains and valleys, where so much grain, pulses, and the otherwise plentiful potatoes cannot ripen or be harvested in several regions due to often too early snow and frost.*

***This primarily concerns wild, indigenous plants that, in bad years, can to some extent compensate for the shortage of grain and other meadow, field, and garden plants, and thus beneficially protect us and our domestic animals against shortages, hunger, and disease.***

*The Baden and neighboring lands, otherwise so rich in wine, fruit, grain, olives, field and garden crops, so excellently situated, which, unassailed in their prosperity, endured so many years of war and fed their industrious inhabitants and the passing foreign armies from inexhaustible supplies, have been plunged into great hardship in most regions by the last two campaigns in 1814 and 1815, and by the wet weather in 1816, particularly by the failure of viticulture.*

*And yet, there are still untapped resources available to alleviate this hardship. It would be desirable, for example, that the numerous and excellently situated vineyards, in years truly lacking in wine, could also be used for grain, potatoes, pulses, oil plants, and garden vegetables, whereby any food shortage in these regions could certainly be prevented and remedied forever.*

***To avoid errors and mistakes, all the plants listed here are named according to the generally known and accepted plant system of Equestrian Linnaeus, and at the same time, the various names by which they are known here and there to our rural and mountain dwellers are added to each plant.***

*For those who wish to know more about the history and description of each individual plant mentioned here, its birthplace and various locations, flowering and seed-bearing times, properties, uses and applications in the various branches and needs of life, and secondary relationships and variations, I refer, for the sake of brevity, primarily to my *Flora Badensis Alsatica et confinium regionum*, Volumes I, II, and III, to which the IV and final volume will soon follow.*

*Since I have frequently travelled through the landscapes on the Rhine, the Main, the Moselle, the Neckar and the Danube, in Baden, Württemberg, Hesse, Franconia, Bavaria, Lake Constance, Switzerland, Alsace and Lorraine, over a period of 40 years, in all directions I **have had the opportunity to discover many things that may have remained unknown to many until now.** Much has indeed been done in terms of land cultivation in these regions – but much can still be achieved in the future, especially in the low-lying river areas that are frequently subject to flooding, in the dry, sterile sandy areas, and in the middle and higher, rougher mountain and valley regions, where there is still a lack of cultivated, suitable forage plants. Therefore, I sought to draw as much attention as possible to their cultivation and use.*

*Since the farmer's food and wealth depend primarily on the maintenance and increase of livestock, I also sought to draw attention to food for animals in years of hardship.*

*Some may notice that I also recommended fungi. However, **I hope this was done with the necessary care and selection, and in the conviction that they are among the most nourishing, productive, healthy, and tasty foods, as long as they are collected, used, and properly prepared at the right time.** I also believe that through the descriptions and references to good, true-to-life illustrations of them, I have prevented many mistakes. The earth sponges appear in incredible numbers in wet years and remain there for weeks, rejuvenated with each day. Never have I seen them more beautiful, more perfect, more diverse, and more abundant than in the late year of 1816. They seem to stand, as it were, in the middle between the animal and plant kingdoms, and a time may come when many of them, which are still unknown to us as foodstuffs and as important medicinal remedies, will be included in the list of them.*

***Important and unmistakable evidence that many earth sponges, and presumably most of them, are among the most excellent foodstuffs comes from less cultured peoples, wild animals, our domestic animals, and among these, oxen, cows, and especially pigs. Therefore, in times of scarcity of other foodstuffs, they must also be considered a rich, nutritious fodder for game, cattle, and pigs.***

*For entirely natural reasons, a bad year rarely lasts for a single year; rather, its consequences often extend into the second or third year. The previous so-called bad year was caused by very wet weather and early cold, which delayed the growth and ripening of several fruits, especially grapes, and delayed the harvest.*

*Moreover, the grain, rye (*Secale cereale*), could not be properly fertilized during the short period of its tender flowering due to the unfavorable, wet weather – no wonder, then, that the grain obtained in the previous harvest had to be very light and imperfect. A portion of it was sown again in the extremely unfavorable late season – and what could the unprejudiced person expect from such a sowing, even in the most favorable weather? – Probably nothing other than what can be expected from the sowing of any other imperfect seed.*

*Very early on, it became clear that the winter sowing of grain or rye was very poor – and later it would become apparent that most grain fields in which grain had been sown would have to be planted with a different type of grain in the spring. From this, it follows sufficiently that, to prevent the disastrous consequences of a bad year in future years, as far as it lies within our limited power and our understanding, we should sow good, perfect, and always the recognized best seeds. If these are not available in the countries where they are to be sown and for which they are intended, we should not delay in purchasing them abroad at the right time and in the appropriate quantity and handing them over to the landowners for sowing. Only in this way can the disastrous consequences of a bad year be most naturally prevented.*

*What I say here about grain and rye also applies especially to barley, oats, pulses, and other useful plants whose flowers were not properly fertilized or whose seeds could not reach the appropriate perfection and maturity.*

***I hope that what I have just said, which comes from nature and experience, will find the necessary acceptance among all governments and wealthy landowners. May they not lose sight of the eternally true principle: After a very wet harvest or a bad year, one must sow with the best and most perfect seed, not in a makeshift manner, but in double the quantity.***

*May this little book live up to its title and be welcomed by the regions for which it is especially written. If, through the implementation of my suggestions, the general distress was, if not entirely alleviated, at least beneficially alleviated, I would find in that my greatest reward.*

*Carlsruhe, February 10, 1817, Carl Christian Gmelin, Dr."*

## Materials and Methods

As indicated above, for this review we used a manual transcript made from using a digital facsimile edition from the British Library ([www.bl.uk](http://www.bl.uk); system number: 017458393) and translated it to English. For most recent uses of species we consulted the broader global literature, especially the recent series "Ethnobotany of Mountain Regions" (Springer, Cham).

To elucidate if Gmelin indeed referenced the species he promoted, correctly identified the material, and to review the current availability of the species, we reviewed the complete currently accessible spermatophyte, lycophyte and pteridophyte plant collection in the Herbarium of the State Museum of Natural History Karlsruhe (KR, about 250000 specimens revised). The KR numbers given in the results refer to Gmelin's specimens held in the collection, and some specimens are used to illustrate the Gmelin specimens in KR. However, a missing KR number does not necessarily mean that there is no Gmelin voucher available, given that about 25000 mounted specimens are still currently neither databased nor numbered. In addition, not all specimens have so far been scanned. Nomenclature and synonymy follow World Flora Online ([www.worldflora.org](http://www.worldflora.org)). The original text of Gmelin's work is given after the detailed data for each species.

In addition, we decided to use this resource to elaborate a first **Checklist of the Flora of Karlsruhe 1785-2025**, given that such a checklist, although discussed for decades, was still not available. For the revision of the checklist, we considered historic literature (Bonnet 1887; Döll 1843; 1857; 1859; 1863; Hruba 1950; Jauch 1938; Kneucker 1886; 1887; 1888; 1891; 1895; Oberdorfer 1934; Seubert 1885; Seubert & Klein 1891). However, historic data were only considered if a voucher specimen was available in KR. For this purpose, the KR database (about 100000 specimens) and the KR label scan collection (about 150000 labels not yet included in the database) were considered. In addition, over 1000 collection records from 2025 were included. We considered the area of the city of Karlsruhe, as well as some outlying areas like Leopoldshafen, Weingarten, Stutensee, Ettlingen and Rheinstetten. As above, Nomenclature and synonymy follow World Flora Online ([www.worldflora.org](http://www.worldflora.org)). We included taxa of unresolved status (e.g. in *Ranunculus auricomus* agg., *Taraxacum* so., *Rubus* sp.

subspecies and hybrids as long as they are currently accepted in WFO. The taxonomy was updated (e.g. *Sorbus aria* (L.) Crantz = *Aria edulis* (Willd.) M. Roem.; *Solanum decipiens* Opitz = *Solanum nigrum* L.).

## Results

Gmelin mentioned overall 169 species (144 plants, 23 fungi, 2 lichens), belonging to 122 genera (104 plants, 16 fungi, 2 lichens), of 54 families (38 plants, 14 fungi, 2 lichen) in his volume. Of these the majority were multipurpose species, with 243 being promoted as famine foods, 84 as fodder, and 14 as useful for utensils (mostly carpentry and turnery, but some references are made to dyes and charcoal). This indicates that the main purpose of the volume was indeed to improve the food situation in 18 century Baden, which included recommendations for better livestock forage, which in turn would improve food availability.

### Gmelin's plants - modern taxonomy, descriptions and uses

#### *Acer platanoides* L.

*Synonyms: Acer dieckii* (Pax) Pax; *Acer dieckii* f. *integrilobum* Schwer.; *Acer dieckii* f. *monstrosum* Schwer.; *Acer fallax* Pax; *Acer laciniatum* (Aiton) Borkh. ex Tratt.; *Acer lactescens* Pers.; *Acer laetum* var. *cordifolium* R.Uechtr. & Sint.; *Acer lobelii* var. *dieckii* Pax; *Acer lobergii* Dippel; *Acer palmatifidum* Tausch ex Steud.; *Acer platanifolium* Stokes; *Acer platanoides* f. *acuminatum* Schwer.; *Acer platanoides* f. *adpersum* Schwer.; *Acer platanoides* f. *albescens* Dippel ex Schwer.; *Acer platanoides* f. *albodontatum* Schwer.; *Acer platanoides* f. *albovariegatum* (G.Nicholson) Schwer.; *Acer platanoides* f. *argutum* Schwer.; *Acer platanoides* f. *aureomarginatum* Pax; *Acer platanoides* f. *bicolor* Schwer.; *Acer platanoides* f. *buntzleri* (Wittm.) Schwer.; *Acer platanoides* f. *coloratum* Pax; *Acer platanoides* f. *columnare* Schwer.; *Acer platanoides* f. *commune* Pax; *Acer platanoides* f. *cucullatum* (G.Nicholson) Pax; *Acer platanoides* f. *cucullatum* (G.Nicholson) Schwer.; *Acer platanoides* f. *cuneatum* Pax; *Acer platanoides* f. *dilaceratum* Schwer.; *Acer platanoides* f. *dissectum* J.Jacq. ex Schwer.; *Acer platanoides* f. *drummondii* (Drummond ex Schwer.) Geerinck; *Acer platanoides* f. *erectum* A.D.Slavin; *Acer platanoides* f. *globosum* (G.Nicholson) Schwer.; *Acer platanoides* f. *incumbens* (Pax) Schwer.; *Acer platanoides* f. *irregulare* Schwer.; *Acer platanoides* f. *laciniatum* (Aiton) Schwer.; *Acer platanoides* f. *laetum* Schwer.; *Acer platanoides* f. *latifolium* Schwer.; *Acer platanoides* f. *lorbergii* Schwer.; *Acer platanoides* f. *meyeringii* Geerinck; *Acer platanoides* f. *nanum* (G.Nicholson) Schwer.; *Acer platanoides* f. *pictum* Schwer.; *Acer platanoides* f. *platanoides*; *Acer platanoides* f. *plicatum* Schwer.; *Acer platanoides* f. *productum* Pax; *Acer platanoides* f. *pseudotruncatum* Pax; *Acer platanoides* f. *puckleri* Schwer.; *Acer platanoides* f. *pygmaeum* Schwer.; *Acer platanoides* f. *reitenbachii* (G.Nicholson) Schwer.; *Acer platanoides* f. *roseobullatum* Schwer.; *Acer platanoides* f. *rubrum* (Herder) Pax; *Acer platanoides* f. *rufescens* Schwer.; *Acer platanoides* f. *schwedleri* (K.Koch) Schwer.; *Acer platanoides* f. *undulatum* (Dippel) Schwer.; *Acer platanoides* f. *variegatum* (Loudon) Dippel; *Acer platanoides* var. *albovariegatum* G.Nicholson; *Acer platanoides* var. *aureovariegatum* Loudon; *Acer platanoides* var. *bullatum* Schwer.; *Acer platanoides* var. *buntzleri* Wittm.; *Acer platanoides* var. *coloratum* (Pax) Schwer.; *Acer platanoides* var. *columnare* Carrière; *Acer platanoides* var. *crispum* Spach; *Acer platanoides* var. *cucullatum* G.Nicholson; *Acer platanoides* var. *decussatum* G.Nicholson; *Acer platanoides* var. *drummondii* J.Drumm. ex Schwer.; *Acer platanoides* var. *globosum* G.Nicholson; *Acer platanoides* var. *hederifolium* Schwer.; *Acer platanoides* var. *heterophyllum* Schwer.; *Acer platanoides* var. *heterophyllum-variegatum* G.Nicholson; *Acer platanoides* var. *incumbens* Pax; *Acer platanoides* var. *laciniatum* Aiton; *Acer platanoides* var. *lactescens* G.Nicholson; *Acer platanoides* var. *lobatum* Aiton; *Acer platanoides* var. *macrocarpum* Spach; *Acer platanoides* var. *minimum* Schwer.; *Acer platanoides* var. *nanum* G.Nicholson; *Acer platanoides* var. *palmatifidum* Tausch; *Acer platanoides* var. *palmatum* G.Nicholson; *Acer platanoides* var. *palmipartitum* Spach; *Acer platanoides* var. *pubescens* Hayne ex Loudon; *Acer platanoides* var. *purpureum* G.Nicholson; *Acer platanoides* var. *reitenbachii* G.Nicholson; *Acer platanoides* var. *rubrum* Herder; *Acer platanoides* var. *schwedleri* K.Koch; *Acer platanoides* var. *stollii* Schwer.; *Acer platanoides* var. *undulatum* Dippel; *Acer platanoides* var. *variegatum* Loudon; *Acer reitenbachii* Dippel; *Acer rotundum* Dulac; *Acer schwedleri* K.Koch; *Acer vitifolium* Opiz ex Tausch.; *Euacer acutifolium* Opiz; *Euacer platanoides* Opiz

**Original name (Gmelin 1817):** *Acer Platanoides*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 791. 792.

**German names and French names (Gmelin 1817):** Bergahorn, Platanblättriger Ahorn, Spitzblättriger Ahorn, Spitzahorn, Großer Milchahorn, Deutscher Zuckerahorn, Masholder Ahorn, Leune, Lehne, Lienbaum; Erable Platan, Erable des montaignes

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 193306



Figure 2. *Acer platanoides* L. - KR1993306

**Botany and Ecology:** Trees that are up to 20 meters high, sometimes up to 30 meters, with dense broad crown and dark brownish-gray to nearly black bark, longitudinally splitting when adult. Leaves are 5-12(18) cm long, 8-13(22) cm wide, dark green above, slightly paler and shiny beneath, smooth or hairy along nerves beneath and bearded at angle. The flowers are large, greenish-yellow. They open before the leaves do. The sepals are obovate, obtuse. The petals are slightly narrower than and nearly as long as the sepals. Samaras are up to 4 cm long with wings diverging at an obtuse angle or spreading. Flowering in the month of May. Fruiting in the month of September. Tree in broadleaved and commonly mixed forests, rarely in large numbers, up to the subalpine belt in the Caucasian Mountains. Grows as sole individuals or small groups in beech, hornbeam, chestnut, oak and other deciduous and sometimes dark coniferous forests from lower to upper montane zone (Shishkin & Boborov, 1949).

**Contemporary uses:** Twigs blessed on Pentecost and applied to wounds. Leaves used in infusion as astringent, for diarrhea. Sap used against freckles, to prevent eye disease, tuberculosis and lack of appetite. *Acer platanoides* is also used for diseases of the liver, kidneys and gastrointestinal tract: A water infusion and decoction of young leaves is used in jaundice, urolithiasis

as well as diuretic, antiemetic and for tonic means. Pulverized and crushed fresh leaves are applied to purulent wounds and ulcers. The fruits have an antipyretic effect. A water infusion and decoction of young leaves, bark and fruits is applied for scurvy. A decoction and extract of the bark of *Acer pseudoplatanus* is used as astringent, the juice as a diuretic. A decoction and extract of the bark is used for scurvy. The flowers of *Acer* sp. are used for tea. All species are nectariferous and polliniferous plants. The trees have dark green crown and shining leaves. The plants are especially beautiful in spring during the period of flowering and in autumn when the leaves turn yellow red. Light-demanding and frost-resistant tree species that need good soil. Grow well in the fresh, deep and fertile soils. Good for urban greenery and creation of parks and garden complexes. Georgia: Construction timber, firewood, snowshoes, tools. Wood used for household utensils. Lek'is khe (*A. platanoides*) was the major tree species used to make local variety carts called "seli" in Adjara, where elm wood was also used for the same purpose but the latter mainly for wheel parts and "kopo", major bars connecting the arms of a cartload frame. Has power to prevent evil or bad luck. Wood used for household utensils. Lek'is khe (*A. platanoides*) was the major tree species used to make local variety carts called "seli" in Adjara, where elm wood was also used for the same purpose but the latter mainly for wheel parts and "kopo", major bars connecting the arms of a cartload frame. In Racha maple along with linden was used to make cart whole wheels. Maple wood was used to make cover handles of "k'odi", a wooden vessel made of spruce timber and used to measure, store and transport food products such as dairy (the major purpose), cereals, etc. *A. platanoides* was the major tree species used to make local variety carts called "seli" in Adjara, where elm wood was also used for the same purpose but the latter mainly for wheel parts and "kopo", major bars connecting the arms of a cartload frame. Lek'is khe was considered a good material for "per-so", a quarter portion of a cartwheel by Adjarian artisans. Lek'is khe along with hornbeam, hop hornbeam, and beech was used to make runners as well as other parts of various types of sledges used in different parts of Adjara. According from ethnographic data from Imereti, lek'is khe was also used to make harnesses of a special low type of cart called "tushi" and used for transportation of "k'vevri", a big clay vessel used in vine production. In Racha maple along with linden was used to make cart whole wheels. As reported by the same author, in recent centuries in Adjara one "k'odi" corresponded to one "puti", an old unit of weight, which is about 16 kg. It is a very decorative and good honey plant. The wood is used for carpentry work for making plywood. A yellow dye is obtained from the leaves to coloring woolen cloth. Generally used for utensils and tools. Firewood, snowshoes. Armenia: wood for construction. Used for dyeing: A dye solution is prepared from bark and leaves to obtain yellow, green and beige colors. The wood is white, firm and hard. It is used for diversified mill works and as construction material, as well as for joinery and turning operations, and is used in furniture and vehicle-production for manufacture of musical instruments, shovels, and axes. (Bussmann et al. 2025a; Paniagua-Zambrana et al. 2025a; Wang & Bussmann 2020).

**Uses 1817 (Gmelin 1817):** Its properties and uses are like the previous one. The dried leaves provide good winter fodder for cattle and sheep. The young, tender leaves can be eaten as a salad. This tree should be planted and propagated in the valleys of mountain regions, where it thrives in clay soil mixed with sand, which would greatly benefit the important field of beekeeping. Several North American maple species are known, including *Acer dasycarpon*. Ehrh. and *Acer rubrum*. Linn. thrive in the Rhine, Neckar, and Main regions, are fast-growing, and should be planted there on a larger scale.

**Description and Ecology (Gmelin 1817):** This tree differs from the previous one (*Acer Pseudo-Platanus*) in that it has larger, smooth, five-lobed leaves on both sides, the lobes of which are serrated and pointed. The larger, yellowish-green flowers stand upright in umbels. The seeds have outward-curved wings. It grows here and there in wooded mountain regions and is often planted in pleasure gardens. It blooms in April and May. Its seeds ripen in August and September.

**Original German text Gmelin (Gmelin 1817):** Dieser Baum unterscheidet sich von dem vorhergehenden, durch größere auf beiden Seiten glatte, fünflappige Blätter, deren Lappen buchtig gezahnt und zugespitzt sind. Die größern gelblich-grünen Blüten stehen aufrecht in Doldentrauben. Die Samen haben auswärts gekrümmte Flügel. Wächst hie und da in waldigen Gebirgsgegenden, und ist häufig in den Lustanlagen angepflanzt. Blühet im April und May. Reifet seine Samen im August, September. Er kommt in Betracht seiner Eigenschaften und Benutzung mit dem vorigen überein. Die Blätter geben getrocknet eine gute Winterfütterung für Rindvieh und Schaaf. Die jungen zarten Blätter können als Salat verspeist werden. Dieser Baum, sollte in den Thälern der Gebirgsgegenden, wo er in einem mit Sand gemischten Thonboden trefflich gedeyet, bestens angepflanzt und vermehrt werden, wodurch vorzüglich die so wichtige Bienenzucht gar sehr gewinnen würde. Mehrere nordamerikanische Ahornarten als *Acer dasycarpon*. Ehrh. und *Acer rubrum*. Linn. kommen in den Rhein-, Neckar- und Maingegenden trefflich fort, sind von schnellem Wuchse, und sollten daselbst mehr im Großen angepflanzt werden.

***Acer pseudoplatanus* L.**

*Synonyms: Acer abchasicum* Rupr.; *Acer atropurpureum* Dippel; *Acer bohemicum* C.Presl ex Opiz.; *Acer dittrichii* Ortm.; *Acer erythrocarpum* Dippel; *Acer euchlorum* Dippel; *Acer fieberi* Opiz.; *Acer majus* Gray; *Acer melliodorum* Opiz.; *Acer montanum* Garsault; *Acer opizii* Ortmann ex Opiz.; *Acer opulifolium* Thuill.; *Acer procerum* Salisb.; *Acer pseudoplatanus* f. *albertsii* Schwer.; *Acer pseudoplatanus* f. *albomarmoratum* Pax; *Acer pseudoplatanus* f. *albovariegatum* (Hayne ex Loudon) Schwer.; *Acer pseudoplatanus* f. *annae* Schwer.; *Acer pseudoplatanus* f. *argutum* Schwer.; *Acer pseudoplatanus* f. *atropurpureum* Schwer.; *Acer pseudoplatanus* f. *aucubifolium* Schwer.; *Acer pseudoplatanus* f. *aureovariegatum* Schwer.; *Acer pseudoplatanus* f. *bicolor* Schwer.; *Acer pseudoplatanus* f. *brevialatum* Schwer.; *Acer pseudoplatanus* f. *complicatum* (H.Mort.) Schwer.; *Acer pseudoplatanus* f. *concovum* Schwer.; *Acer pseudoplatanus* f. *costorpinense* Schwer.; *Acer pseudoplatanus* f. *cruciatum* Schwer.; *Acer pseudoplatanus* f. *cupreum* Schwer.; *Acer pseudoplatanus* f. *discolor* Schwer.; *Acer pseudoplatanus* f. *dittrichii* (Ortm.) Schwer.; *Acer pseudoplatanus* f. *erythrocarpum* (Carrière) Schwer.; *Acer pseudoplatanus* f. *euchlorum* Späth ex Schwer.; *Acer pseudoplatanus* f. *flavescens* Schwer.; *Acer pseudoplatanus* f. *grandicorne* Borbás; *Acer pseudoplatanus* f. *handjeryi* (Späth ex Rehder) Geerinck; *Acer pseudoplatanus* f. *handjeryi* Schwer.; *Acer pseudoplatanus* f. *insigne* Schwer.; *Acer pseudoplatanus* f. *laetum* Schwer.; *Acer pseudoplatanus* f. *latialatum* (Pax) Pax; *Acer pseudoplatanus* f. *leopoldii* Schwer.; *Acer pseudoplatanus* f. *luteovirescens* Schwer.; *Acer pseudoplatanus* f. *lutescens* Pax; *Acer pseudoplatanus* f. *metallicum* Schwer.; *Acer pseudoplatanus* f. *neglectum* Schwer.; *Acer pseudoplatanus* f. *nervosum* Schwer.; *Acer pseudoplatanus* f. *nizetii* Schwer.; *Acer pseudoplatanus* f. *opizii* (Ortmann ex Opiz.) Schwer.; *Acer pseudoplatanus* f. *palmatifidum* Schwer.; *Acer pseudoplatanus* f. *pseudonizetii* Schwer.; *Acer pseudoplatanus* f. *purpurascens* Pax; *Acer pseudoplatanus* f. *purpureum* (Loudon) Rehder; *Acer pseudoplatanus* f. *quadricolor* Schwer.; *Acer pseudoplatanus* f. *rubromaculatum* Pax; *Acer pseudoplatanus* f. *sanguineum* Schwer.; *Acer pseudoplatanus* f. *serotinum* Schwer.; *Acer pseudoplatanus* f. *serratum* Schwer.; *Acer pseudoplatanus* f. *siculum* (Guss.) Borbás; *Acer pseudoplatanus* f. *spaethii* Schwer.; *Acer pseudoplatanus* f. *subparallelum* Borbás; *Acer pseudoplatanus* f. *tricolor* Schwer.; *Acer pseudoplatanus* f. *trilobatum* Schwer.; *Acer pseudoplatanus* f. *variegatum* (Weston) Rehder; *Acer pseudoplatanus* f. *vitifolium* (Tausch) Schwer.; *Acer pseudoplatanus* f. *worleei* Rosenthal ex Schwer.; *Acer pseudoplatanus* subsp. *villosum* (J.Presl & C.Presl) Parl.; *Acer pseudoplatanus* var. *acuminatum* Tausch; *Acer pseudoplatanus* var. *albovariegatum* Hayne ex Loudon; *Acer pseudoplatanus* var. *anomalum* Schwer.; *Acer pseudoplatanus* var. *coloratum* Pax; *Acer pseudoplatanus* var. *complicatum* H.Mort.; *Acer pseudoplatanus* var. *crispum* Schwer.; *Acer pseudoplatanus* var. *erythrocarpum* Carrière; *Acer pseudoplatanus* var. *fieberi* Pax; *Acer pseudoplatanus* var. *flava-variegatum* Loudon; *Acer pseudoplatanus* var. *laciniatum* Loudon; *Acer pseudoplatanus* var. *latialatum* Pax; *Acer pseudoplatanus* var. *longifolium* Loudon; *Acer pseudoplatanus* var. *macrocarpum* Spach; *Acer pseudoplatanus* var. *medium* Spach; *Acer pseudoplatanus* var. *microcarpum* Spach; *Acer pseudoplatanus* var. *nebrodense* Tineo ex Pax; *Acer pseudoplatanus* var. *purpureum* Loudon; *Acer pseudoplatanus* var. *quinquelobum* Schwer.; *Acer pseudoplatanus* var. *siculum* Guss.; *Acer pseudoplatanus* var. *subintegrilobum* Pax; *Acer pseudoplatanus* var. *subobtusum* DC.; *Acer pseudoplatanus* var. *subtrilobum* Schwer.; *Acer pseudoplatanus* var. *subtruncatum* Pax; *Acer pseudoplatanus* var. *ternatum* Schwer.; *Acer pseudoplatanus* var. *tomentosum* Tausch; *Acer pseudoplatanus* var. *triangulare* Schwer.; *Acer pseudoplatanus* var. *vitifolium* Tausch; *Acer purpureum* Dippel; *Acer quinquelobum* Gilib.; *Acer rafinesquianum* Dippel; *Acer villosum* C.Presl; *Acer wondracekii* Opiz; *Acer worleei* Dippel

**Original name (Gmelin 1817):** *Acer Pseudo-Platanus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 789. 790.

**German names and French names (Gmelin 1817):** Weisser Bergahorn, Großer Ahorn, Falscher Platanus, Eschen-Ahorn, Spille, Steinahre, Arle, Urle; Grand Erable, Sicomore, Faux Platane

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 192602** (Fig. 3); **192609** (Fig. 4)

**Botany and Ecology:** Tall tree with rough-looking, coarsely crenate and 5-lobed lvs, the lobes and teeth never sharply acuminate; fls yellowish-green, numerous in slender drooping panicles 6-15 cm; sep and pet subequal, 4-5 mm; disk extrastaminal; style deeply cleft; mericarps 3-4 cm, somewhat distended over the seed but not reticulate, the wings diverging at an angle of 60-90°; 2n=52. Native of Europe and w. Asia, occasionally escaped from cult May.



Figure 3. *Acer pseudoplatanus* L. - KR 192602

**Contemporary uses:** Used for diseases of the liver, kidneys and gastrointestinal tract: A water infusion and decoction of young leaves is used in jaundice, urolithiasis as well as diuretic, antiemetic and for tonic means. Pulverized and crushed fresh leaves are applied to purulent wounds and ulcers. The fruits have an antipyretic effect. A water infusion and decoction of young leaves, bark and fruits is applied for scurvy. The flowers are used for tea. Lek'is khe (*A. platanoides*) was the major tree species used to make local variety carts called "seli" in Adjara, where elm wood was also used for the same purpose but the latter mainly for wheel parts and "kopo", major bars connecting the arms of a cartload frame. Lek'is khe was considered a good material for "perso", a quarter portion of a cartwheel by Adjarian artisans. Lek'is khe along with hornbeam, hop hornbeam, and beech was used to make runners as well as other parts of various types of sledges used in different parts of Adjara. According from ethnographic data from Imereti, lek'is khe was also used to make harnesses of a special low type cart called "tushi" and used for transportation of "kvevri", a big clay vessel used in wine production. In Racha maple along with linden was used to make cart whole wheels. Maple wood was used to make cover handles of "k'odi", a wooden vessel made of spruce timber and used to measure, store and transport food products such as dairy (the major purpose), cereals, etc. Leaves used in baking bread, sap as beverage and added to soups and buds fermented. Sap as beverage. Fruits dried for tea. Fresh

*leaves put under baking bread; sap boiled into syrup or fermented into kvass. Sap and opening buds fermented, for soup and in beer. Sap used as food supplement. Armenia: Edible: sometime sap is used as sweet sirup. The flowers of Acer sp. are used for tea. All species are nectariferous and polliniferous plants. The trees have dark green crown and shining leaves. The plants are especially beautiful in spring during the period of flowering and in autumn when the leaves turn yellow-red. Light-demanding and frost-resistant tree species that need good soil. Grow well in the fresh, deep and fertile soils. Good for urban greenery and creation of parks and garden complexes. Georgia: Construction timber, fire-wood, snowshoes, tools. Georgia: It is a very decorative and good honey plant. The wood is used for carpentry work. Construction timber, snowshoes. (Bussmann et al. 2025a; Paniagua-Zambrana et al. 2025a; Wang & Bussmann 2020).*

**Uses 1817 (Gmelin 1817):** The young leaves, fresh and dried, are a good and plentiful fodder for cattle and pigs. The stronger trees, when drilled about a foot above the ground, yield several measures every 24 hours in spring and late summer, of a sweet, pleasant-tasting sap that thickens good vinegar and brandy through fermentation and, even before fermentation, produces a kind of sugar or manna. In Scotland and Ireland, the sap is used to make a pleasant, wine-like, healthy beverage. In England, this sap is also mixed with malt by brewers instead of water. These trees, which reach a considerable height and an age of several hundred years, should be well preserved, propagated, and replanted in the highly suitable higher mountain regions and valleys of the Black Forest and Switzerland. Just 30 years ago, I saw them in considerable numbers in the mountainous regions, but their numbers have been so reduced from year to year that only a few beautiful, tall, old trees are found there. The hard, white wood is highly sought after by carpenters and turners for joinery, inlays, rifle stocks, rollers, rolls, stamps, oil presses, plates, spoons, and other purposes. It also provides good coal. The flowers provide honey and wax to bees. It reproduces primarily through seeds and root shoots. It prefers slightly shaded, moist soil composed of weathered granite and clay.

**Description and Ecology (Gmelin 1817):** This beautiful and large tree has stalked, heart-shaped, five-lobed, unevenly serrated leaves, dark green and smooth above, and whitish-gray beneath, with felty ribs toward the ribs. The small flowers have a five-petaled, yellowish-green corolla and hang down in long clusters. The seeds are winged, with the wings curved inward like a horn. Grows primarily in mountain forests. Blooms in April and May. Its seeds ripen in July, August, and September.

**Original German text Gmelin (Gmelin 1817):** Dieser schöne und große Baum, hat gestielte, herzförmige fünfflappige, ungleich gesägte, oben dunkelgrüne glatte, und unten weißgraue, gegen die Rippen hin filzige Blätter. Die kleinen Blumen haben eine fünfblättrige gelblichgrüne Blumenkrone, und hängen in langen Trauben herab. Die Samen sind geflügelt. Die Flügel wie ein Horn einwärts gekrümmt. Wächst vorzüglich in Gebirgswaldungen. Blühet im April, May. Reifet seine Samen im Juli, August und September. Die jungen Blätter sind frisch und getrocknet, ein gutes und ergiebiges Futter für Rindvieh und Schweine. Die stärkern Bäume geben, wenn sie etwa einen Fuß über der Erde angebohrt werden, im Früh- und Späthjahr, alle 24 Stunden mehrere Maas, eines süßen angenehm schmeckenden Saftes, der einen guten Essig und Brandtewein durch die Gährung und auch vor der Gährung verdickt, eine Art von Zucker oder Manna giebt. Aus dem Saft bereitet man in Schottland und Irland, ein angenehmes weinartiges gesundes Getränke. Auch wird in England dieser Saft, anstatt des Wassers, mit dem Malze bei den Bierbauern vermischt. Diese Bäume, welche eine ansehnliche Höhe, und ein Alter von mehreren hundert Jahren erreichen, sollten in den für sie ganz geeigneten höheren Gebirgs-Gegenden, und Thälern des Schwarzwaldes und der Schweiz, bestens erhalten, vermehrt und nachgepflanzt werden. Noch vor 30 Jahren sahe ich sie in ziemlicher Menge, in den Gebirgsgegenden, wo sie aber von Jahr zu Jahr so vermindert wurden, daß man nur wenige schöne hohe alte Bäume daselbst antrifft. Das weiße harte Holz, wird von Schreibern und Drehern, zu Tischlerarbeiten, zum Einlegen, zu Gewehrschäften, zu Walzen, Rollen, Stempeln, Oelstampfen, Tellern, Löffeln, u.a.A. sehr gesucht, auch giebt es eine gute Kohle. Die Blüthen geben den Bienen Honig und Wachs. Seine Vermehrung geschieht vorzüglich durch Samen und Wurzelsprossen. Er liebt einen etwas beschatteten, feuchten Boden, der aus verwittertem Granit und Thon besteht.



Figure 4. *Acer pseudoplatanus* L. - KR 192609

#### ***Aesculus hippocastanum* L.**

*Synonyms:* *Aesculus asplenifolia* Loudon; *Aesculus castanea* Gilib.; *Aesculus hippocastanum* f. *beamanii* (C.K.Schneid.) Dole; *Aesculus hippocastanum* f. *pendula* (Puvill.) Rehder; *Aesculus hippocastanum* var. *argenteovariegata* Loudon; *Aesculus hippocastanum* var. *aureovariegata* Loudon; *Aesculus hippocastanum* var. *beamanii* C.K.Schneid.; *Aesculus hippocastanum* var. *flore-pleno* Loudon; *Aesculus hippocastanum* var. *incisa* Booth ex Loudon; *Aesculus hippocastanum* var. *pendula* Puvill.; *Aesculus hippocastanum* var. *variegata* Loudon; *Aesculus memmingeri* K.Koch; *Aesculus procera* Salisb.; *Aesculus septenata* Stokes; *Hippocastanum aesculus* Cav.; *Hippocastanum vulgare* Gaertn.; *Pawia hippocastanum* Kuntze

**Original name (Gmelin 1817):** *Aesculus Hippocastanum*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 129. 130.

**German names and French names (Gmelin 1817):** Roßkastanienbaum, Pferdcastanie; Maronier d'inde

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 214276 (Fig. 5).



Figure 5. *Aesculus hippocastanum* L. - KR 214276

**Botany and Ecology:** Trees to 30 m tall, to 2(-5) m d.b.h. Branchlets brown villous when young. Petiole 8-20 cm, glabrous; leaf blade 5-7-foliolate; leaflets sessile, abaxially green, oblanceolate, 10-25 × 5-12 cm, abaxially glabrous or with sparse whitish hairs, ferruginous tomentose (often densely so) at base and in axils of lateral veins, base cuneate, margin crenate-serrate with teeth crenulate-serrulate, apex acuminate to subcaudate; lateral veins in 18-25 pairs. Inflorescence glabrous or matted ferruginous villous and shortly whitish tomentose (whitish hairs mostly on pedicels); peduncle 2.5-5 cm; thyrsus conic or cylindric-conic, 10-30 cm, 6-10 cm wide at base; branches 2.5-5 cm, 4-12-flowered; pedicels 3-6 mm. Calyx 5-6 mm, abaxially tomentose. Petals 4 or 5, white, with red spots and a yellow (later brown) claw, equal, ca. 11 mm, abaxially sparsely whitish tomentose or glabrous. Stamens 5-8, 10-20 mm; filament villous; anther 1-1.3 mm. Style glabrous except at base. Capsule brown, globose or subglobose, 2.5-4 × 2.5-6 cm excluding prickles, prickly; prickles subulate, slightly curved, to 10

mm; pericarp 3-5 mm thick after drying. Seeds 1-3(-6), glossy chestnut brown, subglobose, 2-4 cm; hilum pale brown, occupying 1/3-1/2 of seed. Flowering May-June, fruiting September. (Wu *et al.* 1994-2013).

**Contemporary uses:** Tea used to treat respiratory ailments. Bark and seeds used externally for varicose veins, as anti-inflammatory, decongestive, astringent, hemostatic and for rheumatism. Fruits in alcoholic extract for foot and joint pain and to increase blood flow, and to remedy arthritis. Seeds in honey for jaundice. Bark decoction used as anti-inflammatory, decongestive, astringent, hemostatic; varicose, hemorrhoids, prostate adenoma. Seeds used as coffee substitute. Dried fruits ground into flour. Calendar use: when the horse chestnut flowers a second time in a year, this portends a long and severe winter. Wood for utensils, especially troughs, flowers as ornamental. (Paniagua-Zambrana *et al.* 2025b; Poudel *et al.* 2020).

**Uses 1817 (Gmelin 1817):** Horse chestnuts, when boiled, provide excellent fattening for cattle and pigs, and they can also be used to make a good brandy.

**Description and Ecology (Gmelin 1817):** This well-known tree, magnificent in bloom, is immediately recognizable from the true chestnut tree by its finger-like leaves. It originates from northern Asia and has been introduced to Europe for over 200 years. In the Rhine, Main, and Neckar regions, they can be found in clusters around towns and villages, or planted in avenues, also in forests, but especially in pleasure gardens, where they abound as a truly magnificent ornament. The oldest and most beautiful avenues of these trees can be seen in the castle garden at Rastadt. It blooms in May and June and ripens its large, glossy fruits in September and October.

**Original German text Gmelin (Gmelin 1817):** Dieser bekannte, zur Blüthezeit prachvolle Baum, ist sogleich an denen gefingerten Blättern vor dem ächten Kastanienbaume, zu erkennen. Er kommt aus dem nördlichen Asien, und ist bereits schon über 200 Jahre in Europa eingeführt. In den Rhein-, Main-, und Neckargegenden, findet man sie um die Städte und Dörfer mehrere Beysammen, oder in Alleen angepflanzt, auch in Waldungen, vorzüglich aber in den Lustgärten, Anlagen, wo sie in Menge als ganz vorzügliche Zierde prangen. Die ältesten und schönsten Alleen dieser Bäume sieht man im Schloßgarten zu Rastadt. Er blühet im May, Juni, und reifet seine großen glänzenden Früchten im September, October. Die Roßkastanien geben dem Rindvieh und den Schweinen, abgekocht, eine treffliche Mastung, auch kann aus ihnen ein guter Brandtwein bereitet werden.

#### **Agaricus campestris L.**

**Synonyms:** *Agaricus campestris* Scop.; *A. villaticus* Brond.; *A. campestris* var. *villaticus* (Brond.) Fr.; *A. campestris* var. *pratensis* J. Kickx; *A. campestris* var. *praticola* Vittad. ex Fr.; *A. campestris* var. *flavescens* J. Kickx; *A. setiger* Fr.; *A. campestris* var. *vaporarius* Krombh. ex Fr.; *A. campestris* var. *maximus* J. Drumm. ex Berk.; *A. campestris* var. *varius* J. Drumm. ex Berk.; *A. campestris* subsp. *robustissimus* Panizzi; *A. robustissimus* (Panizzi) Mussat; *A. campestris* var. *umbrinus* Fr.; *A. campestris* var. *cortinatus* Schulzer; *A. campestris* var. *albus* Peck; *A. campestris* var. *umbrinus* Peck; *A. campestris* var. *rufescens* Peck; *A. campestris* var. *buchananii* Peck; *A. campestris* var. *elongatus* Peck; *A. campestris* var. *desertorum* Pat; *A. campestris* f. *purpurascens* Britzelm.; *A. campestris* var. *americana* Speg; *A. campestris* var. *insignis* Scalia; *A. campestris* var. *majusculus* Peck; *A. campestris* subsp. *albus* Konrad & Maubl.; *A. campestris* var. *lilacinus* Pat. & R. Heim; *A. campestris* var. *squamulosus* (Rea) Pilát; *A. campestris* var. *equestris* (F.H. Møller) Pilát; *A. campestris* var. *isabellinus* (F.H. Møller) Pilát; *A. campestris* f. *substerilis* (F.H. Møller) F.H. Møller; *A. campestris* var. *fuscopilosellus* F.H. Møller; *A. campestris* f. *ferruginascens* Bohus; *A. campestris* var. *xanthodermatoides* Bohus; *A. campestris* var. *indicus* Atri, Saini & A.K. Gupta; *A. campestris* var. *singeri* Atri, Saini & A.K. Gupta; *A. campestris* var. *pleurocystidiatus* M. Kaur & Harw. Kaur.; *Amanita campestris* (L.) Roussel; *Fungus campestris* (L.) Kuntze; *F. setiger* (Fr.) Kuntze; *F. villaticus* (Brond.) Kuntze; *Hypophyllum campestre* (L.) Paulet; *Pratella campestris* (L.) Gray; *P. campestris* var. *villatica* (Brond.) Gillet; *P. setigera* (Fr.) Gillet; *P. campestris* var. *alba* Gillet; *P. campestris* var. *praticola* Gillet; *P. campestris* var. *lutescens* Gillet; *Pluteus campestris* (L.) Fr.; *Psalliota campestris* (L.) Quél.; *P. villatica* (Brond.) Gillet; *P. villatica* (Brond.) Bres.; *P. campestris* var. *villatica* (Brond.) Cheel; *P. arvensis* var. *villatica* (Brond.) Cleland & Cheel; *P. campestris* var. *setigera* (Fr.) Rick; *P. campestris* var. *praticola* (Vittad. ex Fr.) P. Kumm.; *P. campestris* var. *umbrina* (Fr.) Bres.; *P. campestris* var. *pachypus* Kobelt; *P. campestris* var. *squamulosa* Rea; *Psalliota flocculosa* Rea; *P. campestris* var. *nauseosa* Kill.; *P. campestris* f. *rugosa* Barsak.; *P. campestris* var. *equestris* F.H. Møller; *P. campestris* var. *fuscopilosella* F.H. Møller; *P. campestris* var. *isabellina* F.H. Møller; *P. campestris* f. *substerilis* F.H. Møller; *P. villatica* var. *roseola* Rick, Iheringia.

**Original name (Gmelin 1817):** *Agaricus campestris*. Linn. Sp. pl. - Schaeff. Fung. tab. 33. 96. - *Agaricus edulis*. Bulliard. tab. 137. u. 514.

**German names and French names (Gmelin 1817):** Gemeiner Champignon, Ehegürtel, Kuckenmucke; *Agaric comestible*

**Botany and Ecology:** The cap is 5-12 cm across, convex to broadly convex, occasionally nearly flat, whitish, smooth and glossy to fibrous to nearly wooly or scaly. Gills are free from the stem, deep pink becoming brown and then dark chocolate brown in maturity, crowded. The stem is 3-10 cm tall, 1-2 cm thick, cylindrical, more or less equal, sometimes tapering slightly to base, with a quickly collapsing white ring, not bruising yellow. The flesh is thick and white, rarely discoloring a pinkish wine color in wet weather. The spores are 5-9 X 4-6.5 µm, elliptic, brownish. On soils, in meadows, fields, lawns, and grassy areas (sometimes in fairy rings). Season: Spring, autumn.

**Contemporary uses:** *Edible when fresh. Kazbegi — “I gather Kama on meadows, growing up - they are often making up some kind of lines or circles”. Kakheti — “Kama is called also “Chamadan gora”, in our region there is a large meadow, where we often gather these mushrooms”. Mestia — “When I was a kid, my mother used to gather these mushrooms on meadows, then she minced them and salted them with a special svanetian salt — to make thus the mince of kubdari”. Kama is well known and probably most popular and recognizable mushroom in all regions of Georgia. (Jorjadze et al. 2025a).*

**Uses 1817 (Gmelin 1817):** One of the exceptionally tasty and valued edible mushrooms, which are prepared and eaten in many different ways in kitchens. They must be collected when they are not yet fully developed and are still spherical. To ensure they are always fresh year-round, they are grown in gardens on special manure beds, where they grow larger than those found outdoors. It does not have to be confused with the bulbous leaf mushroom, *Agaric bulbeux*, *Agaricus bulbosus*. Bulliard. Tab. 577, Tab. 2 and 108. - Schaeff. Fungi. Tab. 241., which has poisonous properties and is often found in the same places in forests. This mushroom is immediately distinguishable from our common mushroom by its perfect, bulbous, white bulge and narrow white leaflets. The cap is initially spherical, later semicircular, later flattened, smooth, shiny, often covered with warts, white, dirty-white, yellowish-green, or whitish-green.

**Description and Ecology (Gmelin 1817):** Grown singly or in groups. The stem is short, thick, bulbous at the base, full, white, smooth, with a distinct ring. The white cap is domed, smooth, rarely scaly. The leaves are free, light flesh-red or rose-red, eventually brown. The flesh is thick, firm, and white. Grows here and there in dry meadows, pastures, and forests, in summer and autumn.

**Original German text Gmelin (Gmelin 1817):** *Einzeln oder mehrere beisammen stehend. Der Strunck kurz, dick, unten knollig, voll, weiß, glatt, mit deutlichem Ring. Der weiße Hut gewölbt, glatt, seltener schuppig. Die Blättchen frey, hell fleisch- oder rosenroth, endlich braun. Das Fleisch dick, fest, weiß. Wächst hie und da auf trockenen Wiesen, Triften, und in Waldungen, im Sommer und Herbst. Gehört unter die vorzüglich schmackhaften und geschätzten eßbaren Schwämme, die auf mancherlei Art in den Küchen zubereitet und verspeist werden. Sie müssen eingesammelt werden, wenn sie sich noch nicht ganz entwickelt haben, und noch kugelig sind. Um sie das ganze Jahr über, immer frisch zu haben, werden dieselben in den Gärten auf besondern Mistbeeten gezogen, wo sie größer werden, als die, welche man im Freyen findet. Er muß nicht mit dem Knolligen Blätterschwamm. *Agaric bulbeux*. *Agaricus bulbosus*. Bulliard. tab. 577. tab. 2 und 108. - Schaeff. Fungi. tab. 241. welcher giftige Eigenschaften besitzt, und öfters in den Waldungen, an denselben Stellen vorkommt, verwechselt werden. Dieser unterscheidet sich sogleich von unserm gemeinen Champignon, durch eine vollkommene, bauchige, weiße Wulst, und schmale weiße Blättchen. Der Hut ist anfänglich kugelrund, nachher halbrund, späterhin flach gewölbt, glatt, glänzend, öfters mit Warzen versehen, weiß, schmutzig-weiß, gelblich-grün, weißgrün.*

#### ***Agaricus mouceron* Vittad.**

*Synonyms: Agaricus majalis* J.F. Gmel

**Original name (Gmelin 1817):** *Agaricus Mouceron*. - Bulliard. tab. 142.

**German names and French names (Gmelin 1817):** *Mousseron; Mousseron, Agaric Mousseron*

**Contemporary uses:** *Edible when fresh.*

**Uses 1817 (Gmelin 1817):** It has a pleasant flavor and is frequently eaten, especially in France. All leaf sponges which have a white leathery skin, a dry, firm white flesh, and a delicate flavor, are called mousserons by the French, and are considered great delicacies, among which this one, however, stands out and is the most valued.

**Description and Ecology (Gmelin 1817):** Grows solitary or often close together. The stem is thick, tomentose at the base, usually swollen, short, full, naked, white, 1-1.5 inches long. The ring and bulge are absent. The cap is initially spherical, then semicircular, raised, smooth, shiny, white, finally light brown, 1-2 inches wide. The leaflets are numerous, thin, whitish, finally

turning light brownish-ash gray. The flesh is thick, firm, and snow-white. Grows here and there frequently in dry, open mountain forests, on the ground, on cattle pastures, in hedges, on the edges of fields and paths, in spring and autumn.

**Original German text Gmelin (Gmelin 1817):** Einzeln oder oft nahe beisammen stehend. Der Strunck ist dick, am Grunde filzig, meistens aufgeschwollen, kurz, voll, nackt, weiß, 1 - 1½ Zoll lang. Ring und Wulst fehlen. Der Hut anfänglich kugelrund, dann halbrund, erhaben, glatt, glänzend, weiß, endlich hellbraun, 1 - 2 Zoll breit. Blättchen sehr viele, dünne, weißlich, endlich ins hellbräunlich-ashgraue gehend. Das Fleisch dick, fest, und schneeweiß. Wächst hie und da häufig in trocknen lichten Bergwaldungen, auf der Erde, auf Viehtriften, an Hecken, an den Rändern der Aecker und Wege, im Frühjahr und Herbst. Ist von einem angenehmen Geschmacke, und wird vorzüglich in Frankreich häufig verspeist. Alle Blätter-Schwämme welche eine weiße lederartige Haut, ein trockenes festes weisses Fleisch, und einen feinen Geschmack haben, werden von den Franzosen Mousserons genennt, und für große Leckerbissen gehalten, unter welchen jedoch dieser obenansteht, und am meisten geschätzt ist.

***Agaricus pseudomouceron* Bull.**

**Original name (Gmelin 1817):** *Agaricus pseudo-Mouceron*. Bulliard. tab. 528. fig. 11. und 144.

**German names and French names (Gmelin 1817):** *Edible when fresh*.

**Uses 1817 (Gmelin 1817):** This leaf sponge is sold in French kitchen markets under the name Mousseron pied-dur. Mouceron d'Automne but is less expensive than the genuine Mousseron and less valued due to its less tender flesh, yet it still has a very good flavor.

**Description and Ecology (Gmelin 1817):** Grows singly or together. The stem is somewhat thin, full, smooth, naked, white-yellow, light, brownish-yellow, sometimes reddish, erect, 1-1.5 inches long. The bulge and ring are missing. The cap is initially somewhat spherical, then semicircular, with a raised part, finally flat and depressed at the top, smooth, shiny, mostly pale whitish-yellow, or light brown, and then reddish-brown, 1.5-1-1.5 inches wide. The leaflets are widely spaced, sickle-shaped, free, broad, whitish-gray, yellowish-gray, and finally brownish. The flesh is somewhat thick, firm, and white. The dried stem is twisted like a rope. Grows very frequently on dry meadows, cattle pastures, along paths, grassy verges, and in forests on the ground in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzeln oder beisammen stehend. Der Strunck etwas dünne, voll, glatt, nackt, weiß-gelb, hell, bräunlich-gelb, manchmal ins röthliche gehend, aufrecht, 1 - 1½ Zoll lang. Wulst und Ring fehlen. Der Hut anfänglich etwas kugelrund, dann halbrund, mit einer Erhabenheit, endlich eben und oben eingedrückt, glatt, glänzend, meistens blaß weißgelblich, oder ins hellbraune, und ins röthlichbraune gehend ½ - 1 - 1½ Zoll breit. Die Blättchen stehen weit von einander ab. sind sichelförmig, frey, breit, weißlich-grau, gelblich-grau, endlich bräunlich. Das Fleisch etwas dick, fest, weiß. Wächst sehr häufig auf trockenen Wiesen, Viehtriften, an Wegen, Rainen, die mit Gras bewachsen sind und in Waldungen auf der Erde, im August, September, October. Der getrocknete Strunck ist wie ein Strick zusammengedreht. Dieser Blätterschwamm, wird in Frankreich unter dem Namen Mousseron pied-dur. Mouceron d'Automne auf die Küchenmärkte gebracht, ist aber geringer im Preise als der ächte Mousseron, und wegen seines weniger zarten Fleisches weniger geachtet, dennoch ist er von sehr gutem Geschmacke.

***Amanita caesarea* (Scop.) Pers.**

**Synonyms:** *Agaricus caesareus* Scop., *Agaricus clavatus* Batsch, *Agaricus aurantiacus* Bull., *Venenarius caesareus* (Scop.) Murrill, *Volvoamanita caesarea* (Scop.) E. Horak, *Fungus caesareus* (Scop.) Kuntze, *Amanita basii* Guzmán & Ram.-Guill., *Agaricus aureus* Batsch, *Agaricus aurantiacus* Bull., *Amanita aurantiaca* Gray

**Original name (Gmelin 1817):** *Agaricus caesareus*. Schaeff. Fungi. tab. 247. und tab. 258. - *Agaricus aurantiacus*. Bulliard. Champ. tab. 120. - *Amanita caesarea*. Pers.

**German names and French names (Gmelin 1817):** Kaiserling, Kaiserschwamm, Herrnpilz; Oronge vraie, Jaseran

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany prohibited

**Botany and Ecology:** The cap is 8-20 cm across, ovoid or hemispherical becoming expanded convex, clear orange-red, fading or ageing more yellowish, smooth and slightly viscid, finely lined at the margin. Gills are free and crowded, yellow. The stem is 8-14 cm tall, 2-4 cm thick, yellow with a large yellow pendulous ring which is often striate, the basal bulb is encased in a large, white bag-like volva. The flesh is white or whitish, distinctly yellow below the cap cuticle. The spores are 9-13 X 5-10 µm, broad elliptical, brownish. On soils, in mountain meadows (subalpine areas). Season: Summer, autumn. (Nakhutsrishvili 1986, 2007).

**Contemporary uses:** Considered one of the best of the edible fungi, usually when they are fresh. Imereti — “I hunt and gather these mushrooms (Niq’vi), although usually it’s hard to find them. But if the amount of them is quite large then I fry them in oil with onion. It’s also my favorite way to store mushrooms for the winter”, “Even if nobody will be able to find these mushrooms (Niq’vi) in the whole region of Imereti, in the Village Rtskhilati (Chiatura Municipality), however, I’m sure you will find them”. Racha — “When the amount of these mushrooms is quite large, we dry them, to store for the winter, because one of the good ways to keep mushrooms around is to dry them”. Guria — “At first Niq’vi is roundish, reddish, then becomes flat” (Ghlonti, 2016). Kartli — “Niq’vi is very rare in our region, although, I know that these mushrooms are very appetizing and taste wonderful”. Kakheti — “Sometimes you can find Niq’vi here, but in very small amount, this is the “King” of the mushrooms”, “Mainly Niq’vi can be found in Western Georgia, but there are a few places, where sometimes you can also find them here”. Niq’vi is well known in almost every region of Georgia and is considered by many as the most delicious and tasty mushroom. Niq’vi is often called the “King” of the mushrooms. (Jorjadze et al. 2025b).

**Uses 1817 (Gmelin 1817):** Because of its beauty and excellent taste, it is among the most excellent edible sponges. Even the ancient Romans highly valued it at their banquets. The illustration of this sponge by Bulliard is very good, but less true to life by Schaeffer. It must not be confused with the poisonous fly agaric, Oronge fausse. *Agaricus muscarius*. Linn. Sp. pl. - Schaeff. Fungi. tab. 27 and 28. *Agaricus pseudo-aurantiacus*. Bulliard. tab. 122. can be easily distinguished by its white stem, white leaves, and scarlet cap, often covered with white warts.

**Description and Ecology (Gmelin 1817):** Standing solitarily. The stem is round, thick, full, striped, whitish-yellow, bulbous at the base, with a distinct, membranous, flaccid bulge, and a ring at the end. The cap is initially egg-shaped, then flatter, depressed in the center, smooth, orange-colored or reddish-gold. The leaflets are very broad and sulfur-yellow. Grows on cattle pastures, heaths, in spruce forests, and other dry and elevated areas, on the ground, in early summer and in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzelstehend. Der Strunck rund, dick, voll, gestreift, weißgelb, am Grunde bauchig, mit deutlicher häutiger schlaffer Wulst, und gegen das Ende mit einem Ring versehen. Der Hut anfangs eiförmig, dann flacher, in der Mitte eingedrückt, glatt, pomeranzenfarbig, oder röthlich-goldfarben. Die Blättchen sehr breit, schwefelgelb. Wächst auf Viehtriften, Heiden, in Fichtenwäldern und andern trockenen und erhabenen Gegenden, auf der Erde, zu Anfang des Sommers, und im August, September und October. Er gehört wegen seiner Schönheit und Vortrefflichkeit des Geschmacks unter die vorzüglichsten eßbaren Schwämme. Schon die alten Römer, schätzten ihn bei ihren Gastmahlen sehr hoch. Sehr gut ist die Abbildung dieses Schwammes bei Bulliard, weniger naturgetreu bei Schaeffer. Er muß nicht mit dem giftigen Fliegenschwamme. Oronge fausse. *Agaricus muscarius*. Linn. Sp. pl. - Schaeff. Fungi. tab. 27. und 28. *Agaricus pseudo-aurantiacus*. Bulliard. tab. 122. verwechselt werden, welcher sich leicht durch den weißen Strunck, die weißen Blätter und den scharlachrothen, öfters mit weißen Warzen besetzten Hut von ihm unterscheidet.

#### ***Amelanchier ovalis* Medik.**

*Synonyms: Pyrus amelanchier* (L.) L.f.

**Original name (Gmelin 1817):** Amelanchier. Linn. Suppl. - Gmel. Flor. Badens. II. p. 391. - 393. - Jacq. Flor. Austr. tab. 300. - Mespilus Amelanchier. Linn. Sp. pl. - Pollich. Flor. Palatin. n. 475.

**German names and French names (Gmelin 1817):** Quandelbeerstrauch, Flühbirn, Felsenbirn, Leinenbirn, Fliegenbirn; Amelanchier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): No data - always rare in the region

**KR 223210** (Fig. 6)



Figure 6. *Amelanchier ovalis* Medik. - KR 223210

**Botany and Ecology:** Shrub or tree, usually 7 m, sometimes to 18 m high; leaves oval, acute or acuminate, thin, covered below in frondescence with soon disappearing rufous tomentum, rounded or cordate at base, serrulate; flowers in erect or slightly nodding rather sparse racemes; pedicels long, from 6 mm (the upper) to 2.5 mm (the lower), axis and pedicels initially hairy, later glabrous; hypanthium and lanceolate-triangular sepals usually devoid of pubescence from the very beginning; petals oblong, linear or spatulate; ovary apex glabrous; styles connate to the middle; fruits dark purple with glaucous bloom, with reflexed sepals at the apex. Often cultivated. (Yuzepchuk 1939).

**Contemporary uses:** *Ornamental*

**Uses 1817 (Gmelin 1817):** Its fruits taste pleasantly sweet, are juicy, nutritious, and healthy. A truly excellent, mild, and tasty oil can be made from the seeds. It always grows on sunny, dry, sterile, and highest rocks, which it often completely covers, and deserves to be used to its best advantage. It is easily propagated by roots and seeds. The flowers provide the bees with abundant and excellent honey, and in this respect alone it deserves every consideration.

**Description and Ecology (Gmelin 1817):** A 3- to 7-foot-tall shrub. The bark is brownish-ash-gray, smooth. The branches are alternate, long, and thin, the younger ones finely tomentose. The leaves are alternate, stalked, oval, blunt, with serrated edges, pleasantly green above, smooth, pale green below, reticulate, the younger ones finely tomentose. The leaf bases at the base of the petioles are narrow, lanceolate, acute, deciduous, brown, and finely hairy. The flowers are borne in simple 3- to 4- to 5-flowered racemes. The flower stalks are thickened toward the tip, finely hairy, and single-flowered. The calyx is five-lobed. The segments are equally wide, awl-shaped, and brown. The corolla has five petals. The leaves are linear-lanceolate, blunt, entire, white, and longer than the calyx. Dust paths 5. The fruits are pear-shaped, round, five-lobed, blackish-blue, juicy, the size of a pea. The seeds are round, smooth, brown. This charming shrub is found in abundance on the Kaiserstuhl in Breisgau, near Altbreysach, Burgheim, and Hohen-Limburg, on the rocks near Istein, in the Basel region: on the limestone cliffs near Dornach, Ramstein, Vogelberg, above Marienstein on the Kallen, Dietisberg, on Farnsburg, on the Jura, in Alsace near Hochfeld and Landskron, in the Palatinate on the rocks on the Donnerberg, in the Sponheim region on the high and steep clay slate cliffs on the Moselle, near Trarbach, Winnigen, and Coblenz. It blooms in April and May, and its fruits ripen in August.

**Original German text Gmelin (Gmelin 1817):** Ein 3 - 7 Fuß hoher Strauch. Die Rinde bräunlich-aschgrau, glatt. Die Aeste abwechselnd, lang und dünne, die jüngern feinfilzig. Die Blätter abwechselnd, gestielt, oval, stumpf, am Rande gesägt, oberhalb angenehm grün, glatt, unterhalb blaßgrün, netzförmig, die jüngern feinfilzig. Die Blattansätze am Grunde der Blattstiele, schmal, lanzettförmig, spitzig, abfallend, braun, feinhaarig. Die Blüthen in einfachen 3 - 4 - 5 blüthigen Traubendolden. Die Blumenstiele gegen die Spitze hin verdickt, feinhaarig, einblüthig. Der Blumenkelch fünfmal eingeschnitten. Die Abschnitte gleichbreit, pfriemenförmig, braun. Die Blumenkrone fünfblättrig. Die Blätter derselben linien-lanzettförmig, stumpf, ganz, weiß, und länger als der Kelch. Staubwege 5. Die Früchte birnförmig, rundlich, fünffächerig, schwarzblau, saftig, von der Größe einer Erbse. Die Samen eyrund, glatt. braun. Dieser niedliche Strauch wird am Kaiserstuhl im Breisgau, bei Altbreysach, Burgheim und Hohen- Limburg, auf den Felsen bei Istein, im Basler Gebiete : auf dem Kalkfelsen bei Dornach, Ramstein, Vogelberg, oberhalb Marienstein auf dem Kallen, Dietisberg, auf Farnsburg, am Jura, im Elsaß bei Hochfeld und auf Landskron, in der Pfalz auf den Felsen am Donnerberg, im Sponheimerschen auf den hohen und steilen Thonschiefer-Felsen an der Mosel, bei Trarbach, Winnigen, Coblenz in Menge angetroffen. Blühet im April und May, und reifet seine Früchten im August. Seine Früchten schmecken angenehm süß, sind saftig, nährend und gesund. Aus dem Samen kann ein ganz vorzügliches, mildes, schmackhaftes Oehl, bereitet werden. Er wächst immer auf den sonnenreichen, trockensten sterilen und höchsten ausgehenden Felsen, welche er nicht selten ganz überzieht, und verdient bestens benutzt zu werden. Er läßt sich durch die Wurzeln und Samen leicht vermehren. Die Blüthen geben den Bienen vielen und trefflichen Honig, und schon in dieser Hinsicht verdient er alle Beherzigung.

***Anacamptis morio* (L.) R.M.Bateman, Pridgeon & M.W.Chase**

**Synonyms:** *Herorchis morio* (L.) D.Tyteca & E.Klein; *Orchis morio* L.; *Orchis morio* f. *nana* Chenev. ex M.Schulze; *Orchis morio* f. *robustior* Chenev. ex M.Schulze; *Orchis morio* f. *velutina* (Schur) Paucă; *Orchis morio* var. *genuina* Cout.

**Original name (Gmelin 1817):** *Orchis Morio*. Linn. Sp. pl. - Gmel. Fl. Bad. III. p. 532. 534. - Oeder. Flor. Dan. tab. 253.

**German names and French names (Gmelin 1817):** Weibliches Knabenkraut, Weibliche Ragwurz, Salep-Orchis, Pickelhäring; *Orchis bouffon*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Highly threatened, strong decline

**KR 165730** (Fig. 7)

**Botany and Ecology:** Perennial; tubers globose, 0.6-1 (1.2) cm in diameter; stem (9) 10-25 (28) cm long, with 5-8 leaves at base and higher up, nearly right up to the spike, with 3 or 4 foliaceous acuminate sheaths; leaves linear-oblong or narrowly lanceolate, obtusely attenuate or obtuse, (2) 2.5-7 cm long, 0.5-1.7 cm broad; spike rather loosely (2) 4-19-flowered, 2-7.5 cm long, 2-3.5 cm in diameter; bracts lanceolate, lilac-tinged, acuminate, 1-1.5 (2) cm long, the lower 3-5 nerved and equaling the ovary; flowers spreading, violet-purple, the lip whitish at center with dark purple speckles; sepals commonly brownish-green outside at base, with veins of the same color, oblong-ovate, 6-9 (10) mm long, to 3.5-(4) mm broad, obtuse, 5-nerved; petals oblong, slightly shorter than petals; lip rounded-reniform or subreniform, 6-9 mm long, 9-13 mm broad, rather shallowly 3-lobed in fruit; median lobe slightly notched, obtuse, semiquadrate; spur slightly turned upward or subhorizontal, commonly as long as or just longer than the lip, 6-9 (9.5) mm long, obtuse, suffused with lilac-purple. May-June. Meadows and forest glades. (Komarov 1935).



Figure 7. *Anacamptis morio* (L.) R.M.Bateman, Pridgeon & M.W.Chase - KR 165730

**Contemporary uses:** All species are spasmolytic and tonic: The tubers are used against spasms, and as an anticonvulsant, and have tonic properties. The plants are a source of salep. All species are used to prepare soft drinks, and jelly is prepared from flour of boiled tuber. A concoction to improve appetite is prepared from the dried tuber. All species are decorative. (Mehdiyeva et al. 2017a; 2025a).

**Uses 1817 (Gmelin 1817):** The roots of this and some other *Orchis* species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** The tubers are rounded and arranged in pairs. The stem is 1/2 - 2 feet tall and upright. The leaves are alternate, stem-clasping, lanceolate, and entire. The flower spike has 6, 8, or 14 flowers. The flowers

are purple-red, rose-red, flesh-colored, white, and variegated. The lower lip is thrice incised, notched, and pinned. The spur is erect, blunt, the length of the ovary. Grows here and there in large numbers, especially on low-growing, but especially on sunny, somewhat dry mountain meadows, with many variations. It blooms in March, April, and May and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzelknollen zu zwey stehend, rundlich. Der Stengel  $\frac{1}{2}$  - 2 Fuß hoch, aufrecht. Die Blätter abwechselnd, stengel-umfassend, lanzettförmig, ganz. Die Blütenähre 6 - 8 - 14 blüthig. Die Blüten purpurroth, rosenroth, fleischfarben, weiß und bunt. Die Unterlippe dreymal eingeschnitten, gekerbt und gesteckt. Der Sporn aufrecht, stumpf, von der Länge des Fruchtknotens. Wächst hie und da in großer Menge, auf niederen vorzüglich aber auf sonnenreichen etwas trockenen Bergwiesen, mit mannigfaltigen Abänderungen. Blühet im März, April, May, und gehört unter die ausdauernden Pflanzen. Von den Wurzeln dieser, und einiger andern Orchis-Arten, kommt der in der Heilkunde bekannte, und nährende Salep. Die beste Zeit zur Ausgrabung dieser Wurzeln ist, nachdem sie verblühet haben. Die frisch gegrabenen und abgewaschenen Wurzeln, werden ohngefähr eine halbe Minute lang in siedend heisses Wasser gelegt, sodann herausgenommen, und die feine äussere Haut abgeschält, dann auf blechene Platten geschüttet, und acht bis zehn Minuten lang, nach Beschaffenheit der Größe der Wurzeln, in einen erhitzten Ofen gesetzt, hierauf herausgenommen, und auf demselben so lange stehen gelassen, bis sie so hart und spröde sind, daß man sie zu Pulver stoßen kann.

***Anchusa arvensis* (L.) M.Bieb.**

*Synonyms: Anchusa arvensis* subsp. *occidentalis* (Kusn.) Nordh.; *Buglossites arvensis* Bubani; *Echioides arvensis* Poir. ex Steud.; *Lycopsis arvensis* L.

**Original name (Gmelin 1817):** *Lycopsis arvensis*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 431. 432.

**German names and French names (Gmelin 1817):** Ackerkrumhals, Ackerochsenzunge, Ackerwolfsgesicht; Grippe des Champs

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 125338** (Fig. 8)

**Botany and Ecology:** An erect plant 15-40 cm tall. Stem solitary or few, striate, strigosely hairy with unequal hairs; longer ones up to 2 mm long, arising from a swollen base. Hairs on leaves similar. Basal leaves oblanceolate, obtuse, up to 10 cm long, with a  $\pm$  distinct petiole up to 30 cm long. Cauline and upper leaves subsessile to sessile, lanceolate to ovate-lanceolate, sometimes subacute, 30-100 x 7-30 mm, entire to undulate or subdenticulate. Bracts leafy, but smaller. Pedicels 3-4 mm long, up to 15 mm in fruit, hairy. Calyx 5-partite, c. 5 mm long, accrescent in fruit; lobes linear-lanceolate. Corolla blue, equaling or slightly exceeding the calyx; tube unequal, obtuse, scales of throat in 5 groups, densely papillose. Anthers c. 1 mm long, attached c. 2 mm from tube. Style 1.5 mm long. Nutlets c. 3, mm long, transversely ovoid, rugulose, tuberculate. Basal ring thick, minutely rugulose (Ali & Quaiser 1995-2020).

**Contemporary uses:** *Flowers are commonly used in Morocco to prepare infusions, which are then employed in the treatment of bone and joint problems. Young leaves are eaten as a vegetable. Bees collect the nectar. The alkannins of the roots yield a beautiful red dye but has mostly been replaced by Rubia tinctoria. The flowers yield green dye. Used as honey plant.* (Belkasmı et al. 2024a; Bussmann et al. 2025b; Paniagua-Zambrana et al. 2025c).

**Uses 1817 (Gmelin 1817):** This plant can be eaten as a vegetable and in salads in April, May, and June while it is still tender. It provides good fodder for cattle and, especially, for sheep on fallow fields.

**Description and Ecology (Gmelin 1817):** The root is somewhat spindle-shaped and white. The stem is 1 to 1.5 feet tall, erect, furrowed, and very rough. The leaves are alternate, stalkless, narrow, lanceolate, clasping the stem, exuberant, with small teeth, often wavy, and stiff-haired. Unilateral flower clusters are found at the end of the stems and branches. The calyxes are erect during flowering. The corolla is funnel-shaped and light blue. The flower tube is curved inward. It grows very frequently here and there in grain and fallow fields, along roads, and in vineyards, where it blooms throughout the summer, the seeds ripening in August and September, and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel etwas spindelförmig, weis. Der Stengel 1 bis 1½ Fuß hoch, aufrecht, gefurcht, sehr rauh. Die Blätter abwechselnd, stiellos, schmal, lanzettförmig, den Stengel umfassend, ausgeschweift, kleinzahlig, oft wellenförmig, steifhaarig. Am Ende der Stengel und Aeste, stehen einseitige Blumentrauben. Die Kelche zur

Blütezeit in die Höhe stehend. Die Blumenkrone trichterförmig, hellblau. Die Blumenröhre einwärts gekrümmt. Sie wächst hier und da sehr häufig auf Getreide- und Brachfeldern, an Wegen, und in den Weinbergen, wo sie den ganzen Sommer über blühet, die Samen im August und September reifet, und gehört unter die einjährigen Gewächse. Diese Pflanze kann so lange sie noch zart ist, im April, May und Juni als Gemüse und Salat verspeist werden. Sie giebt dem Rindvieh, und vorzüglich auf den Brachäckern den Schaafen, ein gutes Futter.



Figure 8. *Anchusa arvensis* (L.) M.Bieb. - KR 125338

#### ***Anthoxanthum odoratum* L.**

*Synonyms: Anthoxanthum alpinum* Schur; *Anthoxanthum asperum* W.Mann ex Opiz; *Anthoxanthum nebrodense* Lojac.; *Anthoxanthum odoratum* f. *montanum* A.Nyár.; *Anthoxanthum odoratum* f. *odoratum*; *Anthoxanthum odoratum* f. *tenerum* (Asch. & Graebn.) A.Nyár.; *Anthoxanthum odoratum* subsp. *odoratum*; *Anthoxanthum odoratum* subvar. *corsicum* Briq.; *Anthoxanthum odoratum* subvar. *foucaudii* Briq.; *Anthoxanthum odoratum* subvar. *marsillyanum* Briq.; *Anthoxanthum*

*odoratum* var. *altissimum* Eaton & Wright; *Anthoxanthum odoratum* var. *asperum* (Mann ex Opiz) Opiz; *Anthoxanthum odoratum* var. *bulgaricum* Velen.; *Anthoxanthum odoratum* var. *ciliatum* Grossh.; *Anthoxanthum odoratum* var. *corsicum* (Briq.) Rouy; *Anthoxanthum odoratum* var. *effusum* Gray; *Anthoxanthum odoratum* var. *glabrum* Lefèvre; *Anthoxanthum odoratum* var. *hirsutum* Legendre; *Anthoxanthum odoratum* var. *humile* Tinant; *Anthoxanthum odoratum* var. *kovarovicii* Opiz; *Anthoxanthum odoratum* var. *laxum* Wimm. & Grab.; *Anthoxanthum odoratum* var. *montanum* Asch. & Graebn.; *Anthoxanthum odoratum* var. *odoratum*; *Anthoxanthum odoratum* var. *opizii* Uechtr.; *Anthoxanthum odoratum* var. *paniculatum* Rchb.; *Anthoxanthum odoratum* var. *pilosum* Döll; *Anthoxanthum odoratum* var. *pubescens* Uechtr.; *Anthoxanthum odoratum* var. *pubiculmis* Rohlena; *Anthoxanthum odoratum* var. *ramosum* Hauskn.; *Anthoxanthum odoratum* var. *rigidum* Beauverd; *Anthoxanthum odoratum* var. *rothii* Opiz; *Anthoxanthum odoratum* var. *saxatile* Opiz; *Anthoxanthum odoratum* var. *semiglabrum* Schur; *Anthoxanthum odoratum* var. *sommierianum* (Ricci) Fiori; *Anthoxanthum odoratum* var. *subramosum* DC.; *Anthoxanthum odoratum* var. *tenerum* Asch. & Graebn.; *Anthoxanthum odoratum* var. *triaristatum* Beck; *Anthoxanthum odoratum* var. *umbrosum* Asch.; *Anthoxanthum odoratum* var. *verticillatum* Rohlena; *Anthoxanthum odoratum* var. *villosissimum* Freyn; *Anthoxanthum odoratum* var. *villosum* (Dumort.) Syme; *Anthoxanthum odoratum* var. *villosum* Loisel.; *Anthoxanthum odoratum* var. *vulgare* Alef.; *Anthoxanthum ovatum* var. *montanum* Asch. & Graebn.; *Anthoxanthum ovatum* var. *strictum* Asch. & Graebn.; *Anthoxanthum ovatum* var. *tenerum* Asch. & Graebn.; *Anthoxanthum pauciflorum* Adamovic; *Anthoxanthum pilosum* Döll; *Anthoxanthum sommierianum* Ricci; *Anthoxanthum villosum* (Loisel.) Tinant; *Anthoxanthum villosum* Dumort.; *Phalaris ciliata* Pourr.; *Xanthonanthos odoratum* (L.) St.-Lag.

**Original name (Gmelin 1817):** *Anthoxanthum odoratum*. Linn. Sp. pl. - Gmel. Fl. Bad. I.p. 55. 59. Schreber. Gräser. pag. 49. tab.5.

**German names and French names (Gmelin 1817):** Ruchgras, Gelbes Ruchgras, Wohlriechendes Ruchgras, Melilotengras; Flouve odorant

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Plant loosely tufted, sometimes rhizomatous. Culms 15-60(-100) cm tall, 1-3-noded. Leaf sheaths glabrous or loosely pilose, mouth glabrous or bearded; leaf blades flat, up to 12 cm, 2-7 mm wide, glabrous or loosely pilose, smooth or scabrid, apex acuminate; ligule 1-3 mm, obtuse. Panicle dense, spikelike, lanceolate to narrowly oblong in outline, 2-7(-10) × 0.4-1 cm; branches short; pedicels pubescent or glabrous. Spikelets lanceolate, 6-9 mm; glumes unequal, pubescent or punctiform-scabrid, margins sometimes ciliate, lower glume ca. 1/2 length of upper glume, 1-veined, upper glume subequal to spikelet, 3-veined; lower florets sterile, composed only of lemmas, 2.5-3.5 mm, pilose on back, apex 2-lobed, lobes short, obtuse; first lemma awned from near middle, awn straight, 2-4 mm; second lemma awned near base, awn geniculate, 7-9 mm; bisexual floret 2-3 mm, smooth, shiny; palea 1-veined; anthers 3-4.5 mm. Flowering and fruiting May-August (Wu *et al.* 1994-2013).

**Contemporary uses:** *It is used for shortness of breath and chest diseases. It is well eaten by cattle at a young age.* (Mehdiyeva *et al.* 2025b).

**Uses 1817 (Gmelin 1817):** Because of its exceptionally pleasant scent, which it spreads especially during haymaking, it is the flavor of hay and must be considered the best and most pleasant fodder for cattle, horses, and sheep. This grass should be gathered and dried, especially in wet seasons, when such poor fodder often grows in the meadows, or when it is scarce, in open fields and woodlands, especially in the so-called dark fields of the Hardwald forest and in the mountainous regions where it grows so abundantly. Thus, poor hay can be significantly improved in the simplest way by adding it to the mix.

**Description and Ecology (Gmelin 1817):** This grass is immediately distinguishable from all other wild grasses in our area by its two long stamens in each flower. It is one of the very early grasses, appearing as early as February, blooms in March, April, and later, and ripens its seeds in June and July. It is a perennial grass. It grows consistently in meadows, pastures, hills, mountains, fields, fallow land, and in open woodlands and clearings.

**Original German text Gmelin (Gmelin 1817):** Dieses Gras ist von allen bey uns wildwachsenden Gräsern, sogleich durch seine zwey langen Staubfäden, in jedem Blümchen zu unterscheiden. Es gehört unter die sehr frühe, schon im Februar zum Vorschein kommenden Gräser, blühet im März, April und späterhin, reifet seine Samen im Juni, Juli, und gehört unter die ausdauernden Gräser. Wächst durchgängig auf Wiesen, Weiden, Hügeln, Bergen, Feldern, Brachäckern, und in lichten Wäldern und Schlägen. Es ist wegen seinem ausgezeichnet angenehmen Geruche, den es vorzüglich bey dem Heumachen, verbreitet, die Würze des Heues, und muß als das beste und angenehmste Futter für Rindvieh, Pferde und Schaaf betrachtet werden. Dieses Gras sollte vorzüglich in nassen Jahrgängen, wo oft so schlechtes Futter, auf den Wiesen wächst, oder bei

Mangel desselben, in den lichten Schlägen und Waldungen, vorzüglich in den sogenannten Dunkelhieben des Hardwaldes und in den Berggegenden, wo es so häufig wächst, bestens eingesammelt und getrocknet werden. Damit kann das schlechte Heu, auf die einfachste Art, durch eine Beimischung desselben wesentlich verbessert werden.

### **Arctium lappa L.**

*Synonyms: Arcion majus* Bubani; *Arcion tomentosum* Bubani; *Arctium adhaerens* Gilib.; *Arctium bardana* Willd.; *Arctium chaorum* Klokov; *Arctium grandiflorum* Desf.; *Arctium lappa* Willd.; *Arctium lappa* subsp. *lappa*, *Arctium lappa* subsp. *majus* (Gaertn.) Arènes; *Arctium lappa* var. *lappa*, *Arctium majus* Bernh.; *Arctium minus* subsp. *nemosum* (Lej.) Syme; *Arctium ruderale* Salisb.; *Arctium vulgare* (Hill) Evans; *Arctium vulgare* Druce; *Bardana arctium* Hill; *Bardana lappa* Hill; *Lappa arctium* Hill; *Lappa glabra* Lam.; *Lappa major* Gaertn.; *Lappa nemorosa* Körn. ex Griewank; *Lappa officinalis* All.; *Lappa vulgaris* Hill; *Lappa vulgaris* var. *vulgaris*

**Original name (Gmelin 1817):** *Arctium majus*. Gmel. Flor. Badens. III. p. 354. 355.- Schkuhr. Bot. Handb. tab. 227.

**German names and French names (Gmelin 1817):** Große gemeine Klette, Gemeine Klette, Klettendistel. Klettwurz; Bardann, Glouteron

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Biennial. Plants 60-150 cm tall, reaching up to 3 m. Root branched, fleshy, thick, fusiform, up to 60 cm long. Stem erect, strong, longitudinally sulcate, often reddish; branches numerous, erect, spreading, covered with papilliform hairs mixed with glandular hairs, but mostly arachnoid-hairy. Leaves petiolate, broadly cordate-ovate, sparsely crenate toothed or entire, green and sparsely pubescent above, finely gray tomentose beneath with scattered yellowish glandular hairs; basal leaves up to 50 cm long, on ridged, tumid, more than 30 cm long petioles; cauline leaves abruptly reduced, uppermost somewhat cordate at base. Capitula borne sparsely in corymbose-racemose inflorescence, sometimes on peduncles up to 10 cm or longer, and almost at same height at tips of branches, globose, large, 13-20 mm wide excluding cusp, with cusps 20-35 mm long. Involucral bracts glabrous or weakly arachnoid-hairy; lower bracts lanceolate, carinate, 1-1.5 mm wide, weakly ciliate-toothed along margin, narrowed into linear-lanceolate, erect spiny tip; middle bracts appressed-pubescent; inner lanceolate, green, sometimes purple, pubescent, gradually narrowed into weak apical hook as long as or longer than floret. Corolla purple-red, abruptly narrowed into 5-6 mm long tube, limb 4-5 mm with 1.5-2 mm long lobes; apical appendage of anthers 0.2 mm long, narrow and pointed, basal appendages 0.75 mm long, simple or bifid. Achenes 6-6.5 mm long, 2.5-2.75 mm wide, narrow-obovate, with narrow areole, pappus attachment surrounded by four to six tubercles; achenes longitudinally ribbed, transversely rugose near upper end, to lesser extent, at lower end, grayish to brown, with zig-zag dark brown to almost black pattern; pappus 3-3.5 mm long. Flowering August-September. Ural, Caucasus, garbage dumps, near inhabited areas, along roads and fences, banks of rivers and rivulets, rarely in cultivated fields. (Shishkin and Boborov 1962).

**Contemporary uses:** *Georgia: Root decoction sometimes used as diuretic. The flowers have antibiotic properties, the leaves are used as anti-inflammatory, especially for arthritis, as well as antibiotic. Used as anti-inflammatory, to treat arthritis; Iran: The decoction and infusion of root and leaf are traditionally used to treat cardiovascular diseases, dermatology problems, against worms, sore throats, diuretics, cholagogues, depuratives, hypoglycemics, strengthen hair, blood purifier, diuretic, measles, rheumatism, acne, diabetes, cancer, cold and cough. As a poultice the flower, seed, root, and leaf are externally used for gout, snakebites, rheumatism, liver detoxification, acne, and relief of joint pains. The water infusion and fresh leaf along with fruits have medicinal properties and are used as laxatives, for the treatment of flatulence. The powder of the leaf is applied externally for wound healing. Arctium lappa L.: When boiled with sour milk, sorrel, vinegar, etc. inulin in finely chopped roots transforms into the sugar (laevulose). Thus, the roots can be used to make sweet puree. Dried and finely ground roots are used to make flour; 30% of burdock root flour can be added to wheat or rye flour to bake bread. Roots can be used to make coffee-like drink. Young shoots and leaves are used for food as salad or are put into borsch. Young shoots are eaten. The local population uses a variety of plants growing in wild for cooking mixed mkhali. There are several ways to season mkhali: 1. well-cleaned plants are placed in a pot and cooked without water. The cooked plants are placed on a sieve to cool and cut into pieces. After that the dish is seasoned with onions browned in clarified butter, eggs and salt. 2. After cooking the plants in the same way, fresh cottage cheese, onions browned in clarified butter, eggs and salt are added. 3. After boiling the mkhali is seasoned with vinegar, garlic and salt. Normally, in Tusheti mkhali is not seasoned with walnuts and vinegar. The raw roots of dzirkhvenai ძირკვნივი Arctium lappa L. are eaten. Arctium lappa L. and many others kept for winter woven in*

double braids and hung from a pillar to Wild pkhali plants can be cooked in various ways: can be pickled, boiled, seasoned with vinegar, walnuts and various spice herbs. The leaves are used in small amounts in Phkhali (herb pie), together with lots of other species. The stems can be pickled. Young roots are used for food raw or boiled in salted water and further prepared with butter and vinegar. When boiled with sour milk, sorrel, vinegar, etc. inulin in finely chopped roots transforms into the sugar (laevulose). Thus, the roots can be used to make sweet puree. Dried and finely ground roots are used to make flour; 30% of burdock root flour can be added to wheat or rye flour to bake bread. Roots can be used to make coffee-like drink. Young shoots and leaves are used for food as salad or are put into borsch. In Pshavi young shoots and the roots of dzirkhvina ძირხვენა *Arctium palladini* (Marcow.) R.E.Fr. & Soderb. and *Arctium platylepis* (Boiss. & Bal.) Sosn. ex Grossh. are eaten. In Khevsureti the local population uses a variety of plants growing in wild for cooking mixed mkhali, e.g. dzirkhvina ძირხვენა *Arctium lappa* L.; k'enk'asha კენკეშა *Campanula lactiflora* M. Bieb.- young, peeled shoots are used as food; tvitmavala თვითმავალა *Amaranthus retroflexus* L. grows in vegetable gardens and ruderal places the aboveground parts of the plant are harvested, boiled, mixed with clarified butter, onions, herbs and eaten; ckhenis sakhvremi ცხენის სახვრემი *Sonchus* ssp., mochik'ais t'ari მოჩიკაის ტარი *Campanula rapunculoides* L., mch'ivana მჭივანა *Silene wallichiana* Klotzsch. In Tusheti many herbaceous plants are used as food and are kept for winter, either dried or pickled, to make mixed mkhali and sauces, and to accompany the main dishes, including kumeli ქუმელი q'va ყვა. It is used all-year round, is made of roasted keru კერი (barley) grains. Can be made of ipkli იფკლი (Georgian endemic wheat), corn, svili სვილი (rye), kersvili კერსვილი (mixture of barley and rye) and tsetsvi ცეტსვი (faba bean, when mixed with corn: giera-i გიერა-ი *Brassica campestris* subsp. *oleifera* (DC.) Schübl. & Mart., gomati გომატი *Bunias orientalis* L., dutsi დუცი *Angelica tatianae* Bordz., kharnuq'a-i ხარნუყა-ი *Lactuca serriola* L., buera ბუერა *Petasites* ssp., shubq'a-i შუბყა-ი *Heracleum asperum* M. Bieb., khap'ara-i ხაპარა-ი *Cichorium intybus* L., mariamdzmara მარიამძმარა *Ligusticum alatum* (M. Bieb.) Spreng. ch'imi ჩიმი *Chaerophyllum bulbosum* L., diq'i დიყი *Heracleum* ssp., jork'uda-ი ჯორტუდა-ი *Artemisia vulgaris* L., sagvidzla საღვიძლა *Taraxacum officinale* (L.) Weber ex F.H. Wigg., dzirkhvina ძირხვენა *Arctium lappa* L., ch'ivana ჩივანა *Silene wallichiana* Klotzsch, kvishamkhala კვიშამხალა *Silene laera* (Stev.) Sims, khavrat'ai ხავრატაი *Capsella bursa-pastoris* (L.) Medik., jorik'udai ჯორიკუდაი *Artemisia vulgaris* L., and giera გიერა *Sinapis arvensis* L. There are several ways to season mkhali in Tusheti: 1. well-cleaned plants are placed in a pot and cooked without water. The cooked plants are placed on a sieve to cool and cut into pieces. After that the dish is seasoned with onions browned in clarified butter, eggs and salt. 2. After cooking the plants in the same way, fresh cottage cheese, onions browned in clarified butter, eggs and salt are added. 3. After boiling the mkhali is seasoned with vinegar, garlic and salt. Normally, in Tusheti mkhali is not seasoned with walnuts and vinegar. The raw roots of dzirkhvina ძირხვენა *Arctium lappa* L. are eaten in Tusheti. In Racha tiorshi თიორში, dilkhani დილხანი *Arctium lappa* L., mek'endzala მეკენძალა *Aruncus vulgaris* Raf., kalak'oda კალაკოდა *Arum orientale* M. Bieb. and *Humulus lupulus* L. and many others kept for winter woven in double braids and hung from a pillar to pillar, long as the song sung by women during the kalak'oda კალაკოდა (*Arum orientale* collection party). Plants mixed together for pkhali in Adjara include dvarula დვარულა დვალურა *Polygonum carneum* C. Koch, dondoli დონდოლი *Gadellia lactiflora* (M.Bieb.), ch'inch'ari ჩინჩარი *Urtica dioica* L., katamnatsara კათამნაცარა *Chenopodium album* L., ch'ich'laq'a ჩიჩლაყა *Amaranthus retroflexus* L., perapera ფერაფერა *Phytolacca americana* L., k'uk'umzhava კუკუმჯავა, svint'ri სვინტრი *Polygonatum* ssp., ch'arbadelo ჩარბადელო *Arctium lappa* L., and also young leaves of motsvi მოცვი *Vaccinium* ssp., venakhi ვენახი *Vitis vinifera* L., babuats'vera ბაბუასწვერა *Taraxacum* ssp., Kajiloja კაჯილოჯა *Daucus carota* L., Ts'its'marit'a წიწმარიტა *Capsella bursa-pastoris* (L.) Medik., burt'q'ila ბურტყილა *Lapsana. grandiflora* M. Bieb., the plants used by Adjara people as food are: ajark'ela აჯარკელა *Lathyrus roseus* Steven, ajorik'a აჯორიკას *Aruncus vulgaris* Raf. (young leaves are pickled), bobots'vera ბობოწვერა *Taraxacum* ssp. (ground roasted dry roots used instead of cichorium), dilq'a დილყა *Heracleum* sp. (shoots are peeled and eaten), k'onst'ant'ila კონსტანტილა (white roots are edible), ozaghina ოზაღინა *Chaerophyllum aureum* L. (young leaves are pickled), ghima ღიმა *Chaerophyllum bulbosum* L. (mixed with leek or ajorik'a აჯორიკა *Aruncus vulgaris* Raf. and pickled), and dvalura დვალურა *Polygonum carneum*. Wild pkhali plants can be cooked in various ways: can be pickled, boiled, seasoned with vinegar, walnuts and various spice herbs. All parts used in phkhali, eaten raw, lactofermented. Iran: The young stems, leaf and fruit are used as pickles. *Arctium lappa* L.: Good melliferous plants producing nectar and pollen. Leaves used to treat enuresis in children. Leaves and roots used to treat acne, eczema, skin infection, diffuse skin telangiectasia (hepatic diseases), purulent wounds, venereal diseases, hyperhidrosis, hypohydrosis, furuncle, eczema, skin infections (herpes, impetigo, anthrax), skin inflammation, furuncle, mouth diseases, alopecia, dry scalp seborrhea, chronic wounds and ulcerations, anti-inflammatory, anti-burning sensation, anti-infective, depurative, hemostatic, hair tonic, analgesic. For oral abscess, gum bleeding and as mouthwash. Flowers and roots boiled for hair care, leaves applied topically for headache. Seed tea for cough. Roots are used for digestive problems, sore throat and earaches, leaves for headache, root for sore throat. Leaves for back pain, bruises, foot ache, joint pain, knee ache, pain, rheumatic pains, tumors, wounds, roots for joint pain and hair problems. Decoction as expectorant, antitussive, emollient, diuretic, anti-

*inflammatory; digestive and renal disorders, cough, bronchitis, wounds, sores. Rhizomes, roots, bulbs, tuber eaten as vegetable. Leaves used for preparing sarma. Young stems eaten by children. Boiled as famine food. Eaten generally as snack or boiled vegetable. Young stems pickled. To treat fright, swelling in cows. Leaves ethnoveterinary medicine for abscess, diabetic nephropathy. Inflorescence as a child's toy, leaves as a pillow for Jesus, also to put under bread for baking. Roots dried and sold, used as coffee replacement.* (Bussmann et al. 2020a; 2025c; Kojimatov & Bussmann 2023a; Paniagua-Zambrana et al. 2025d)

**Uses 1817 (Gmelin 1817):** The young, tender root shoots or stems are peeled, cooked, and eaten like asparagus, in salads, or as a side dish.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, long, fibrous, blackish on the outside, whitish on the inside. The stems are 3-5 feet tall, thick, upright, striated and furrowed, hairy, and branched. The lower leaves are long-stalked, heart-shaped, entire, very large, with slightly wavy edges, dark green above, ash-gray below, veined, and somewhat hairy; the upper leaves are smaller, egg-shaped, and blunt. The flowers terminate in the stem and branches and are borne on single stalks. They are capitate, purple-red, rarely white. The calyxes are smooth and round, with hook-shaped scales at the tip. The seeds are pyramidal. The receptacle is flat and covered with chaff. Often grows along paths, hedges, fences, in fields, and on rubble heaps. It blooms in July and August. Its seeds ripen in September and October and is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel spindel-walzenförmig, lang, faserig, aussen schwärzlich, innen weißlich. Die Stengel 3 - 5 Fuß hoch, dick, aufrecht, gestreift-gefurcht, rauhaarig, ästig. Die untern Blätter lang gestielt, herzförmig, ganz, sehr groß, am Rande etwas wellenförmig, oben dunkelgrün, unten aschgrau, geadert, etwas rauhaarig; die oberen kleiner, eiförmig, stumpf. Die Blumen endigen den Stengel und die Aeste und stehen auf einzelnen Stielen, sind kopfförmig, purpurroth, selten weiß. Die Kelche glatt, rund, an der Spitze die Schuppen hackenförmig. Die Samen pyramidenförmig. Der Fruchtboden eben, mit Spreu bewachsen. Wächst häufig an Wegen, Hecken, Zäunen auf Aeckern und Schutthaufen. Blühet im Juli, August. Reifet ihre Samen im September, October, und gehört unter die zweyjährigen Gewächse. Die jungen zarten Wurzelsprossen oder Stengel werden abgeschält, gekocht, und wie Spargel, als Salat, oder als Zugemüße verspeist. Sie sollten bey Mangel bestens benutzt werden.

#### ***Aria edulis* (Willd.) M.Roem.**

*Synonyms: Aria alpina* M.Roem.; *Aria aria* (L.) Huth; *Aria majestica* Lavallée; *Aria nivea* Host; *Aria nivea* f. *cyclophylla* Beck; *Aria nivea* prol. *tomentosa* (Rouy & E.G.Camus) Bonnier; *Aria nivea* unr. *acutifolia* (Ser.) Gren.; *Aria nivea* unr. *latifolia* Gren.; *Aria nivea* var. *acutifolia* (Ser.) M.Roem.; *Aria nivea* var. *angustifolia* (Lindl.) M.Roem.; *Aria nivea* var. *bullata* (Lindl.) M.Roem.; *Aria nivea* var. *edulis* (Willd.) Koehne; *Aria nivea* var. *glabrata* (G.Kirchn.) Lavallée; *Aria nivea* var. *incisa* (Mutel) M.Roem.; *Aria nivea* var. *lanata* Lavallée; *Aria nivea* var. *latifolia* Lavallée; *Aria nivea* var. *longifolia* (Pers.) Gren.; *Aria nivea* var. *rugosa* (Lindl.) M.Roem.; *Aria nivea* var. *undulata* (Lindl.) M.Roem.; *Aria tomentosa* (Rouy & E.G.Camus) Bonnier; *Aria vulgaris* Decne.; *Aronia alpina* (M.Roem.) Dippel; *Aronaria alpina* (M.Roem.) Mezhenkyj; *Azarolus aria* (L.) Borkh.; *Chamaespilus aria* (L.) M.Roem.; *Crataegus alpina* Gray; *Crataegus aria* L.; *Crataegus pallida* Salisb.; *Hahnia aria* (L.) Medik.; *Hahnia aria* f. *aurea* Hesse ex Dippel; *Hahnia aria* unr. *carpinifolia* (J.R.Booth ex G.Kirchn.) Dippel; *Hahnia aria* unr. *glabrata* (G.Kirchn.) Dippel; *Hahnia aria* unr. *microphylla* Dippel; *Hahnia aria* unr. *vestita* Dippel; *Hahnia aria* var. *angustifolia* (Lindl.) Dippel; *Hahnia aria* var. *edulis* (Willd.) Dippel; *Lazarolus aria* (L.) Borkh.; *Malus aria* (L.) Risso; *Mespilus aria* (L.) Scop.; *Pyrenia aria* (L.) Clairv.; *Pyrus alpina* Willd.; *Pyrus aria* (L.) Ehrh.; *Pyrus aria* prol. *cyclophylla* (Beck) Asch. & Graebn.; *Pyrus aria* prol. *edulis* (Willd.) Asch. & Graebn.; *Pyrus aria* prol. *typica* Asch. & Graebn.; *Pyrus aria* subvar. *angustifolia* (Lindl.) Asch. & Graebn.; *Pyrus aria* subvar. *bellojocensis* (Gand.) Asch. & Graebn.; *Pyrus aria* subvar. *parvula* (C.K.Schneid.) Asch. & Graebn.; *Pyrus aria* unr. *elliptica* Ten.; *Pyrus aria* unr. *rosea* Tausch; *Pyrus aria* unr. *rotundifolia* Ten.; *Pyrus aria* var. *acutifolia* Ser.; *Pyrus aria* var. *angustifolia* Lindl.; *Pyrus aria* var. *bullata* Lindl.; *Pyrus aria* var. *incisa* (Mutel) Asch. & Graebn.; *Pyrus aria* var. *longifolia* (Pers.) Steud.; *Pyrus aria* var. *lutescens* G.Nicholson; *Pyrus aria* var. *rosea* Tausch ex Koehne; *Pyrus aria* var. *rugosa* Lindl.; *Pyrus aria* var. *silvestrii* Pamp.; *Pyrus aria* var. *sulphurea* G.Nicholson; *Pyrus aria* var. *undulata* Lindl.; *Pyrus carpatica* Asch. & Graebn.; *Pyrus crenata* K.Koch; *Pyrus edulis* Willd.; *Sorbaronia alpina* (M.Roem.) C.K.Schneid.; *Sorbus acutiloba* Gand.; *Sorbus alpina* Heynh.; *Sorbus ararica* Gand.; *Sorbus aria* (L.) Crantz; *Sorbus aria* f. *acutifolia* (DC.) Kárpáti; *Sorbus aria* f. *angustifolia* (Lindl.) Buia; *Sorbus aria* f. *aurea* (Hesse ex Rehder) Rehder; *Sorbus aria* f. *bullata* (Lindl.) Buia; *Sorbus aria* f. *carpinifolia* (J.R.Booth ex G.Kirchn.) Kovanda; *Sorbus aria* f. *chrysophylla* Hesse; *Sorbus aria* f. *cyclophylla* (Beck) Jáv.; *Sorbus aria* f. *incisa* (Mutel) Jáv.; *Sorbus aria* f. *longifolia* (Pers.) Rehder; *Sorbus aria* f. *lutescens* (Hartwig) Zabel; *Sorbus aria* f. *macrocarpa* Konovalov; *Sorbus aria* f. *magnifica* Hesse; *Sorbus aria* f. *matrensis* Soó; *Sorbus aria* f. *obtusa* Kárpáti; *Sorbus aria* f. *parvula* C.K.Schneid.; *Sorbus aria* f. *pendula* Konovalov; *Sorbus aria* f. *pseudocretica* Soó; *Sorbus aria* f.

*rotundata* Düll; *Sorbus aria* prol. *acutifolia* (Ser.) Rouy & E.G.Camus; *Sorbus aria* subsp. *carpinifolia* (J.R.Booth ex G.Kirchn.) Hedl.; *Sorbus aria* subsp. *cyclophylla* (Beck) Soó; *Sorbus aria* subsp. *edulis* (Willd.) Sved., Alm & Örtendahl; *Sorbus aria* subsp. *euaria* Hayek; *Sorbus aria* subsp. *incisa* (Mutel) Hedl.; *Sorbus aria* subsp. *lanifera* (A.Kern. ex Borbás) Jáv; *Sorbus aria* subsp. *longifolia* (Pers.) Hedl.; *Sorbus aria* subsp. *tomentosa* Rouy & E.G.Camus; *Sorbus aria* unr. *glabrata* W.D.J.Koch ex S.Schauer; *Sorbus aria* unr. *grandifolia* K.Koch; *Sorbus aria* unr. *obtusata* Gren.; *Sorbus aria* var. *acutifolia* (DC.) Jáv.; *Sorbus aria* var. *alnoides* Timb.-Lagr.; *Sorbus aria* var. *amplifolia* Rouy & E.G.Camus; *Sorbus aria* var. *angustifolia* Lindl.; *Sorbus aria* var. *arioides* (Godet) Timb.-Lagr.; *Sorbus aria* var. *aurea* Hesse ex Rehder; *Sorbus aria* var. *canescens* Legrand; *Sorbus aria* var. *carpatica* Soó; *Sorbus aria* var. *carpinifolia* J.R.Booth ex G.Kirchn.; *Sorbus aria* var. *cinerea* Timb.-Lagr.; *Sorbus aria* var. *concolor* Albov; *Sorbus aria* var. *cyclophylla* (Beck) C.K.Schneid.; *Sorbus aria* var. *denticulata* Waisb.; *Sorbus aria* var. *detrusa* Hedl. ex Issler; *Sorbus aria* var. *edulis* (Willd.) Wenz.; *Sorbus aria* var. *ellipticifolia* Timb.-Lagr.; *Sorbus aria* var. *glabra* Albov; *Sorbus aria* var. *incisa* Albov; *Sorbus aria* var. *incisa* Mutel; *Sorbus aria* var. *kamaonensis* Wall. ex Maxim.; *Sorbus aria* var. *lachnophylla* Murr; *Sorbus aria* var. *lanifera* A.Kern. ex Borbás; *Sorbus aria* var. *latifolia* (Gren.) Kárpáti; *Sorbus aria* var. *longifolia* Pers.; *Sorbus aria* var. *lutescens* Hartwig; *Sorbus aria* var. *microphylla* Timb.-Lagr.; *Sorbus aria* var. *obtusata* Gren.; *Sorbus aria* var. *ovoidea* Chabert; *Sorbus aria* var. *pseudomougeotii* Issler; *Sorbus aria* var. *sphaerica* Chabert; *Sorbus aria* var. *tomentosa* (Rouy & E.G.Camus) P.Fourn.; *Sorbus aria* var. *typica* C.K.Schneid.; *Sorbus arioides* (Godet) Michalet; *Sorbus arvernensis* Gand.; *Sorbus austriaca* subsp. *serpentina* Kárpáti; *Sorbus bellojocensis* Gand.; *Sorbus budaiana* Kárpáti; *Sorbus carpatica* (Soó) Kárpáti; *Sorbus carpinifolia* (J.R.Booth ex G.Kirchn.) Prain; *Sorbus chamaemespilus* var. *arioides* Godet; *Sorbus controversa* Gand.; *Sorbus edulis* (Willd.) K.Koch; *Sorbus glabrata* G.Kirchn.; *Sorbus globulifera* Hedl. ex Ridd.; *Sorbus huljakii* Kárpáti; *Sorbus incisa* (Mutel) Prain; *Sorbus longifolia* (Pers.) Prain; *Sorbus oblonga* Gand.; *Sorbus pallidifolia* Gand.; *Sorbus reverchonii* Gand.; *Sorbus scandica* subsp. *arioides* (Godet) Nyman; *Sorbus sphaerocarpa* Gand.; *Sorbus tomentosa* (Rouy & E.G.Camus) Issler; *Sorbus turbinata* Gand.

**Original name (Gmelin 1817):** Crataegus Aria. Linn. - Gmel. Flor, Badens. II. p.368. 369.

**German names and French names (Gmelin 1817):** Mehlbeerbaum, Mehlbaum, Weißlaub; Alisier commune, Alouge de Bourgogne, Drovillier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, but rare in the region

**KR 297621** (Fig. 9)

**Botany and Ecology:** Tree; leaves rounded- elliptic to elliptic, ovate-elliptic, or obovate- elliptic, gray-tomentose below, with 8-2 pairs of lateral veins, usually cuneately tapering downward, obtuse or acuminate (Yuzepchuk 1939).

**Contemporary uses:** Hungary: sweet, pulpy fruits eaten by children, herdsmen. Eastern Europe: fruits pickled; Czech Republic: jam. Croatia: eaten raw. Slovakia: dried for winter for food, added to vodka. Bulgaria: fruits mixed with flour. Italy: fruits eaten, dried, ground and added to bread dough, Georgia: Fruits eaten raw and fermented to distill alcohol. Balkans: wooden home goods, turnery, charcoal for gunpowder production. (Batsatsashvili et al. 2017a; Bindu et al. 2021; Bussmann et al. 2020b,c; 2025d; Paniagua-Zambrana et al. 2025e).

**Uses 1817 (Gmelin 1817):** The ripe berries, which it bears in abundance, are tasty, mealy, and pleasantly sweet, and are eaten primarily in the Black Forest and Switzerland. Through fermentation, they produce a very pleasant and strong brandy. This beautiful and beneficial tree deserves to be planted more frequently in the mountainous regions of the Black Forest. It is particularly suitable for side paths and roads leading over the higher forested mountains, where it grows excellently and contributes greatly to the beautification of the roads. The berries primarily attract larger songbirds, such as thrushes, blackbirds, thrushes, mistletoe birds, and thrushes, which become very fat and tasty from them. They also provide excellent fattening for pigs and poultry. The very hard wood does not warp and is particularly sought after for carpentry and turning. Propagation occurs primarily through cuttings and seeds.

**Description and Ecology (Gmelin 1817):** A medium-sized tree, 10-18-25 feet tall. The branches are alternate, upright. The leaves are alternate, stalked, ovoid, flat, doubly serrated, covered beneath with a fine white felt. The flowers are borne in flat, multi-flowered corymbs. The calyx is five to eight times incised, felty, and white. The corolla is white, with five to six petals, rounded, and blunt. The stamens are two to three. The berries are somewhat oblong-round, red, dusted with flour, and have two to three or four seeds. This beautiful tree grows in the middle and higher mountain regions and valleys, in the Rhine, Main, and Neckar regions, and frequently in the Black Forest, on Lake Constance, in Switzerland, and in the Vosges Mountains. It blooms in May and ripens its berries in September and October.



Figure 9. *Aria edulis* (Willd.) M.Roem. - KR 297621

**Original German text Gmelin (Gmelin 1817):** Ein Mittelmäßiger Baum, von 10 - 18 - 25 Fuß Höhe. Die Aeste abwechselnd, aufrecht. Die Blätter abwechselnd, gestielt, eyförmig, flach, doppelt gesägt, unterhalb mit weißem feinen Filze bedeckt. Die Blüten in flachen vielblüthigen Doldentrauben, ausgehend. Der Blütenkelch fünf bis schmal eingeschnitten, filzig, weiß. Die Blumenkrone weiß. fünf bis sechsblättrig, rundlich, stumpf. Staubwege 2 - 3. Die Beeren etwas länglich-rund, roth, mit Mehl bestreut, 2 - 3 - 4 samig. Dieser schöne Baum wächst in den mittlern und höhern Gebirgsgegenden und Thälern, in den Rhein-, Main- und Neckargegenden, und häufig im Schwarzwalde, am Bodensee, in der Schweiz und auf den Vogesen, blühet im May, reifet seine Beeren im September und October. Die reifen Beeren, welche er in Menge trägt, sind schmackhaft, mehlig und angenehm süß, und werden vorzüglich im Schwarzwalde und in der Schweiz verspeist. Sie geben durch die Gährung einen sehr angenehmen und starken Brandtewein. Dieser schöne und wohlthätige Baum, verdient in den

Gebirgsgegenden des Schwarzwaldes, häufiger angepflanzt zu werden. Er taugt vorzüglich an die Seitenwege und Straßen, welche über die höhern Waldgebirge führen, wo er von trefflichem Wuchse ist, und viel zur Verschönerung der Straßen beyträgt. Die Beeren ziehen vorzüglich die größern Singvögel, als Ringamseln, Amseln, Krammetsvögel, Mistler und Zierner an, die sehr fett und schmackhaft davon werden, auch geben dieselben eine treffliche Mastung für Schweine und Hausgeflügel. Das sehr harte Holz wirft sich nicht, und ist vorzüglich zu Schreiner- und Dreherarbeiten gesucht. Die Vermehrung geschieht vorzüglich durch Ableger und Samen.

#### ***Arum maculatum* L.**

*Synonyms:* *Arisarum maculatum* Raf.; *Arum alpinum* subsp. *pyrenaicum* (Dufour) Nyman; *Arum gracile* Unverr. ex Schott; *Arum heldreichii* Orph. ex Boiss.; *Arum immaculatum* Rchb.; *Arum italicum* var. *amoenum* Engl.; *Arum maculatum* f. *flavescens* (Melzer ex Janchen) Riedl; *Arum maculatum* f. *immaculatum* (Mutel) Topa; *Arum maculatum* f. *roseum* (Grembl. ex Engl.) Riedl; *Arum maculatum* f. *scolopendriforme* Priszter ex Horvat; *Arum maculatum* f. *spathulatum* Terpó; *Arum maculatum* f. *tetreltii* (Corb.) Terpó; *Arum maculatum* subsp. *pyrenaicum* (Dufour) Nyman; *Arum maculatum* var. *flavescens* Melzer ex Janch.; *Arum maculatum* var. *heldreichii* (Orph. ex Boiss.) Nyman; *Arum maculatum* var. *immaculatum* Rchb.; *Arum maculatum* var. *karpatii* Terpó; *Arum maculatum* var. *malyi* (Schott) Nyman; *Arum maculatum* var. *tetreltii* Corb.; *Arum maculatum* var. *vulgare* (Lam.) Engl.; *Arum maculatum* var. *zelebori* (Schott) Nyman; *Arum malyi* Schott; *Arum orientale* subsp. *amoenum* (Engl.) R.R.Mill; *Arum pyrenaicum* Dufour; *Arum trapezuntinum* Schott ex Engl.; *Arum vernale* Salisb.; *Arum vulgare* Lam.; *Arum zelebori* Schott

**Original name (Gmelin 1817):** *Arum maculatum*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 585-586. Curtis. Flor. Lond. tab. 114

**German names and French names (Gmelin 1817):** Gemeiner Aron, Aron, Zehrwurz, Magenwurz, Kalbsfuß, Deutscher Ingwer, Pfaffenpint; Pied de veau

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 200370** (Fig. 10)

**Botany and Ecology:** Perennial; tuber globular- flattened; leaf blade broadly hastate-cordate, about half as long to as long as the petiole, 7-7.5 cm in length, the lateral leaflets 2.4-4.4 cm, the blade often broader than long; spadix longer than long), dark brownish- purple, greenish-white at base; summit of spadix cylindrical (to 2 cm long), dark reddish- purple, shorter than to equaling its slender stalk. Flowering April-May. Ural, Caucasus, in shady *Fagus* and *Carpinus* forests. (Komarov and Shishkin 1935).

**Contemporary uses:** *In Georgia the leaf extract is used for cancer treatments. In the Caucasus the young for herb stew, for soups and salads, and the tubers dried and ground as flour. The plants are toxic and cannot be eaten without processing. Fresh tuber-like rhizomes of Araceae are very poisonous but boiling and drying removes poison and they are used for food to grind as flour. In Northern Armenia young leaves of A. orientale are dried and shortly boiled; broth is removed to remove bitter taste, and leaves are further boiled to make souse of soup. The product is highly valued by population as a delicacy. Georgia: Stems are pickled and used for pkhali. Needs to be dried because it is not edible raw. It is braided while raw and hung to dry, then prepared as follows: put in a boiling water. After, barley flour is added, and seasoned with coriander, mint and salt and kept for winter woven in double braids Leaves and young shoots used in Phkhali (herb pie). Used as a broom. Used ritually in the spring festival in Albania.* (Bussmann et al. 2019a; 2025e).

**Uses 1817 (Gmelin 1817):** Although the fresh roots and leaves of this plant, when tasted, produce a burning and pungent taste on the tongue, they completely lose this quality when dried in a heated oven. When ground into powder and boiled in water, they yield a very mild, sweet, tasty, mucilaginous, nourishing substance. The tubers taken from older plants can be almost entirely converted into starch. Therefore, like other species of this genus, it deserves to be used as food by foreign peoples during shortages in our region. According to Bergius' experiments, soups made from the older, mealy roots are as tasty as sago soup and wheat porridge. In France, hair powder was made from it. In England, a kind of soap is made from the root and used for washing. Since it is very common in the Rhine, Main, Neckar, Pfalz and Enz regions in moist, shady forests and on the edges of these, it should be used in cases of scarcity and further experiments should be carried out with it on flour.



Figure 10. *Arum maculatum* L. - KR 200370

**Description and Ecology (Gmelin 1817):** The root is tuberous, round, fibrous, white, and fleshy. The root leaves are stalked, spear-shaped, entire, green, sometimes marked with black or ash-gray spots. The perennial flower sheath is whitish inside, pale green outside, erect. The spadix is purplish-red, erect. The berry is spherical, single-lobed, bright red. Grows in moist, shady woodlands and their edges, also along paths and in damp bushes, occasionally very frequently. It blooms in June and July. Its berries ripen in August and September and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel knollig, rundlich, faserig, weiß, fleischig. Die Wurzelblätter gestielt, speißförmig, ganz, grün, zu Zeiten mit schwarzen oder aschgrauen Flecken bezeichnet. Die bleibende Blumenscheide innen weißlich, außen blaßgrün, aufrecht. Der Kolben purpurröthlich, aufrecht. Die Beere kugelförmig, einfächerig, hochroth. Wächst in feuchten schattigen Waldungen und am Rande derselben, auch an Wegen, in feuchtem Gesträuche, hie und da sehr häufig. Blühet im Juni, Juli. Reifet ihre Beeren im August, September, und gehört unter die ausdauernden Gewächse. Obgleich die frischen Wurzeln und Blätter dieser Pflanze, wenn sie gekostet werden, einen brennenden und stechenden Geschmack auf der Zunge erregen, verlieren erstere durch das Austrocknen derselben, in einem geheitzten Backofen, diese Eigenschaft

ganz, und geben, wenn man sie alsdann zu Pulver stößt, und im Wasser kocht, eine ganz milde, süßliche, schmackhafte, schleimigmehlige, nährende Substanz. Die von ältern Pflanzen genommenen Knollen, lassen sich beynahe ganz in Stärkemehl umschaffen. Sie verdiente daher, so wie andere Arten dieser Gattung, bei fremden Völkern, bei Mangel in unsern Gegenden, als Nahrung angewendet zu werden. Die aus den ältern und mehligten Wurzeln gekochten Suppen, sind nach Bergius Versuchen, so schmackhaft, als die Sagosuppen, und der Weizenbrey. In Frankreich wurde Haarpuder daraus verfertigt. In Engeland macht man aus der Wurzel, eine Art von Seife, und braucht sie zum Waschen. Da sie sehr häufig in den Rhein-, Main-, Neckar-, Pfalz- und Enz-Gegenden in feuchten schattigen Waldungen und am Rande derselben vorkommt, sollten allerdings, dieselben bei Mangel benutzt, und auch weitere Versuche, auf Mehl damit angestellt werden.

### ***Astragalus glycyphyllos* L.**

*Synonyms: Astragalus glycyphyllos* subsp. *glycyphyllos*; *Astragalus glycyphyllos* var. *rotundifolius* Čelak.; *Astragalus lunatus* Gilib.; *Astragalus rotundifolius* Presl ex Steud.; *Hamosa glycyphyllos* (L.) Medik.; *Hedyphylla glycyphylla* (L.) Rydb.; *Hedyphylla vulgaris* Steven; *Tragacantha glycyphyllos* (L.) Kuntze

**Original name (Gmelin 1817):** *Astragalus glycyphyllos*. Linn. Sp. pl. - Gmel. Fl. Badens. III. p. 214. 215.

**German names and French names (Gmelin 1817):** Wildes Süßholz, Süßblättriger Astragal, Steinwicken, Wolfswicken; Astragale reglisier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 178060** (Fig. 11)

**Botany and Ecology:** Coarse perennial from a stout taproot; stems decumbent or procumbent, 30-100 cm; stipules foliaceous; leaves 9-15, oval, 1-4.5 cm, glabrous or nearly so, peduncles 2-4(-8) cm, shorter than the subtending leaf; ochroleucous, 11-14 mm; fruit incurved- ascending, bilocular, glabrous, linear, 3-4 cm, on a stipe 2-4 mm. (Komarov and Shishkin 1946).

**Contemporary uses:** Sometimes used as forage (Busmann *et al.* 2025c).

**Uses 1817 (Gmelin 1817):** The sweet-tasting leaves are eagerly eaten by cattle, horses, pigs, sheep, and goats, providing them with a pleasant and healthy fodder, both fresh and dried. It deserves to be cultivated and propagated as a beneficial and productive fodder plant, especially on the rugged, sunny, steep limestone hills covered with sparse hedges in Baden, Württemberg, and Switzerland. This can be done very easily through root suckers and seeds. Its cultivation is particularly recommended on the slopes of steep hills, above vineyards, and in hollow alleys, as its widely spreading roots hold the little soil firmly in place, preventing it from being easily washed down into the vineyards during heavy rain.

**Description and Ecology (Gmelin 1817):** The root is creeping. The stems are 3-4 feet long, stretching along the ground, round, segmented, smooth, somewhat thick, and branched. The branches are alternate. The leaves are alternate, large, and pinnate. The leaflets are slightly sessile, opposite or alternate, 11-13 in number, oval, blunt, entire, pale gray beneath, and awned. The leaf bases are oval, pointed, entire, or slightly toothed, and large. The flowers are borne in racemes on single, furrowed stalks, which arise from the leaf axils. The corollas are pale yellow. The pods are arched, triangular, furrowed beneath, smooth, and multi-seeded. The seeds are kidney-shaped. Grows frequently here and there in the Rhine, Main, Danube, and Neckar regions, on limestone and limestone-marl hills covered with some shrubs, in light grassy forests and on their edges, above and near vineyards in Baden, Württemberg, on Lake Constance, in Switzerland, and in Alsace. It blooms in June and July. Its seeds ripen in August and September, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weit und breit kriechend. Die Stengel 3 - 4 Fuß lang, auf der Erde hingestreckt, rund, gegliedert, glatt, etwas dick, ästig. Die Aeste abwechselnd. Die Blätter abwechselnd, groß, gefiedert. Die Blättchen etwas aufsitzend, gegenüberstehend oder abwechselnd 11 - 13 an der Zahl, eyrund, stumpf, ganz, unten fahlgrau, begrannt. Die Blattansätze eyrund, zugespitzt, ganz, oder etwas gezahnt, groß. Die Blüthen auf einzelnen gefurchten Stielen, welche aus den Achseln der Blätter kommen, in Trauben stehend. Die Blumenkronen blaßgelb. Die Hülsen bogenförmig, dreyeckig, unten gefurcht, glatt, vielsamig. Die Samen nierenförmig. Wächst in den Rhein-, Main-, Donau- und Neckargegenden hie und da häufig, auf Kalkstein- und Kalkmergel-Hügeln, welche mit etwas Gesträuche bewachsen sind, in lichten grasigen Waldungen, und am Rande derselben, oberhalb und neben den Weinbergen im Badischen, Würtenbergischen, am Bodensee, in der Schweiz, und im Elsaß. Blühet im Juni, Juli. Reifet seine Samen im August,

September, und gehört unter die ausdauernden Gewächse. Die süßschmeckenden Blätter werden von dem Rindvieh, den Pferden, Schweinen, Schaafen und Ziegen begierig gefressen, und geben demselben, frisch und getrocknet ein angenehmes und gesundes Futter. Sie verdiente vorzüglich auf den rauhen, sonnenreichen mit sparsamen Hecken bewachsenen steilen Kalksteinhügeln im Badischen, Württembergischen und in der Schweiz, als wohlthätige und ergiebige Futterpflanze angebaut und vermehrt zu werden, was sehr leicht, durch Wurzelasläufer und Samen geschehen kann. Ihr Anbau ist vorzüglich am Abhänge steiler Hügel, oberhalb den Weinbergen und an den Hohlwegen bestens zu empfehlen, indem durch die sich weit verbreitenden Wurzeln, die wenige Erde fest gehalten wird, und dadurch bei Schlagregen, nicht so leicht in die Weinberge herabgeschwemmt wird.



Figure 11. *Astragalus glycyphyllos* L. - KR 178606

**Berberis vulgaris L.**

**Synonyms:** *Berberis abortiva* P.Renault; *Berberis acida* Gilib.; *Berberis aethnensis* Bourg. ex Willk. & Lange; *Berberis alba* Poit. & Turpin; *Berberis angulizans* hort.; *Berberis apyrena* hort. ex K.Koch; *Berberis arborescens* hort. ex K.Koch; *Berberis articulata* Loisel.; *Berberis asperma* Poit. & Turpin; *Berberis aurea* Tausch; *Berberis bigelovii* Schrad.; *Berberis corallina* hort.; *Berberis dentata* Tausch; *Berberis dentata* var. *capitata* Tausch; *Berberis dulcis* hort. ex K.Koch; *Berberis dumetorum* Gouan; *Berberis edulis* hort. ex K.Koch; *Berberis elongata* hort.; *Berberis globularis* hort. ex Lavallée; *Berberis hakodate* hort. ex Dippel; *Berberis heterophylla* hort. ex K.Koch; *Berberis innominata* Kielm.; *Berberis irritabilis* Salisb.; *Berberis jacquinii* hort. ex K.Koch; *Berberis latifolia* Poit. & Turpin; *Berberis marginata* hort. ex K.Koch; *Berberis maxima* hort.; *Berberis maximowiczii* Regel; *Berberis microphylla* F.Dietr.; *Berberis mitis* Schrad.; *Berberis nepalensis* hort. ex K.Koch; *Berberis nitens* Schrad.; *Berberis obovata* Schrad.; *Berberis orientalis* Schneider; *Berberis pangharengensis* hort.; *Berberis pauciflora* Salisb.; *Berberis racemosa* Stokes; *Berberis rubra* Poit. & Turpin; *Berberis sanguinea* hort. ex K.Koch; *Berberis sanguinolenta* hort. ex K.Koch; *Berberis sibirica* hort. ex Schult.f.; *Berberis sieboldii* hort. ex Dippel; *Berberis sulcata* K.Koch & C.D.Bouché; *Berberis sylvestris* Poit. & Turpin; *Berberis violacea* Poit. & Turpin; *Berberis vulgaris* f. *vulgari*; *Berberis vulgaris* subsp. *cantabrica* Rivas Mart., T.E.Díaz, Fern.Prieto, Loidi & Penas; *Berberis vulgaris* subsp. *orientalis* (Schneid.) Takht.; *Berberis vulgaris* var. *acutifolia* (Prantl) C.K.Schneid.; *Berberis vulgaris* var. *alba* DC.; *Berberis vulgaris* var. *alpestris* Rikli; *Berberis vulgaris* var. *apyrena* Schrad.; *Berberis vulgaris* var. *asperma* Willd.; *Berberis vulgaris* var. *flava* Schrad.; *Berberis vulgaris* var. *ilicifolia* Schult.f.; *Berberis vulgaris* var. *innominata* Schult.f.; *Berberis vulgaris* var. *lutea* DC.; *Berberis vulgaris* var. *nigra* DC.; *Berberis vulgaris* var. *orientalis* (C.K.Schneid.) Grossh.; *Berberis vulgaris* var. *orientalis* Papava; *Berberis vulgaris* var. *purpurea* DC.; *Berberis vulgaris* var. *purpurifolia* Ahrendt; *Berberis vulgaris* var. *rubra* Willd.; *Berberis vulgaris* var. *sanguinea* Schrad.; *Berberis vulgaris* var. *serotina* Schrad.; *Berberis vulgaris* var. *sulcata* Ahrendt; *Berberis vulgaris* var. *violacea* Willd.

**Original name (Gmelin 1817):** *Berberis vulgaris*. Linn. Sp. pl. - Gmel. Fl. Bad. I. p. 90. - 92.

**German names and French names (Gmelin 1817):** Gemeiner Sauerach, Sauerdorn, Essigdorn, Berberizenstaude, Berbisbeere, Weinnägelein, Erbsel, Erbsele; Epinevinette

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 98151** (Fig. 12); **98152** (Fig. 13); **98153** (Fig. 14)

**Botany and Ecology:** Deciduous shrubs up to 3 m tall. Stems long, with short branches bearing spines. Bark of second year stems smooth and gray in color. Bud scales fall off early. Leaves simple, usually obovate with one midvein and with short petioles, margins flat with shallow teeth tipped with small spines. Flowers in a raceme disposed from short shoots with 10-20 flowers each; anther filaments lack curved teeth. Berries are red to purple, round, juicy and solid. Mainly under cultivation. Found throughout the Caucasus, Central Europe, Mediterranean, the Balkans, Russia and Central Asia. Introduced to North America. Flowers and fruits from May to June. *Berberis vulgaris* is an important food for many small birds, which disperse the seeds in their droppings. The species is the alternate host species of the wheat rust fungus (*Puccinia graminis*), a grass-infecting rust fungus that is a serious fungal disease of wheat and related grains. In steppe shrubs, fringes, steppes and meadow-steppes, from lower to upper mountain belts, on the altitude 700-2200 m. Flowers from May to July, fruits from June to September. Distributed Grows from lowlands to middle mountain belts. Found in forests, on edges of forests, in shrubs and gravel. Flowering in April-May, fruiting in June-September. Forests, forest edges, ravines from lower to upper mountain zone. (Shishkin and Boborov 1937).

**Contemporary uses:** Armenia: Leaves contain vitamin A, leaves and fruits - vitamin C. In medieval Armenian medicine a decoction of the root bark used to treat eye diseases, as well as to strengthen the teeth and to treat ulcers in the intestine. In folk medicine the aqueous and alcohol infusion of leaves is used as a styptic and sudorific, as well as for the treatment of diseases of the kidneys, liver and ureter. Azerbaijan: Diseases of cardiovascular system: A decoction and infusion from leaves and fruits are used in heart pains and fast heartbeat as sedative. An infusion of fruit is prepared in salted water (until the color changes) and is used in jaundice and other diseases. The fruits are used for the same purpose. Infusion fruits and a thick decoction of the bark are applied as sedative and analgesic in rheumatism. The infusion of fruits and a thick extract of the bark are used as sudorific in cases of malaria and fever. An infusion of roots is used in hypoxemia of stomach, and the fruits serve as antidiarrheal. The infusions of bark and fruits are used to decrease blood sugar in diabetes. The infusion of the bark of branches and stems is used in angina as gargle and as antitubercular, as well as applied externally as anti-inflammatory agent in diseases of the eyes. The fruits are anastaltic. Georgia: In ancient manuscripts of Akhalsikhe this plant is mentioned as *ბარბარისი* - *barbarisi*, *აბარბარისი* - *abarbarisi*, and *ზირიშკი* - *zirishk'i*. It is a remarkable species among the medicinal plants used in Georgia. Roots, bark, leaves and fruits are used; every part of barberry has anti-

*inflammatory, tranquilizing, cholagogue, antipyretic effects. It enhances appetite and sexual potency, reduces blood tension; broth from leaves is used to stop bleeding, also to heal cholelithiasis and nephrolithiasis, rheumatism, digestive disorders. It is especially often used as cholagogue agent with hepatitis and cholecystitis; is used as mouthwash to heal gingivitis. Barberry is used as a cholagogue to heal chronic hepatitis and cholecystitis. In Georgia barberry's roots and bark was traditionally used widely for medical purposes to heal rheumatic disorders and jaundice (hepatitis). As for the official medicine, vitamin C is produced in the form of the drug berberin. In Megrelia, sticks cut from young shoots were given to the sick with scurvy. The broth made of barberry roots is given to the sick with liver and stomach disorders. The fruits and leaves remedy gallbladder problems. The fruits are also used for liver disease, and the leaves for hypertension. In Megrelia the fruits and roots were used to heal jaundice.*



Figure 12. *Berberis vulgaris* L.- KR 98151

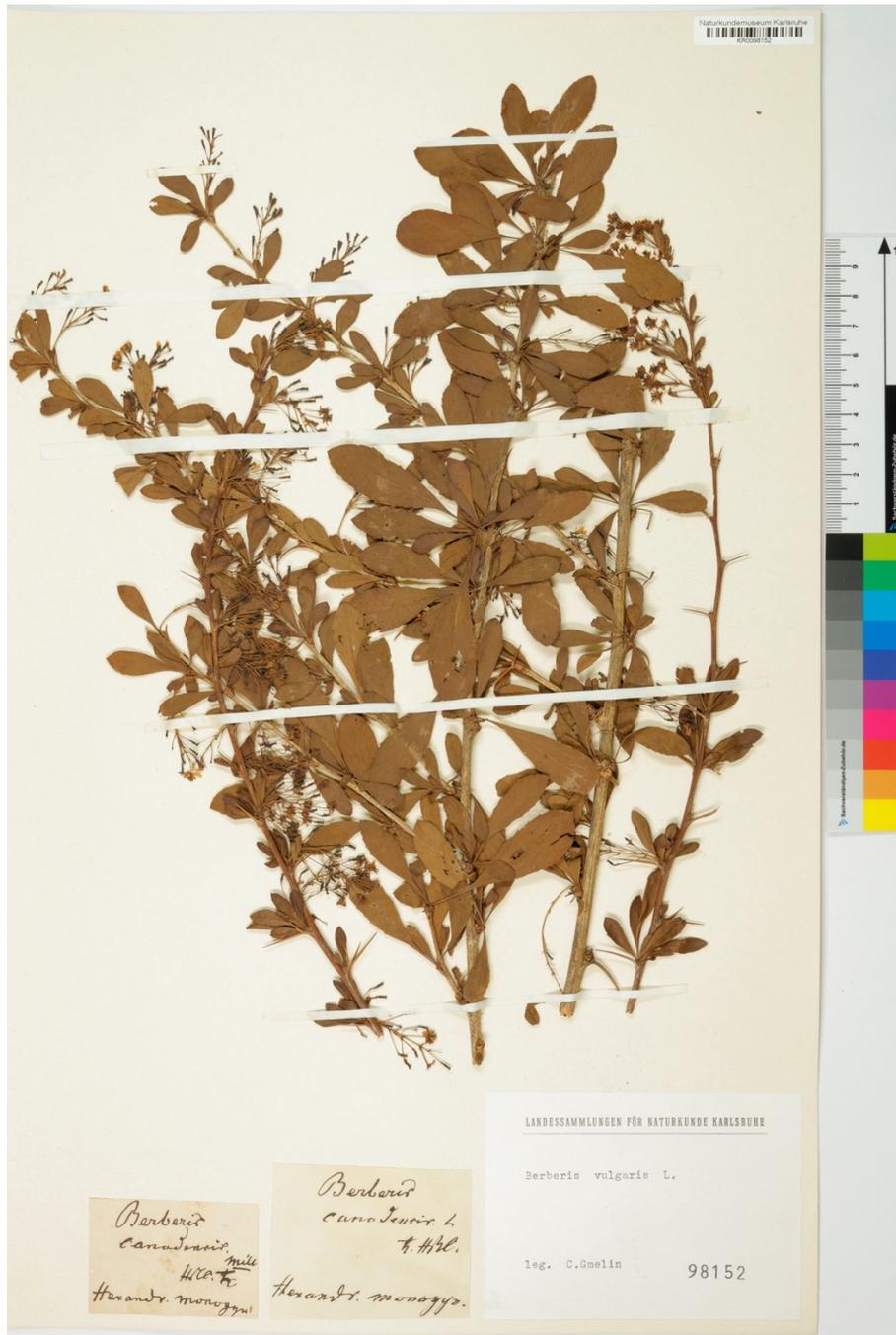


Figure 13. *Berberis vulgaris* L. - KR 98152

*Iran:* The raw and decoction of leaves are as febrifuge and laxative. The fruits have vitamin C and antiscorbutic properties, and also treat kidney and liver problems, and cancer and reduce blood pressure. The infusion and decoction of the root and stem bark are used as a tonic, for treating liver diseases, and jaundice, for improving broken bones and digestive system problems, as an anthelmintic, anticancer, and laxative, and has antibacterial property. The fruits are used raw, cooked, and in juice to cure liver and kidney diseases, relieve symptoms of cirrhosis, reduce blood pressure, cholesterol, and sugar levels, dilution of blood, blood purification, contributes to increasing the appetite, and as febrifuge and laxative. Aerial parts of *B. vulgaris* help to treat gout, fever, worm, and dysentery, as laxative and blood and liver depurative. Decoction and concentration of fruit are used to jaundice and heal broken bones, and as anthelmintic and laxative. *Dagestan:* The ethnic groups of Dagestan use barberry leaves, fruits, bark and roots for medicinal purposes. Gargling with a decoction of barberry roots is a way of treating a sore throat. Chopped barberry roots are boiled for 10 minutes, cooled until warm and later strained. The decoction is gargled 3-4 times a day after a meal. *Laks* used the decoction of barberry roots to treat abdominal pain (a glass of the decoction was taken three times a day).



Figure 14. *Berberis vulgaris* L.- KR 98153

Avars used compresses of a decoction of barberry twigs, bark and roots to treat joint dislocations, sprains and simple bone fractures. About one or two tablespoons of the ground mix were boiled in a glass of water for 5-10 minutes. A cloth was then soaked in the decoction and applied to the injured area. The compress had to be changed two times a day. A decoction of barberry flowers is used for preventing hypertension and as a treatment for chest pain. Pour two glasses of water over a tablespoon of the product, bring it to a boil and simmer for about 10 minutes over low heat. Infuse for one or two hours, then strain the liquid. Two teaspoons of the decoction are taken two or three times a day. A decoction of *Berberis vulgaris* leaves is often used for its hemostatic effect to treat women's health issues. The fruits are eaten fresh, and dried for use in sauces, for making jams and sweets, as well as spice. Armenia: Fresh fruits are used alone or as flavoring agent in meat dishes, dried fruits as flavoring. Fruits are also used for jams and juices. Azerbaijan: The water infusion of fruits as sour drink substituting lemony drink. Jam, compote, juice, and vinegar are prepared from fresh fruits. Dried fruits are used as spices for cooking different national dishes. Georgia: The fruits are used for food in Khevi. The fruits make a good ingredient for themali (fruit sauce for meat), fruits and leaves are used for tea, and the young leaves are used for phkhali (vegetable spread of mixed

herbs). Iran: The fruits are eaten raw or cooked. The fruits are used to prepare jams and juice as well as applied as a spice and as decoration and aromatization in some foods. Dagestan: Barberry fruits are widely used in Dagestan to make fruit preserves and compote (stewed fruit beverage) for the winter season. Dried ground fruits make a savory sour seasoning for meat and vegetable dishes. Both dried and fresh barberry fruits are added to soups and pilaf (a rice dish) to give them sour flavor. Barberry baby leaves and ripe fruits can be used to make tea: a mix of dried and fresh leaves and fruits is infused in boiling water for about half an hour. It is considered that the tea has curative properties and generally helps to boost the immune system. The bark yields yellow, golden, dark violet, dark blue and olive dyes for wool and silk. Azerbaijan: A decoction and extract from barberry is used as anastaltic in injuries of horses. Armenia: Petals are used in traditional carpet weaving as source of yellow and golden yellow dye. The high-density yellow wood is used for small crafts. Azerbaijan: Nectariferous plant, giving much nectar. Beautiful shrub, especially in the fruiting period. Can be used in designing gardens and parks. A dye solution is prepared from bark, wood and root to obtain yellow, lemon-yellow, golden-yellow, orange-yellow, brown-yellow, brown, snuff, olive, coffee, pink, grey-green and other different colors and shades. The solution is used for dyeing wool, cotton and silk yarn as well as its products. The wood is used for preparation of different items (beads, goblets, shoe pegs). Georgia: In Tusheti leaves and roots are used as dye. Iran: The root of the plant is used for dyeing in the textile industry, to remove intestinal worms and digestive problems in goats and sheep. Dagestan: The mountain peoples of Dagestan used hard yellow wood of barberry for making handicrafts. The barberry root decoction was used to dye yarn pink. A decoction of the leaves is used to treat kidney stones, tuberculosis, chest pains, and headaches. An infusion of the fruits is used to treat constipation and wounds. Decoction of plant roots, used in the treatment of diabetes. In Tajikistan a root infusion is used to treat cardiovascular diseases, gastric diseases, neurasthenia, rheumatism, fevers, and a poultice is used for inflammatory processes of fractures and bruises. In northern Tajikistan the roots are used to treat wounds, bone fractures, rheumatism, radiculitis, heart pain, and stomach aches. In Kazakhstan, the extract of young branches is used for headache. The fruit infusion acts as anticoagulant. In Uzbekistan the leaves are used as cardiogenic and antipyretic. All over the region the fruits are used as antipyretic, to relieve thirst. A decoction of the leaves is used to treat kidney stones, tuberculosis, chest pains, and headaches. An infusion of the fruits is used to treat constipation and wounds. (Dadabaeva, 1996, Fedorov 1984). An infusion of the fruits is used to treat constipation and wounds. Also used to treat high blood pressure and skin problems. To treat jaundice, bone fractures, as anthelmintic and laxative. In Jammu, Kashmir and Ladakh used intestinal ulcers, ling disease, diarrhea and vomiting blood. In Matalaya as anthelmintic and as liver protectant, in Pakistan for gastrointestinal problems and sore-throat. Morocco: used to treat various diseases as gastrointestinal disorders such (gastric disorders, hepatic atony, Psoriasis, stomachache, Bladder, Stomatology, Intestinal Parasites) cardiovascular problems (hypertension, hemorrhoids), diabetes, cutaneous disorders and pathologies of renal system (uterine fibroids, diuretic). The bark and roots of *Berberis vulgaris* L. is used in the form infusion and crushing, to treat for breast, uterus, colon, lung, prostate, stomach, dermis, bladder, stomatology, ovary, leukemia, adenocarcinoma. The fruit, leaf, and whole plant are used against dermatological, respiratory, digestive, genitourinary. Also, the stem in powder for Kidney stones. Algeria: the fruit decocted ids used to treat Urogenital, Type 2 diabetes. Also, the aerial parts, roots in decoction, infusion, maceration, mixture and powder are used against cancer, diabetes, intestinal parasites. Indeed, the bark decocted us anti-diabetes and to treat heartburn, thyroid, candidiasis, uterine fibroids, cutaneous disorders, hemorrhoids. Roots in decoction for hypercholesterolemia and stomach-ache and urogenital problems. Heartburn, thyroid, candidiasis, uterine fibroids, and hemorrhoids. Cancer treatment. Breast problems, blood, bladder, stomach, skin, ovary. Romania: depurative, hemostatic, anti-infective, gingival tonic, eczema, tinea, anal fistula, stomatitis, itching. Bulgaria: unspecified medicinal use. Romania: Anti-inflammatory, astringent, antiseptic; hemorrhoids, digestive disorders, dysentery. Hungary: Fruits as snack, also to ferment vinegar. Poland: Sold as food, children's snack; condiment, with cabbage dishes, instead of vinegar, liqueur. Slovakia: young shoots eaten raw in spring or added to sauces. Belorussia: raw, snack, juice or salted. Bulgaria: leaves as salad, fruits as souring agent in soup, jam. Czech Republic: Leaves used raw, boiled or fried, fruit raw or in preserves, for non-alcoholic beverages, children's snack food, jams/jellies, juices. Often in Azerbaijan markets. Bulgaria / Estonia / Poland: as wine and pickle. Sweden: Additive for the fermentation of tree saps. The berries, rich in vitamin C, can be eaten raw or cooked in the form of a juice slightly astringent, or in the form of a jam or coulis that can go with game instead of bilberries. Bulgaria / Serbia: For wooden home goods. Roots for yellow dye. The wood is very hard, with bright yellow sapwood. It is used to produce shoe nails and turned work. The Berries contain malic acid and are used in confectionary production. Besides, they yield a high-quality paint for dyeing leather and wool in a lemon-yellow color. It is a good nectariferous plant and an excellent ornamental shrub, especially its red-leaved forms. (Brahmi et al. 2024; Paniagua-Zambrana et al. 2025f; Zeraatkar et al. 2025).

**Uses 1817 (Gmelin 1817):** The ripe berries, with which this shrub abounds in late autumn, when squeezed, yield a red, strongly sour, pleasant juice, very similar to that of lemons and can be used just as well as lemons. Excellent vinegar and brandy can be made from the berries through fermentation. They are also occasionally dried and added to cooked sweet fruit. This shrub, as beautiful as it is beneficial, which adorns the rough, stony slopes and holds their soil firmly, has been so

diminished for more than twenty years, especially in the Rhine region, along with many other shrub species, that it is certainly worthwhile to replant and propagate them in those places, which can best be done through seeds and the division of the roots. Presumably, the Moroccan dyers, who use the inner bark of the branches, and especially the roots, for yellowing, have also contributed somewhat to the decline by searching for and digging up the roots.

**Description and Ecology (Gmelin 1817):** A 4-5-9-12 foot tall, dense shrub. The branches are alternate, with three very stiff, straight spines beneath each branch. The leaves are alternately stalked, elliptic, blunt, smooth, and finely serrated along the edges. The flowers are raceme-shaped, yellow. The racemes are dispersed and somewhat overhanging. The calyx has six petals, yellowish, and deciduous. The corolla has six petals, yellow, and is barely larger than the calyx. Two round honeycombs are found at the base of each petal. The berries are elliptic-cylindrical, single-lobed, two to three-seeded, blood red, and the seeds are oblong and blunt. Grows in the Rhine, Main, Danube, and Neckar regions, both in flat areas and in low mountain ranges, especially in hedgerows, on the edges of forests, on limestone-clay hills, along sunken roads, on rough, undeveloped, sunny, stony slopes, and around the ruins of old mountain castles, occasionally in large quantities, to whose beautification it contributes considerably. It blooms in May and June, and its berries ripen in September and October.

**Original German text Gmelin (Gmelin 1817):** Ein 4 - 5 - 9 - 12 Fuß hoher, dichter Strauch. Die Aeste abwechselnd, unter jedem Ast stehen dreyfache, sehr steife, gerade ausstehende Stacheln. Die Blätter abwechselnd gestielt, eyrund, stumpf, glatt, am Rande feinstachelig gesägt. Die Blüthen traubenförmig, gelb. Die Trauben ausgehend, etwas überhängend. Der Blüthenkelch sechsblättrig, gelblich, abfallend. Die Blumenkrone sechsblättrig, gelb, kaum größer als der Blumenkelch. Honigbehältnisse 2, runde, am Grunde jedes einzelnen Blumenblatts. Die Beeren eyrund-walzenförmig, einfächerig, zwey bis dreysamig, blutroth, der Same länglich, stumpf. Wächst in den Rhein-, Main-, Donau-, und Neckargegenden, sowohl in ebenen als in Mittelgebirgs- Gegenden vorzüglich an Hecken, am Rande der Waldungen, auf Kalk-Thon-Hügeln, an Hohlwegen, an rauhen, ungebauten, sonnenreichen, steinigen Abhängen, um die Ruinen alter Bergschlösser, hin und wieder in großer Menge, zu deren Verschönerung sie nicht wenig beyträgt. Blühet im May, Juni, und reifet ihre Beeren im September, October. Die jungen angenehmen säuerlichen Blätter, können als schmackhaftes Zugemüße und als Salat verspeist werden. Auch geben sie vorzüglich den Schweinen eine gute Nahrung. Die reifen Beeren, womit im Spätherbste, dieser Strauch prangt, liefern ausgepreßt, einen rothen stark sauern angenehmen Saft, der dem der Citronen sehr ähnlich ist, und eben so gut wie dieser benutzt werden kann. Aus den Beeren kann man durch die Gährung trefflichen Essig und Brandtwein bereiten. Man pflegt sie hie und da auch zu dörren und dem gekochten süßen Obste bezusetzen. Dieser so schöne als wohlthätige Strauch, welcher die rauhen steinigen Abhänge ziert, und die Erde derselben festhält, ist seit mehr als zwanzig Jahren, vorzüglich in den Rheingegenden, nebst vielen andern Straucharten, dermaßen vermindert worden, daß sichs allerdings der Mühe verlohnt, sie an jenen Orten, wieder anzupflanzen und zu vermehren, welches am besten durch Samen, und Zertheilung der Wurzeln geschehen kann. Vermuthlich haben die Saffianfärber, welche zum Gelbfärben, sich der innern Rinde der Aeste, und vorzüglich der Wurzeln bedienen, auch etwas zur Verminderung, durch das Aufsuchen und Ausgraben der Wurzeln beigetragen.

### ***Berula erecta* (Huds.) Coville**

*Synonyms:* *Apium berula* Caruel; *Apium sium* Crantz; *Berula monspeliensium* Bubani; *Berula angustifolia* (L.) Mert. & W.D.J.Koch; *Berula angustifolia* Boiss.; *Berula angustifolia* Greene; *Berula angustifolia* subvar. *gracile* Coss. & Germ.; *Berula angustifolia* var. *dentata* Wimm. & Grab.; *Berula angustifolia* var. *gracile* (Coss. & Germ.) Rouy & E.G.Camus; *Berula angustifolia* var. *serratifolia* Wimm. & Grab.; *Berula erecta* f. *dentata* Wimm. & Grab.; *Berula erecta* f. *incisum* Lojac.; *Berula erecta* f. *microphylla* Uechtr. ex Abrom.; *Berula erecta* f. *repens* (G.F.Mey.) Wolfg.; *Berula erecta* f. *serratifolia* Thell.; *Berula erecta* var. *incisa* (Torr.) Cronquist; *Berula erecta* var. *macrodon* Koso-Pol.; *Berula erecta* var. *stenodon* Koso-Pol.; *Berula incisa* (Torr.) G.N.Jones; *Berula orientalis* Woronow; *Berula orientalis* Woronow ex Schischk.; *Berula pusilla* (Nutt.) Fernald, *Carum sioides* J.M.Black; *Selinum berula* E.H.L.Krause; *Siella erecta* (Huds.) Pimenov; *Sium angustifolium* L.; *Sium angustifolium* var. *decumbens* Hartm.; *Sium angustifolium* var. *polyphylla* Schltdl.; *Sium angustifolium* var. *repens* G.Mey.; *Sium berula* Gouan; *Sium erectum* Huds.; *Sium ferula* Raeusch.; *Sium incisum* Torr.; *Sium nodiflorum* Oeder; *Sium novae-mexicae* Koso-Pol.; *Sium novae-mexicae* var. *fimbriatum* Koso-Pol.; *Sium orientale* (Woronow ex Schischk.) Soó; *Sium pusillum* Nutt.

**Original name (Gmelin 1817):** *Sium angustifolium*. Linn. - Gmel. Flor. Badens. I. p. 669. 670. - Jacqu. Flor. Austriac. tab. 67.

**German names and French names (Gmelin 1817):** Schmalblättriger Wassermerk, Wasserpeterlein, Brunnenpeterlein, Wassermorelle; Berle, Berle à fevilles étroites





Figure 16. *Berula erecta* (Huds.) Coville - KR 109605

**Contemporary uses:** Sometimes used as salad.

**Uses 1817 (Gmelin 1817):** The young, tender leaves, like watercress, can be used as a tasty and healthy salad. In France and Spain, it is cultivated in watery gardens not only as a favorite food, but also as an excellent rot-resistant, dissolving, and stimulating plant. The pressed juice is drunk daily in spring, several spoonfuls of which are added to meat broth for several weeks. Since this beneficial plant is so common in the Rhine, Neckar, Danube, and Main regions, and has so far been used neither in cooking nor in medicine, I feel obliged to draw attention to it. It should not be confused with the broad-leaved watercress *Sium latifolium*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 667. - 668. Jacqu. Flor. Austr. tab. 66., which also frequently grows in ditches, streams, and standing water here and has harmful properties.

**Description and Ecology (Gmelin 1817):** The root is creeping, segmented, and fibrous. The stem is creeping at the base, rooting at the nodes, then erect, 1-2-3 feet tall, round, striated, smooth, and branched. The leaves are alternate, sheathed, smooth, and pinnate. The leaflets are sessile, opposite, cordate, or elliptic-lanceolate, unequal and sharply serrated. The

lowest pair of leaflets is far apart from the second and has an appendage. The unpaired terminal leaflet is often three-lobed. The uppermost stem leaflets are very small. The umbels sometimes terminate the stem or are opposite the leaves and are provided with many short rays. The general involucre has 5 to 7 leaflets. The leaflets are unequal, sometimes entire, sometimes semi-pinnate, and recurved. The distinctive involucre has 5-7 leaves. The flowers are white. The seeds are oval, striped, and short. This plant grows very frequently in ditches, slow-flowing streams, ponds, and swamps, both in shallow and mountainous areas, where it often completely fills the ditches. It blooms in July and August. Its seeds ripen in September and October, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend, gegliedert, faserig. Der Stengel am Grunde kriechend, an den Knoten wurzel- schlagend, dann aufrecht, 1 - 2 - 3 Fuß hoch, rund, gestreift, glatt, ästig. Die Blätter abwechselnd, mit einer Scheide versehen, glatt, gefiedert. Die Blättchen aufsitzend, gegenüberstehend herzförmig, oder eyrund-lanzettförmig, ungleich und scharf gesägt. Das unterste Blättchen-Paar, steht von dem zweyten weit entfernt, und ist mit einem Ansatz versehen. Das ungepaarte Endblättchen ist oft dreylappig. Die obersten Stengelblättchen sind sehr klein. Die Dolden endigen theils den Stengel, oder stehen den Blättern entgegen, sind mit vielen kurzen Strahlen versehen. Die allgemeine Hülle ist 5 bis 7 blätterig. Die Blättchen ungleich theils ganz, theils halbgefiedert, zurückgebogen. Die besondere Hülle 5 - 7 blätterig, Die Blüthen weiß. Die Samen eyrund, gestreift, kurz. Diese Pflanze wächst sehr häufig in Wassergräben, langsam fließenden Bächen, in Teichen, und Sümpfen, sowohl in verflachten, als in Gebirgsgegenden, wo sie nicht selten die Wassergräben ganz ausfüllt. Sie blühet im Juli, August. Reifet ihre Samen im September, October, und gehört zu den ausdauernden Gewächsen. Die jungen zarten Blätter können so wie die Brunnenkresse, als ein wohlschmeckender und gesunder Salat bestens benutzt werden. In Frankreich und Spanien wird sie in Wasserreichen Gärten nicht nur als eine Liebesspeise, sondern auch als eine ganz vorzügliche Fäulniß widerstehende, auflösende reizende Pflanze gezogen, deren ausgepreßter Saft im Frühjahr zu etlichen Löffel voll mit Fleischbrühe einige Wochen lang täglich getrunken wird. Da diese wohlthätige Pflanze, so häufig in den Rhein-, Neckar-, Donau- und Maingegenden vorkommt, und bisher von ihr, bei uns, weder in den Küchen, noch in der Heilkunde, einiger Gebrauch gemacht, halte ich mich verpflichtet, darauf aufmerksam zu machen. Sie muß nicht mit dem breitblättrigen Wassermerk *Sium latifolium*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 667. - 668. Jacqu. Flor. Austr. tab. 66. verwechselt werden, der ebenfalls häufig in Wassergräben, Bächen und stehenden Wassern bei uns wächst, und nachtheilige Eigenschaften besitzt.

#### ***Boletus aereus* Bull.**

*Synonyms: Boletus edulis f. aereus* (Bull.) Vassilkov; *Boletus edulis f. aereus* (Bull.) Vassilkov; *Tubiporus edulis* subsp. *aereus* (Bull.) Maire; *Dictyopus aereus* (Bull.) Quél.; *Dictyopus aereus* var. *aereus*; *Suillus aereus* (Bull.) Kuntze,

**Original name (Gmelin 1817):** *Boletus aereus*. Bulliard. tab. 385.

**German names and French names (Gmelin 1817):** Braunschwarzer Steinpilz, Braunschwarzer Kühpilz, Braunschwarzer Löcherschwamm; Cepe noir. Bolet broncé

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany only in small quantities for personal use

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025c,d,e).

**Uses 1817 (Gmelin 1817):** It is eaten and preferred by some to the large porcini mushroom.

**Description and Ecology (Gmelin 1817):** Grows solitarily. The stem is usually cylindrical, of equal thickness, more or less veined, yellowish, brownish-yellow, or brown. The ring and bulge are missing. The cap is domed, dark brown, brownish-black, or blackish. The holes are short and sulfur-yellow. Two variations are distinguished: one is more common, with white flesh and a wine-yellow color under the skin; the other has pale yellow flesh and also appears to be a variation of *Boletus bovinus* Linn. Grows with the above varieties on the ground, in forests, on pastures, and heaths in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzeln stehend. Der Strunck meistens cylindrisch, gleich dick, mehr oder weniger geadert, gelblich, braungelb, braun. Ring und Wulst fehlen. Der Hut gewölbt, dunkelbraun, braunschwarz, schwärzlich. Die Löcher kurz, schwefelgelb. Man unterscheidet davon zwey Abänderungen, die eine häufiger vorkommende mit weissem Fleische, und weingelber Farbe unter der Haut; die andere mit blaßgelbem Fleische. Wächst mit den vorhergehenden auf der Erde, in Waldungen, auf Viehtriften und Heiden im August, September, October, und scheint

ebenfalls eine Abänderung des *Boletus bovinus* Linn. zu seyn. Wird gespeist, und von einigen dem großen Steinpilze vorgezogen.

***Boletus bovinus*. L.**

*Synonyms*. *Boletus edulis* var. *bulbosus* (Schaeff.) Gillot; *Boletus mutabilis* var. *bulbosus* (Schaeff.) J.F. Gmel.; *Suillus bulbosus* (Schaeff.) Kuntze

**Original name (Gmelin 1817)**: *Boletus bovinus*. Linn. Sp. pl.

**German names and French names (Gmelin 1817)**: Großer Steinpilz, Großer Kühpilz, Braunrother Löcherschwamm; Ceps, Cèpe, Gyrole, Gyroule, Bruguet

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany only in small quantities for personal use

**Contemporary uses**: *Edible when fresh.* (Jorjadze et al. 2025c,d,e).

**Uses 1817 (Gmelin 1817)**: It has a pleasant flavor and is therefore prepared and eaten in many different ways. In some parts of France, it is cut into thin strands, carefully dried, and used year-round as a popular spice in sauces. All varieties of cow and porcini mushrooms are eagerly eaten by domestic and wild cattle. However, they easily cause disease in oxen and cows if they are eaten in wet weather or when already spoiled and infested with worms.

**Description and Ecology (Gmelin 1817)**: Grows solitarily. The stem is thick, usually bulbous, covered with a net, yellow-reddish, sometimes cylindrical, smooth, whitish. The ring and bulge are absent. The cap is evenly domed, brownish-red or rust-colored, or brown-brick-colored, then brownish-black, and firm. The pores are initially white, then whitish-yellow, or greenish-yellow, sometimes changing from yellow to rust-brown. The flesh is wine-yellow beneath the skin, sometimes whitish-green, and firm. Grows frequently in low and high mountain forests, on cattle pastures, and on heaths, on the ground in August, September, and October.

**Original German text Gmelin (Gmelin 1817)**: Einzeln stehend. Der Strunck dick, meistens bauchig, mit einem Netze überzogen, gelb-röthlich, zu Zeiten cylindrisch, glatt, weißlich. Ring und Wulst fehlen. Der Hut gleich gewölbt, braunroth oder rostfärbig, oder braun-ziegelfärbig, alsdann bräunlich-schwarz, fest. Die Löcher (poren) anfänglich weiß, dann weißgelb, oder grünlichgelb, zu Zeiten aus dem gelben ins rostbraune gehend. Das Fleisch ist unter der Haut weingelb, auch weißlich ins grüne spielend, fest. Wächst häufig in niedrigen und höheren Bergwaldungen, auf Viehtriften und Heiden auf der Erde, im August, September, October. Er ist von angenehmen Geschmacke, und wird daher auf vielerlei Arten zubereitet und verspeist. In einigen Gegenden Frankreichs werden sie in dünne Fäden geschnitten, behutsam getrocknet, und so das ganze Jahr über als ein beliebtes Gewürze, zu Saucen verbraucht. Alle Sorten von Küh- und Steinpilzen werden von dem zahmen und wilden Vieh begierig gefressen. Den Ochsen und Kühen verursachen sie aber leicht Krankheiten, wenn sie bei nasser Witterung, oder bereits verdorben und mit Würmern überladen, von ihnen gefressen werden.

***Boletus bulbosus* Schaeff.**

*Synonyms*: *Boletus edulis* var. *bulbosus* (Schaeff.) Gillot; *Boletus mutabilis* var. *bulbosus* (Schaeff.) J.F. Gmel.; *Suillus bulbosus* (Schaeff.) Kuntze

**Original name (Gmelin 1817)**: *Boletus bulbosus*. Schaeff. Fung. tab. 134. 135.

**German names and French names (Gmelin 1817)**: Großer Steinpilz, Großer Kühpilz, Braunrother Löcherschwamm; Ceps, Cèpe, Gyrole, Gyroule, Bruguet

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany only in small quantities for personal use

**Contemporary uses**: *Edible when fresh.* (Jorjadze et al. 2025c,d,e).

**Uses 1817 (Gmelin 1817):** It has a pleasant flavor and is therefore prepared and eaten in many different ways. In some parts of France, it is cut into thin strands, carefully dried, and used year-round as a popular spice in sauces. All varieties of cow and porcini mushrooms are eagerly eaten by domestic and wild cattle. However, they easily cause disease in oxen and cows if they are eaten in wet weather or when already spoiled and infested with worms.

**Description and Ecology (Gmelin 1817):** Grows solitarily. The stem is thick, usually bulbous, covered with a net, yellow-reddish, sometimes cylindrical, smooth, whitish. The ring and bulge are absent. The cap is evenly domed, brownish-red or rust-colored, or brown-brick-colored, then brownish-black, and firm. The pores are initially white, then whitish-yellow, or greenish-yellow, sometimes changing from yellow to rust-brown. The flesh is wine-yellow beneath the skin, sometimes whitish-green, and firm. Grows frequently in low and high mountain forests, on cattle pastures, and on heaths, on the ground in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzeln stehend. Der Strunck dick, meistens bauchig, mit einem Netze überzogen, gelb-röthlich, zu Zeiten cylindrisch, glatt, weißlich. Ring und Wulst fehlen. Der Hut gleich gewölbt, braunroth oder rostfärbig, oder braun-ziegelfärbig, alsdann bräunlich-schwarz, fest. Die Löcher (poren) anfänglich weiß, dann weißgelb, oder grünlichgelb, zu Zeiten aus dem gelben ins rostbraune gehend. Das Fleisch ist unter der Haut weingelb, auch weißlich ins grüne spielend, fest. Wächst häufig in niedrigen und höheren Bergwaldungen, auf Viehtriften und Heiden auf der Erde, im August, September, October. Er ist von angenehmen Geschmacke, und wird daher auf vielerlei Arten zubereitet und verspeist. In einigen Gegenden Frankreichs werden sie in dünne Fäden geschnitten, behutsam getrocknet, und so das ganze Jahr über als ein beliebtes Gewürze, zu Saucen verbraucht. Alle Sorten von Küh- und Steinpilzen werden von dem zahmen und wilden Vieh begierig gefressen. Den Ochsen und Kühen verursachen sie aber leicht Krankheiten, wenn sie bei nasser Witterung, oder bereits verdorben und mit Würmern überladen, von ihnen gefressen werden.

#### ***Boletus edulis* Bull.**

**Synonyms:** *Leccinum edule* (Bull.) Gray; *Dictyopus edulis* (Bull.) Forq.; *Tubiporus edulis* (Bull.) P. Karst.; *Ceriumyces crassus* Battarra

**Original name (Gmelin 1817):** *Boletus edulis*. Bulliard. tab. 494. und 60.

**German names and French names (Gmelin 1817):** Großer Steinpilz, Großer Kühpilz, Braunrother Löcherschwamm; Ceps, Cèpe, Gyrole, Gyroule, Bruguet

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany only in small quantities for personal use

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025c,d,e).

**Uses 1817 (Gmelin 1817):** It has a pleasant flavor and is therefore prepared and eaten in many different ways. In some parts of France, it is cut into thin strands, carefully dried, and used year-round as a popular spice in sauces. All varieties of cow and porcini mushrooms are eagerly eaten by domestic and wild cattle. However, they easily cause disease in oxen and cows if they are eaten in wet weather or when already spoiled and infested with worms.

**Description and Ecology (Gmelin 1817):** Grows solitarily. The stem is thick, usually bulbous, covered with a net, yellow-reddish, sometimes cylindrical, smooth, whitish. The ring and bulge are absent. The cap is evenly domed, brownish-red or rust-colored, or brown-brick-colored, then brownish-black, and firm. The pores are initially white, then whitish-yellow, or greenish-yellow, sometimes changing from yellow to rust-brown. The flesh is wine-yellow beneath the skin, sometimes whitish-green, and firm. Grows frequently in low and high mountain forests, on cattle pastures, and on heaths, on the ground in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzeln stehend. Der Strunck dick, meistens bauchig, mit einem Netze überzogen, gelb-röthlich, zu Zeiten cylindrisch, glatt, weißlich. Ring und Wulst fehlen. Der Hut gleich gewölbt, braunroth oder rostfärbig, oder braun-ziegelfärbig, alsdann bräunlich-schwarz, fest. Die Löcher (poren) anfänglich weiß, dann weißgelb, oder grünlichgelb, zu Zeiten aus dem gelben ins rostbraune gehend. Das Fleisch ist unter der Haut weingelb, auch weißlich ins grüne spielend, fest. Wächst häufig in niedrigen und höheren Bergwaldungen, auf Viehtriften und Heiden auf der Erde, im August, September, October. Er ist von angenehmen Geschmacke, und wird daher auf vielerlei Arten zubereitet und verspeist. In einigen Gegenden Frankreichs werden sie in dünne Fäden geschnitten, behutsam getrocknet, und so das ganze

Jahr über als ein beliebtes Gewürze, zu Saucen verbraucht. Alle Sorten von Küh- und Steinpilzen werden von dem zahmen und wilden Vieh begierig gefressen. Den Ochsen und Kühen verursachen sie aber leicht Krankheiten, wenn sie bei nasser Witterung, oder bereits verdorben und mit Würmern überladen, von ihnen gefressen werden.

***Brassica nigra* W.D.J.Koch**

*Synonyms: Brassica brachycarpa* P.Candargy; *Brassica bracteolata* Fisch. & C.A.Mey.; *Brassica elongata* var. *longipedicellata* Halácsy ex Formánek; *Brassica nigra* f. *breviflora* Zapal.; *Brassica nigra* f. *condensata* Hausskn.; *Brassica nigra* f. *dentifera* Zapal.; *Brassica nigra* f. *glabrata* Zapal.; *Brassica nigra* f. *hispida* O.E.Schulz; *Brassica nigra* subsp. *hispida* (O.E.Schulz) Gladis; *Brassica nigra* subsp. *nigra* (L.) W.D.J.Koch; *Brassica nigra* var. *abyssinica* Alexander Br.; *Brassica nigra* var. *bracteolata* (Fisch. & C.A.Mey.) Spach ex Coss.; *Brassica nigra* var. *carneodentata* Kuntze; *Brassica nigra* var. *japonica* (Thunb.) O.E.Schulz; *Brassica nigra* var. *nigra* W.D.J.Koch; *Brassica nigra* var. *subglabra* Kuntze; *Brassica nigra* var. *tortuosa* (Pers.) Alef.; *Brassica nigra* var. *torulosa* (Pers.) Alef.; *Brassica nigra* var. *turgida* (Pers.) Alef.; *Brassica persoonii* Rouy & Foucaud; *Brassica sinapioides* Roth; *Brassica sinapis* Noulet; *Brassica turgida* Rouy & Foucaud; *Crucifera sinapis* E.H.L.Krause; *Melanosinapis communis* Spenn.; *Melanosinapis nigra* Calest.; *Mutarda nigra* Bernh.; *Raphanus sinapis-officinalis* Crantz; *Sinapis bracteolata* G.Don; *Sinapis erysimoides* Roxb.; *Sinapis nigra* L.; *Sinapis orgyalis* Willd. ex Ledeb.; *Sinapis persoonii* (Rouy & Foucaud) A.Chev.; *Sinapis torulosa* Pers.; *Sisymbrium nigrum* (L.) Prantl

**Original name (Gmelin 1817):** *Sinapis nigra*. Linn. Sp. pl. - Gmel. Flor. Badens.III. p. 101. 102.

**German names and French names (Gmelin 1817):** Schwarzer Senf, Gelber oder rother Senf; Moutarde noir

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, but not common

**KR 127872**

**Botany and Ecology:** Herbs annual, 0.3-2(-3.1) m tall, sparsely hirsute at least basally. Stems erect, branched above. Basal and lowermost cauline leaves with petioles to 10 cm; leaf blade ovate, oblong, or lanceolate in outline, 6-30 × 1-10 cm, lyrate-pinnatifid or pinnatisect; terminal lobe ovate, dentate; lateral lobes 1-3 on each side of midvein, much smaller than terminal lobe, dentate. Upper cauline leaves petiolate, lanceolate or linear-oblong, to 5 × 1.5 cm, base cuneate, margin entire or rarely dentate. Fruiting pedicels straight, slender, erect or ascending, subappressed to rachis, (2-)3-5(-6) mm. Sepals oblong, 4-6(-7) cm × 1-1.5 mm, spreading or ascending. Petals yellow, (5-)7.5-11(-13) × (2.5-)3-4.5(-5.5) mm, ovate, apex rounded; claw 3-6 mm. Filaments 3.5-5 mm; anthers oblong, 1-1.5 mm. Fruit linear or narrowly oblong-elliptic, (0.5-)1-2.5(-2.7) cm × (1.5-)2-3(-4) mm, 4-angled, sessile, subappressed to rachis; valvular segment (0.4-)0.8-2(-2.5) cm, 2-5(-8)-seeded per locule; valves with a prominent midvein, slightly torulose; terminal segment stylelike, sometimes narrowly conical, (1-)2-5(-6) mm, seedless. Seeds dark brown, gray, or blackish, globose, 1.2-2 mm in diameter, minutely reticulate. Flowering and fruiting April-July. (Wu *et al.* 1994-2013).

**Contemporary uses:** *Used as food in soup and vegetable. Fruits pickled for famine times.* (Paniagua-Zambrana *et al.* 2025g).

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be prepared and eaten as a tasty and healthy vegetable like cabbage. The plant is eaten by cattle and pigs and provides them with good nutrition. A mild, sweet, pleasant oil can be pressed from the seeds, namely 36-38 pounds per hundredweight. I found this plant in incredible numbers on my later botanical excursions along the Neckar, especially near Heidelberg, Neckar-Steinach, Eberbach, Neckarels, Hasmersheim, Moosbach, and other places along the Neckar, Tauber, Jaxt, and Main rivers, and their tributary drainage and watering ditches. Since, according to my research, it has not been used in those areas to date, it deserves to be used to its full potential in every respect. Furthermore, it must be considered an excellent bee food, as its flowers produce plenty of wax and honey. Moreover, during its flowering period, when it guilds considerable areas along the banks, it is a true ornament of these regions, where it grows mostly in dense clusters and reaches a height of 4-6 feet.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, fibrous, and white. The stem is 2-3-6 feet tall, erect, round, smooth, and branched. The leaves are alternate, petiolate, the lowest pinnate, and somewhat rough. The leaflets are sessile, alternate, distinct, and toothed; the distal leaflet is much larger than the others and trilobed. The upper stem leaves are smaller, the uppermost somewhat sessile, entire, and narrowly lanceolate. The flower clusters terminate the stem and branches. The sepals are smooth and yellowish. The corolla is yellow and small. The pods are pressed against the stem or run parallel to it, short, and end in a short, somewhat square, compressed, and completely smooth beak. The seeds are reddish-brown, round, and finely wrinkled. It grows particularly frequently along the Neckar, Tauber, Jaxt, and Main rivers,

where it occupies considerable areas along these rivers and their drainage ditches. It blooms in May, June, and July. Its seeds ripen in August and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel spindel-walzenförmig, faserig, weiß. Der Stengel 2 - 3 - 6 Fuß hoch, aufrecht, rund, glatt, ästig. Die Blätter abwechselnd, gestielt, die untersten gefiedert, etwas rauh. Die Blättchen aufsitzend, abwechselnd, von einander stehend, gezahnt; das ausgehende viel größer als die übrigen, und dreylappig. Die obern Stengelblätter kleiner, die obersten etwas aufsitzend, ganz, schmal lanzettförmig. Die Blumentrauben endigen den Stengel und die Aeste. Die Kelchblättchen glatt, gelblich. Die Blumenkrone gelb, klein. Die Schoten an dem Stengel angedrückt, oder laufen mit ihm parallel, kurz, und gehen in einen kurzen etwas viereckigen, zusammengedrückten ganz glatten Schnabel aus. Die Samen rothbraun, rund, feinrunzelig. Wächst vorzüglich häufig am Neckar, an der Tauber, Jaxt und am Main, wo er längst diesen Flüssen und deren Abzugsgräben hin, beträchtliche Stellen einnimmt. Blühet im May, Juni, Juli. Reifet seine Samen im August, und gehört unter die einjährigen Gewächse. Die jungen zarten Blätter, können als schmackhaftes und gesundes Gemüse wie Kohl zubereitet und verspeist werden. Die Pflanze wird von dem Rindvieh und den Schweinen gefressen und giebt ihnen eine gute Nahrung. Aus dem Samen läßt sich ein mildes süßes angenehmes Oehl pressen, und zwar von einem Zentner 36 -38 Pfund. Diese Pflanze fand ich auf meinen spätern Botanischen Wanderungen, am Neckar, vorzüglich bei Heidelberg, Neckar-Steinach, Eberbach, Neckarels, Hasmersheim, Moosbach, und andern Orten längst dem Neckar, der Tauber, Jaxt, und des Mainflusses, und deren Seiten-Abzugs- und Wasserungsgräben, auf Wiesen, an Getreideäckern, und auf Schutthaufen in unglaublicher Menge. Da bisdaher nach meinen gemachten Erkundigungen, kein Gebrauch in jenen Gegenden, von derselben gemacht wird, verdient sie in jeder Hinsicht, bestens benutzt zu werden. Ausserdem muß sie als ein ganz vorzügliches Bienenfutter, deren Blumen viel Wachs und Honig geben, betrachtet werden. Dabey ist sie zur Blüthezeit, wo sie längst den Ufern hin, beträchtliche Stellen vergoldet, eine wahre Zierde dieser Gegenden, wo sie größtentheils gedrängt beisammensteht, und eine Höhe von 4 - 6 Fuß erreicht.

***Bunium bulbocastanum* L.**

*Synonyms: Bunium bulbocastanum* var. *genuinum* Burnat; *Carum bulbocastanum* W.D.J.Koch; *Carvi bulbocastanum* Bubani; *Ligusticum bulbocastanum* Crantz; *Pimpinella bulbocastanum* (L.) Stokes; *Scandix bulbocastanum* Moench

**Original name (Gmelin 1817):** *Bunium Bulbocastanum*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 629. 630.

**German names and French names (Gmelin 1817):** Erdnuß. Erdkastanien. Gemeine Erdnuß.; Terre noix bulbeuse

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Highly threatened, decline

**KR 111407** (Fig. 17).

**Botany and Ecology:** Perennial; pale green, entirely glabrous plant; tuber irregularly spherical; stem 40–60 cm high, furrowed, straight, corymbiformly branching from middle, branches declinate; radical leaves long- petioled, their blade broadly triangular, ternate, its segments long-petioluled, the leaves spreading, bipinnatisect into oval pinnatifid sections, with lanceolate ca. 2 mm long, cuneate, mucronate lobules; cauline leaves sessile on short sheaths, bipinnatisect into straight spreading filiform lobules to 20 mm long, the upper leaves reduced to few filiform lobules. Umbels to 15 cm across, of 15-20 rays usually all spreading; involucre absent or of 1-2 short, linear leaflets; umbellets 20–30-flowered; pedicels irregular, erect, filiform, remaining filiform in fruit; involucels of many (6 - 10) lanceolate, cuneate-acuminate, spreading leaflets; all flowers fertile; calyx edentulate; petals equal, broadly oval, notched for half their length, with inward curved tip, 1 mm long; stylopodium flattened-pulviniform; styles thin, curved outward, as long as stylopodium is wide; fruit linear, 4 mm long, much shorter than thin pedicels; ripe mericarps separating from each other and from carpophore, pentahedral, with prominent filiform ribs; resinous canals 1 between ribs; seeds slightly concave toward commissure. June–July. Gentle exposed mountain slopes. (Shishkin 1950).

**Contemporary uses:** *Georgia: The roots are eaten raw. The seeds are used as flavoring and spice. The seeds are used as spice in Pakistan. It is known that *Elwendia persica* seeds are consumed in more than 250 dishes. In addition, they are used when preparing sausage, kazi (horse sausage), canning meat and fish, salting vegetables and to protect meat from spoilage.* (Boboev et al. 2020; Khojimatov et al. 2025a; Moazzami et al. 2019).



Figure 17. *Bunium bulbocastanum* L. - KR 111407

**Uses 1817 (Gmelin 1817):** The roots are sweet, nourishing, and pleasantly flavored, providing healthy nourishment and can be prepared and used like chestnuts. They are gathered in spring, peeled, boiled in meat broth with water and salt or a little pepper, or roasted in the ashes, like chestnuts, or eaten with butter and a little pepper.

**Description and Ecology (Gmelin 1817):** The root is tuberous, rounded, fibrous, brown on the outside, white on the inside. The stem is 1 to 1.5 meters tall, erect, furrowed, smooth, and branched. The lowermost leaves are bipinnate to tripinnate, stalked, the uppermost are stalkless and simply pinnate. The leaflets are lanceolate, simple, often bipinnate to tripinnate, pointed, and smooth. The general involucre is multi-leaved. The particular involucre is multi-leaved and bristle-like. The corollas are uniform and white. The seeds are oval, compressed, and striated, raised on one side and flat on the other. This plant grows occasionally on hills and especially in grain and fallow fields, blooms in June and July, and ripens its seeds in August and September. It is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel knollig, rundlich, faserig, aussen braun, innen weiß. Der Stengel 1 - 1½ hoch, aufrecht, gefurcht, glatt, ästig. Die untersten Blätter, zwey- bis dreyfach gefiedert, gestielt, die obersten stiellos, und einfach gefiedert. Die Blättchen lanzettförmig, einfach, öfters zwey- bis dreispaltig, spitzig, glatt. Die allgemeine Hülle vielblättrig. Die besondere Hülle vielblättrig, borstenartig. Die Blumenkronen gleichförmig, weiß. Die Samen eyrund, zusammengedrückt, gestreift, auf der einen Seite erhaben, und auf der anderen flach. Diese Pflanze wächst hie und da auf Hügeln und vorzüglich auf Getreide- und Brachfeldern, blühet im Juni, Juli. Reifet ihre Samen im August, September, und gehört zu den ausdauernden Pflanzen. Die Wurzeln sind süß, nährend und von angenehmen Geschmacke, geben eine gesunde Nahrung, und können wie Kastanien zubereitet und benutzt werden. Sie werden im Frühjahr gesammelt, geschält mit Wasser und Salz oder etwas Pfeffer in Fleischbrühe gekocht, oder in der Asche, wie die Kastanien gebraten, oder mit Butter und etwas Pfeffer, verspeist.

***Butomus umbellatus* L.**

*Synonyms: Butomus caesalpini* Neck.; *Butomus floridus* Gaertn.; *Butomus scutariensis* Rohlena; *Butomus umbellatus* f. *albiflorus* F.Fromm; *Butomus umbellatus* f. *natans* V.V.Petrovsky; *Butomus umbellatus* f. *submersus* Glück; *Butomus umbellatus* f. *terrestris* Glück; *Butomus umbellatus* f. *umbellatus*; *Butomus umbellatus* var. *minor* Ledeb.; *Butomus umbellatus* var. *parviflorus* Buchenau; *Butomus umbellatus* var. *scutariensis* Rohlena, *Butomus umbellatus* var. *vallisneriifolia* Sagorski ex Asch. & Graebn.; *Butomus vulgaris* Gueldenst.

**Original name (Gmelin 1817):** *Butomus umbellatus*. Linn. Sp. pl. - Gmel. Fl. Bad. II. p. 192. 192

**German names and French names (Gmelin 1817):** Blumenbinse, Doldenblumiger Wasserlisch, Wasserviole, Blumenschwertel, Zyperschwertel, Blumenrohr; *Butome ombellé*, *Jonc fleuri*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, but not common, decline

**KR 98149** (Fig. 18).

**Botany and Ecology:** Glabrous, aquatic perennial herb with horizontal rhizomes. Scapes (30-) 50-90 (rarely-150) cm long, erect; roots fibrous. Leaves all radical, usually about as long as the scapes, linear, ensiform, sheathing at the base, 6-9 mm broad. Inflorescence umbellate, cymose with an involucre of lanceolate-acuminate bracts and bracteoles; bracts 2 or 3, up to 25 mm long, 6-8 mm broad. Bracteoles numerous, less than 10 mm long, 2-3 mm broad. Flowers pink, pedicellate. Pedicels (3-) 5-9 cm long. Perianth segments 6. biseriate. Sepal-like segments obovate. about 17-veined, keeled, 9-13 mm long and 6-8 mm broad. Petal-like segments broadly obovate, about 13-veined, 9-15 mm long, 8 mm broad. Stamens usually 9, rarely 5 or numerous. Filaments linear, usually dilated at the base, variable in length, free, slightly connate at the base; anthers basifixed, 2-celled, ovate to oblong (linear-oblong in young flowers), 2-4 mm long. Carpels 6-9 or many, each 3-5.5 mm long, 1.5-2 mm broad, superior, free or somewhat connate basally, obovate; style simple, short, terminal, persistent; stigma ventral, curved. Ovules numerous, anatropous, minute on reticulate parietal placentas. Fruit a many-seeded, beaked follicle, obovate, 7-9 mm long, 2-3.5 mm broad. Seeds numerous, minute, 0.2-0.4 mm long, oblong with thin testa and straight embryo. (Ali & Qaiser 1995-2020).

**Contemporary uses:** *Leaves used for throat ache. Aerial parts used to treat convulsions, epilepsy. Rhizomes used as famine food, also as additive to flour.* (Paniagua-Zambrana & Bussmann 2025a).

**Uses 1817 (Gmelin 1817):** It is among the most beautiful ornamental plants in our waters. The roots have a bitter taste and have been praised by many as a good and nutritious food in times of scarcity. They are eaten by the Yakuts and other Russian peoples. According to our experiments conducted here several years ago, they are not recommended as food for Rhinelanders, who might not find them agreeable.

**Description and Ecology (Gmelin 1817):** The root is tuberous, foot-shaped, fibrous, and whitish. The leafless stem is 3-4-5 feet tall, erect, round, naked, smooth, rush-like, and simple. The root leaves are very long, erect, triangular, smooth, and spongy inside. The flowers terminate in a beautiful, simple umbel. The involucre is trifoliate and sheath-like. The flower stalks are long, erect, 19-20-25, reddish, and single-flowered. The calyx is absent. The corolla has six petals and is whitish-purple. Grows in the Rhine, Danube, Neckar, Main, and other regions, in ditches, lakes, swamps, and standing water, occasionally common. It blooms in June and July. Its seeds ripen in August and is considered a perennial.



Figure 18. *Butomus umbellatus* L. KR 98149

**Original German text Gmelin (Gmelin 1817):** Die Wurzel knollig, fußförmig, faserig, weißlich. Der blätterlose Stengel 3 - 4 - 5 Fuß hoch, aufrecht, rund, nackt, glatt, binsenartig, einfach. Die Wurzelblätter sehr lang, aufrecht, dreyeckig, glatt, innen schwammig. Die Blüthen den Stengel endigend, in einer schönen einfachen Dolde. Der Umschlag dreyblätterig, scheidenartig. Die Blüthenstiele lang, aufrecht, zu 19 - 20 - 25, röthlich, einblüthig. Der Blumenkelch fehlt. Die Blumenkrone sechsblätterig, weißlich-purpurroth. Wächst in den Rhein-, Donau-, Neckar-, Main- und andern Gegenden, in Wassergräben, Seen, Sümpfen und stehenden Wassern, hie und da häufig. Blühet im Juni, Juli. Reifet ihre Samen im August, und gehört unter die ausdauernden Pflanzen. Sie gehört unter die schönsten Zierpflanzen unserer Wasser. Die Wurzeln haben einen bitterlichen Geschmack, und wurden bei Mangel, als eine gute und nahrhafte Speiße, von mehreren angerühmt. Sie werden von den Jakuten und andern russischen Völkern gegessen. Nach unsern damit vor mehreren Jahren, dahier angestellten Versuchen, dürften sie als Nahrung, dem Rheinländer dem sie schlecht behagen möchten, nicht zu empfehlen seyn.

***Campanula persicifolia* L.**

**Synonyms:** *Campanula amygdalifolia* Salisb.; *Campanula dasycarpa* Kit.; *Campanula dasycarpa* Kit. ex Schult.; *Campanula magellensis* Ten.; *Campanula persicifolia* f. *alba* Voss; *Campanula persicifolia* f. *coronata* Voss; *Campanula persicifolia* f. *kirschlegeri* Soó; *Campanula persicifolia* var. *alpina* Schur; *Campanula persicifolia* var. *angustifolia* A.DC.; *Campanula persicifolia* var. *crystallocalyx* (Adamovic) Hayek; *Campanula persicifolia* var. *dasycarpa* (Kit. ex Schult.) K.Koch; *Campanula persicifolia* var. *eriocarpa* Schur; *Campanula persicifolia* var. *eriocarpa* Syr.; *Campanula persicifolia* var. *glaberrima* Schur; *Campanula persicifolia* var. *grandiflora* Schur; *Campanula persicifolia* var. *hispida* (Lej.) A.DC.; *Campanula persicifolia* var. *hispidioides* Trautv.; *Campanula persicifolia* var. *humillima* Schur; *Campanula persicifolia* var. *laevicaulis* Korsh.; *Campanula persicifolia* var. *lanceolata* Steud.; *Campanula persicifolia* var. *lasiocarpa* Korsh.; *Campanula persicifolia* var. *maxima* Sims; *Campanula persicifolia* var. *monstrosa* Schur; *Campanula persicifolia* var. *parviflora* Kirschl.; *Campanula persicifolia* var. *parviflora* Peterm.; *Campanula persicifolia* var. *pumila* (F.W.Schmidt) Schult.; *Campanula persicifolia* var. *reflexa* Dalla Torre & Sarnth.; *Campanula persicifolia* var. *suskalovicii* Adamovic; *Campanula persicifolia* var. *uniflora* Noulet; *Neocodon persicifolius* (L.) Kolak. & Serdyuk.; *Rapunculus persicifolius* Fourr.

**Original name (Gmelin 1817):** *Campanula persicifolia*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 472 - 474.

**German names and French names (Gmelin 1817):** Pfersichblättrige Glockenblume, Große schmalblättrige Rapunzel, Große Schellen-Rapunzel, Große Wald-Rapunzel; Campanule à fêvilles des Pêches

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial; root fibrous, not thickened; stems straight, 50-70 cm, completely glabrous, somewhat longitudinally striate, simple or slightly branching, leafy, with milky juice; leaves glabrous, shiny, indurate, pale beneath, crenate -dentate; radical leaves oblong or obovate, acute or obtuse, attenuate into 7-12 cm long petioles; cauline leaves regularly remote, sessile, linear-lanceolate, 7-10 cm, acuminate; upper leaves linear, narrow. Flowers few, terminal or axillary, solitary, pediceled, slightly drooping, not longer than pedicels, large; calyx obconical, glabrous or rough-pubescent, grooved, teeth glabrous, acuminate, entire, nearly erect, half as long as corolla; corolla broadly campanulate, slightly inflated at middle, blue, 4-5 cm long, divided into broadly ovate short erect lobes; stamens as long as calyx teeth, filaments triangularly dilated, ciliate at base; style as long as corolla, divided nearly to middle into 3 pubescent stigmas; capsule erect, ovoid, with 10 nerves and 3 grooves; seeds ovate, flattened, shiny. June-July. Meadows, forest clearings. (Shishkin & Boborov 1957).

**Contemporary uses:** Georgia: eaten raw and in herb pie. In sat'sebai, raw, phkhali. Young leaves, roots, and shoots are eaten as Phkhali (herb pie). The young stems and leaves are edible and tasty. kats'a კაჭა *Campanula rapunculoides* L. is eaten raw in Khevi. In Mtiuleti, raw eaten plants are: vardutsa ვარდუცა, alkvasha ალკვაშა *Campanula latifolia* L., k'ank'esha კანკეშა *Gadellia lactiflora* (M.Bieb.) Schulkin, dutsi დუცი *Agasyllis latifolia* Boiss, mzhavana მჟავანა *Rumex acetosa* L., pkholis taxa გხოლის თავა *Chaerophyllum bulbosum* L., diq'i დიცი *Heracleum* ssp., t'q'is niuri ტყის ნიური *Galanthus* ssp., ლოლო *gholo* *Rumex* ssp., maq'valdzirgha მაყვალღირბა *Anthriscus sylvestris* (L.) Hoffm., dzirkhvina ძირხვენა, machik'a მაჩიკას *Campanula rapunculoides* L., mits'is vashli მიწის ვაშლს *Helianthus tuberosus* L. In Pshavi young shoots of shurshena ამჟავებენ *Campanula lactiflora* M.Bieb. k'enk'esha კენკეშა, are peeled and eaten. In Pshavi plants used for mkhali (pkhali) are: მხალეულად იყენებენ *Amaranthus albus* L., tetrmkhala თეთრმხალა *Amaranthus retroflexus* L., ts'itelmkhala წითელმხალა *Amaranthus hybridus* L., mek'endzela მეკენძელას *Aruncus vulgaris* Raf., khiphkhis q'iva ხიფხლის ყივა *Chaerophyllum bulbosum* L., shup'q'a შუპყა *Heracleum asperum* M.Bieb., k'enk'esha კენკეშას *Campanula lactiflora* M.Bieb., khiphkholა ხიფხოლა (q'int'ora ყინტორა) *Chaerophyllum aureum* L. In Tianeti District: the stems of (peeled) shup'q'a შუპყა *Heracleum asperum* M. Bieb, diq'i დიცი *Heracleum* ssp., lagi ლავი *Heracleum leskovii* Grossh. and k'enk'esha კენკეშას *Campanula lactiflora* M. Bieb. are eaten raw. In Khevsureti the local population uses a variety of plants growing in wild for cooking mixed mkhali, e.g. dzirkhvina ძირხვენა *Arctium lappa* L.; k'enk'esha კენკეშა *Campanula lactiflora* M. Bieb.- young, peeled shoots are used as food; tvitmavala თვითმავალა *Amaranthus retroflexus* L. grows in vegetable gardens and ruderal places he aboveground parts of the plant are harvested, boiled, mixed with clarified butter, onions, herbs and eaten; ckhenis sakhvremi ცხენის სახვრემი *Sonchus* ssp., mochik'ais t'ari მოჩიკაის ტარი *Campanula rapunculoides* L., mch'ivana მჭივანა *Silene wallichiana* Klotzsch. The young shoots of k'nk'esha კენკეშა *Campanula lactiflora* M. Bieb. and mochik'a მოჩიკა *Campanula rapunculoides* L. are edible until the plant flowers. Some people peel them some without peeling. Both taste sweet. In Khevsureti, sometimes at wedding parties the guests were treated with ts'ertkhali წერთხალი *Polygonum dshawachischwili* Kharkev and k'enk'esha კენკეშა *Campanula lactiflora* M.Bieb. dipped in the cream and vinegar (the stems of both plants are dipped and eaten together). The raw roots of *Campanula rapunculoides* L.

are eaten in Tusheti. The young shoots of giera გიერა *Brassica campestris* subsp. *oleifera* (DC.) Schübl. & Mart., mariamdzmara მარიამძმარა *Ligusticum alatum* (M. Bieb.) Spreng., shup'q'a შუპყა *Heracleum asperum* M. Bieb., diq'i დიცი *Heracleum* ssp., jork'uda ჯორთკულა *Artemisia vulgaris* L., and kartskhvi ქარცხვის *Campanula tridentata* Schreb., and k'enk'esha კენკემას *Campanula lactiflora* M. Bieb. are pickled in Tusheti. If the cattle eat shup'q'a შუპყას *Heracleum asperum* M. Bieb. it gives yellow clarified butter. In Tusheti ch'imi ჭიმი *Chaerophyllum bulbosum* L., giera გიერა *Brassica campestris* subsp. *oleifera* (DC.) Schübl. & Mart., machigt'ara მაჩიგტარა *Campanula rapunculoides* L., khap'ara ხაპარა (ვარდკაჭაჭა) *Cichorium intybus* L., diq'i დიცი *Heracleum* ssp., shup'q'a შუპყა *Heracleum asperum* M. Bieb., ap'q'i აპყი *Heracleum leskovii* Grossh., dutsi დუცი *Angelica tatianae* Bordz, giera გიერა *Sinapis arvensis* L., jork'uda ჯორთკულა (wild estragon) *Artemisia vulgaris* L., mariamdzmara მარიამძმარა *Ligusticum alatum* (M. Bieb.) Spreng., and kharnuq'a ხარნუყა *Lactuca serriola* L. are eaten raw and also dipped in sour milk. These herbaceous plants for dipping (sats'ebaci, sats'ebi "chatseba" means "dip" in Georgian) are harvested and a bowl with curd "shegdebul ze" „ შეგდებულ ზე" is filled; then leaves and young shoots from the mentioned herbaceous plants are plucked, dipped in the curd and eaten. In Kakheti shepherds eat the flowers kartskhvi ქარცხვი *Campanula biebersteiniana* Roem. & Schult. raw. In Samegrelo ch'riant'eli ჭრიანტელი (*Amaranthus* spp.), babuats'vera ბაბუაწვერა (*Taraxacum* spp.), jumena ჯუმენა *Amaranthus hybridus* L., natsarkatama ნაცარკათამა (*Chenopodium* spp.), ბალბა (*Malva silvestris* L.), ch'inch'ari ჭინჭარი (*Urtica dioica* L.), machit'a მაჩიტა (*Campanula rapunculoides* L.), ginishjonjgho გინიშჯონჯლო *Sonchus* ssp., mumlish k'vaji მუმლიშ კვაჯი *Ficaria* ssp., are often boiled together for Phkhali. Soft shoots of jumena ჯუმენა *Amaranthus hybridus* L., when cooled down after boiling, are pressed and seasoned with walnuts, garlic, pepper salt and young t'q'emali or mats'oni (yoghurt) for taste. Hungary / Poland: Flowers as snack for children. In Europe in high gastronomy. Czech Republic: subterranean parts and leaves as a snack or added to boiled dishes, raw in salads. Poland / Ukraine: as ornamental and in religious bouquets. Fodder for cattle. Planted as ornamental. (Bussmann et al. 2020d; 2025g; Paniagua-Zambrana et al. 2025h).

**Uses 1817 (Gmelin 1817):** The roots and young, tender root leaves can be used in April and May, also as a nourishing, healthy, and tasty dish, and as a salad. Since this plant has long been established as one of the most beautiful ornamental plants in gardens, and its roots become much larger, more tender, and more delicious through cultivation, its planting along paths and terraces, in our vineyards, and in other suitable locations, in times of scarcity and high prices, deserves every consideration. The rough, stony, marly limestone hills and mountains covered with shrubs above and adjacent to vineyards are particularly suitable for this purpose.

**Description and Ecology (Gmelin 1817):** The root is somewhat long, turnip-shaped, fibrous, and white. The stem is 2-3-4 feet tall, erect, angularly furrowed, smooth, and simple. The root and lower stem leaves are stalked, obovate, smooth, and the upper leaves are alternate, sessile, distinct, narrower, equally wide, and pointed, with the edges entire and smooth. The flower stalks are smooth, single, and single-flowered, bearing very large, beautiful blue, occasionally purple-red, tinged with blue, violet, and completely white bell-shaped flowers. This ornamental plant grows in abundance here and there on dry, stony hills covered with shrubs, among juniper bushes, along ravines leading through mountainous areas, on the edges and along vineyard paths, in mountain forest clearings exposed to the sun, and along stony forest paths. It delights the eye with its magnificent blossoms, which appear in June, July, and August. It ripens its seeds in August and September and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel etwas lang, rübenförmig, faserig, weiß. Der Stengel 2 - 3 - 4 Fuß hoch, aufrecht, eckig- gefurcht, glatt, einfach. Die Wurzel- und untern Stengelblätter, gestielt, verkehrt eyförmig, glatt, die obern abwechselnd, aufsitzend, von einander abstehend, schmärer, gleichbreit und zugespitzt, am Rande ganz, glatt. Die Blumenstiele glatt, einzelnen, einblumig, und tragen sehr große schöne blaue, zuweilen auch purpurrothe ins blaue fallende, violette und ganz weisse glockenartige Blumen. Diese Zierpflanze wächst auf trockenem, steinigem mit Gebüsch bewachsenen Hügeln, zwischen Wacholder-Gesträuche, an Hohlwegen, welche durch Berggegenden führen, am Rande und an den Wegen der Weinberge, in Bergwald-Schlägen, die der Sonne ausgesetzt sind, so wie an steinigem Waldwegen, hie und da in Menge, und ergötzt das Auge mit ihren prachtvollen Blüten, welche im Juni, Juli, August zum Vorschein kommen. Sie reifet ihre Samen im August und September und gehört zu den ausdauernden Gewächsen. Die Wurzeln und die jungen zarten Wurzelblätter können im April und May, ebenfalls als eine nährende, gesunde und schmackhafte Speiße, und als Salat bestens benutzt werden. Da diese Pflanze längst als eine der schönsten Zierpflanzen in den Gärten eingeführt ist, und durch den Anbau, die Wurzeln ungleich größer, zarter und schmackhafter werden, verdient deren Anpflanzung längst den Wegen und den Terrassen, in unsern Weinbergen, und an andern dazu geeigneten Orten, bey Mangel und theuern Zeiten, alle Beherzigung. Vorzüglich geeignet dazu, sind die rauhen steinigem Mergelkalk-Hügel und Berge, welche mit Gesträuche bewachsen sind, oberhalb und neben den Weinbergen.

***Campanula rapunculoides* L.**

*Synonyms: Campanula bocconei* J.F.Gmel.; *Campanula chysnysuensis* Czerep.; *Campanula crenata* Link; *Campanula foliosa* Galushko; *Campanula macrostachya* Panz. ex Roem. & Schult.; *Campanula morifolia* Salisb.; *Campanula neglecta* Besser; *Campanula rapunculiformis* St Lager; *Campanula rapunculoides* f. *crenata* Hayek & Hegi; *Campanula rapunculoides* f. *secunda* (F.W.Schmidt) Hayek & Hegi; *Campanula rapunculoides* f. *trachelioides* (M.Bieb.) Hayek & Hegi; *Campanula rapunculoides* f. *ucrainica* (Besser) Hayek & Hegi; *Campanula rapunculoides* var. *glabrata* Trautv.; *Campanula rapunculoides* var. *macrophylla* A.DC.; *Campanula rapunculoides* var. *nana* A.DC.; *Campanula rapunculoides* var. *nemorosa* (A.DC.) Nyman; *Campanula rapunculoides* var. *oenipontana* A.DC.; *Campanula rapunculoides* var. *racemosa* Peterm.; *Campanula rapunculoides* var. *ramosissima* Schur; *Campanula rapunculoides* var. *rapunculoides*; *Campanula rapunculoides* var. *reflexa* Peterm.; *Campanula rapunculoides* var. *speciosa* Knaf; *Campanula rapunculoides* var. *subsimplax* Schur; *Campanula rapunculoides* var. *trachelioides* (M.Bieb.) K.Koch; *Campanula rhomboidalis* Gorter; *Campanula rhomboidea* Falk; *Campanula rigida* Gilib.; *Campanula rigida* Stokes; *Campanula setosa* Fisch. ex DC.; *Campanula speciosa* Willd. ex Spreng.; *Campanula ucranica* Besser; *Campanula urticifolia* Turra; *Cenekia rapunculoides* Opiz; *Cenekia rapunculoides* var. *racemosa* (Peterm.) Opiz; *Cenekia rapunculoides* var. *reflexa* (Peterm.) Opiz; *Cenekia rapunculoides* var. *speciosa* (Knaf) Opiz; *Drymocodon rapunculoides* Fourr.; *Rapunculus redivivus*

**Original name (Gmelin 1817):** *Campanula Rapunculoides*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 475. 476.

**German names and French names (Gmelin 1817):** Rapunzelartige Glockenblume, Kleine Feldrapunzel; Campanule inclinée.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 132902**

**Botany and Ecology:** Biennial; root thick, often thickened-napiform, white, with milky juice; stems straight, simple, 70-100 cm, sometimes branching in upper part, longitudinally striate, glabrous or covered especially below with spreading white hairs; radical leaves obovate, obtuse or acuminate, attenuate into petioles, subentire, glabrous or sparingly pubescent; cauline leaves sessile, linear-lanceolate, entire, the uppermost reduced. Racemes in long spicate flowers, sometimes branching to form slightly paniculate inflorescence; flowers subsessile or on short thin erect pedicels; calyx obconical, glabrous or bristly in strips, teeth straight, narrowly long-acuminate, sometimes setaceous, entire or slightly dentate, glabrous, shorter (sometimes by half) than corolla; corolla whitish-blue or nearly white, campanulate, glabrous, divided or less into ovate acute lobes; filaments dilated, pubescent; style hidden in corolla, pubescent for nearly entire length, with 3 stigmas; capsule erect, obconical, elongate, striated with prominent nerves, tri-locular, opened by 3 terminal pores; seeds very small, flattened, ovate, shiny, with blackish groove. Flowering June-July. Ural, Caucasus, Altai, Middle Asia, in forests, among shrubs, sometimes on river banks, rocks, up to the middle mountain belt. (Shishkin & Boborov1957).

**Contemporary uses:** *Eaten raw in Khevi. The young shoots are edible until the plant flowers.* (Bussmann et al. 2020d; 2025g; Paniagua-Zambrana et al. 2025h).

**Uses 1817 (Gmelin 1817):** The roots are nourishing and tasty and provide healthy food. Livestock enjoys eating the leaves. Once established, it is difficult to eradicate due to its creeping roots.

**Description and Ecology (Gmelin 1817):** The root is somewhat spindle-shaped, long, creeping, and white. The stem is 1.5 - 2 feet tall, erect, angular, somewhat hairy, and branched. The branches are alternate. The lower leaves are long-stalked, heart-shaped, pointed, and serrate at the base; the upper leaves are alternate, sessile, oval-lanceolate, and somewhat hairy. The blue, bell-shaped flowers are borne in a raceme, unilateral, scattered, and drooping. The calyx incisions are blunt, hairy, and recurved. It grows here and there frequently in fields, in hedgerows, woodlands, on dry hills, and in vineyards. It blooms in June, July, and August. Its seeds ripen in August and September, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel etwas spindelförmig, lang, kriechend, weiß. Der Stengel 1½ - 2 Fuß hoch, aufrecht, eckig, etwas rauhaarig, ästig. Die Aeste abwechselnd. Die untersten Blätter lang gestielt, herzförmig, zugespitzt, am Range gesägt, die obern abwechselnd, aufsitzend, oval-lanzettförmig, etwas rauhaarig. Die blauen glockenförmigen Blüten, stehen in einer Trauben-Rispe, einseitig, zerstreut, und niederhängend. Die Kelcheinschnitte sind stumpf, rauhaarig und zurückgebogen. Sie wächst hie und da häufig auf Feldern, in Hecken-lichten Waldungen, Waldschlägen, an trockenen Hügeln, und in Weinbergen, blühet im Juni, Juli, August. Reifet ihre Samen im August, September, und gehört zu den ausdauernden Pflanzen. Die Wurzeln sind nährend und schmackhaft, und geben eine gesunde

Speiße. Die Blätter frißt das Vieh gerne. Sie ist, wo sie einmal Ueberhand genommen hat, wegen ihrer kriechenden Wurzeln schwer auszurotten.

***Campanula rapunculus* L.**

*Synonyms: Campanula coarctata* Gilib.; *Campanula decurrens* Thore; *Campanula esculenta* Salisb.; *Campanula fastigiata* S.G.Gmel.; *Campanula patula* var. *rapunculus* (L.) Kuntze; *Campanula rapuncula* St.-Lag.; *Campanula rapunculus* f. *hirsutissima* Faure; *Campanula rapunculus* subsp. *verruculosa* (Hoffmanns. & Link) P.Silva; *Campanula rapunculus* var. *bracteosa* Willk.; *Campanula rapunculus* var. *calycina* (Boeber ex Roem. & Schult.) K.Koch; *Campanula rapunculus* var. *cymosospicata* Willk.; *Campanula rapunculus* var. *hirsuta* Schur; *Campanula rapunculus* var. *hirta* Murr; *Campanula rapunculus* var. *micrantha* Beyer; *Campanula rapunculus* var. *racemosopaniculata* Willk.; *Campanula rapunculus* var. *reclinata* Griseb.; *Campanula rapunculus* var. *strigulosa* Batt.; *Campanula rapunculus* var. *verruculosa* (Hoffmanns. & Link) Steud.; *Campanula rapunculus* var. *verruculosa* (Hoffmanns. & Link) Vatke; *Campanula virgata* A.DC.; *Neocodon rapunculus* (L.) Kolak. & Serdyuk.

**Original name (Gmelin 1817):** *Campanula Rapunculus*. Linn. Spü. pl. - Gmel. Flor. Badens. I. p. 471. 472.

**German names and French names (Gmelin 1817):** Kleine Rapunzel, Rapünzele, Rapunzel-Glockenblume, Rapunzelrüben; Raponce, Raiponce

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 132280** (Fig. 19)

**Botany and Ecology:** Biennial; root thick, often thickened-napiform, white, with milky juice; stems straight, simple, 70–100 cm, sometimes branching in upper part, longitudinally striate, glabrous or covered especially below with spreading white hairs; radical leaves obovate, obtuse or acuminate, attenuate into petioles, subentire, glabrous or sparingly pubescent; cauline leaves sessile, linear-lanceolate, entire, the uppermost reduced. Racemes in long spicate flowers, sometimes branching to form slightly paniculate inflorescence; flowers subsessile or on short thin erect pedicels; calyx obconical, glabrous or bristly in strips, teeth straight, narrowly long-acuminate, sometimes setaceous, entire or slightly dentate, glabrous, shorter (sometimes by half) than corolla; corolla whitish-blue or nearly white, campanulate, glabrous, divided for one-fourth or less into ovate acute lobes; filaments dilated, pubescent; style hidden in corolla, pubescent for nearly entire length, with 3 stigmas; capsule erect, obconical, elongate, striated with prominent nerves, trilobular, opened by 3 terminal pores; seeds very small, flattened, ovate, shiny, with blackish groove. June- July. (Shishkin & Boborov 1957).

**Contemporary uses:** *Eaten raw in Khevi. The young shoots are edible until the plant flowers.* (Bussmann et al. 2020d; 2025g; Paniagua-Zambrana et al. 2025h).

**Uses 1817 (Gmelin 1817):** The tender young leaves and stems, as well as the turnip-like, milk-yielding, nourishing, and highly palatable roots, are excellently used as vegetables and salads in spring. It is therefore occasionally cultivated in gardens. It is highly deserving of planting in vineyards during bad seasons and shortages, where it does not harm them.

**Description and Ecology (Gmelin 1817):** The root is turnip-shaped, white, and the thickness of a little finger. The stem is 2-3 feet tall, erect, angular, furrowed, hairy, smooth above, and branched. The root leaves are lanceolate-eyed, blunt, and somewhat wavy. The stem leaves are alternate, sessile, lanceolate, and wavy. The flower spike is elongated, crowded, and erect. The calyx segments are awl-shaped and thin. The corolla is bell-shaped, purple-red, tinged with blue. It is quite common in dry meadows, fields, along paths, hedges, and occasionally in vineyards. It blooms in May, June, and July, and its seeds ripen in July and August. It is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel rübenförmig, weiß, eines kleinen Fingers dick. Der Stengel 2 - 3 Fuß hoch, aufrecht, eckig, gefurcht, rauhaarig, oberhalb glatt, und ästig. Die Wurzelblätter lanzett-eyförmig, stumpf, etwas wellenförmig. Die Stengelblätter, abwechselnd, aufsitzend, lanzettförmig, wellenförmig. Die Blumenrispe ausgehend, gedrängt, aufrecht. Die Kelchabschnitte, pfriemenförmig, dünne. Die Blumenkrone glockenförmig, purpurroth, ins blaue fallend. Sie kommt auf trockenen Wiesen, Aeckern, Feldern, an Wegen, an den Hecken, und in den Weinbergen hie und da ziemlich häufig vor, blühet im May, Juni, Juli, reifet ihre Samen im Juli, August, und gehört unter die zweyjährigen Gewächse. Die zarten jungen Blätter und Stengel, so wie die rübenartigen milchgebenden nährenden und sehr schmackhaften Wurzeln, können vorzüglich als Gemüß und Salat, im Frühjahr bestens benutzt werden. Sie wird daher hin und wieder in Gärten

angebaut. Sie verdient, in Mißjahren, und Mangel sehr in den Weinbergen angepflanzt zu werden, denen sie keinen Nachtheil bringt.



Figure 19. *Campanula rapunculus* L.- KR 98149

***Cantharellus cibarius* Fr.**

*Synonyms: Agaricus cantharellus* L.; *Merulius cantharellus* (L.) Scop.; *Craterellus cibarius* (Fr.) Quéf.; *Alectorolophoides cibarius* (Fr.) Earle; *Cantharellus vulgaris* Gray; *Chanterel cantharellus* (L.) Murrill; *Agaricus chantarellus* L.; *Merulius cibarius* (Fr.) Westend.; *Merulius chantarellus* (L.) Scop.; *Chanterel chantarellus* (L.) Murrill; *Cantharellus edulis* Sacc.; *Cantharellus cibarius* var. *inodorus* Velen.; *Cantharellus cibarius* var. *atlanticus* Romagn.; *Cantharellus atlanticus* (Romagn.) P. Roux & Eyssart.; *Cantharellus cibarius* f. *pallidus* R. Schulz; *Cantharellus cibarius* var. *salmoneus* L. Corb.; *Cantharellus parviluteus* Fernández Sas., Pérez-De-Greg. & Eyssart.

**Original name (Gmelin 1817):** *Agaricus Cantharellus*. Linn. Sp. pl. - Bulliard. Champ. tab. 62. und tab. 505. fig. I. -Oeder Flor. Dan. tab. 264. - Schaeff. Fungi. tab. 82. und tab. 206.

**German names and French names (Gmelin 1817):** Gelber Pfifferling, Pfifferling, Eyerschwamm, Rehgeis, Rehling, Chanterelle, Gyrole

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): *Edible*. (Jorjadze *et al.* 2025f)

**Uses 1817 (Gmelin 1817):** It has a pleasant flavor and is therefore frequently eaten in several regions. It is usually roasted on the grill with fresh butter or olive oil, pepper, and salt, or boiled in butter with pepper, salt, and onions. It is also preserved in wine vinegar with Spanish pepper, salt, and garlic. Others dry it and use it in all kinds of tasty broths. Since it is difficult to describe the diverse range of sponges in words and to explain them clearly to others, true-to-life and colored illustrations are the best means of becoming familiar with them. Therefore, to protect everyone from mistakes, I consider it absolutely necessary to include the best illustrations for each sponge found here. I must also advise anyone who is not well acquainted with the various edible sponges not to bother collecting them, in order to avoid possible accidents. The safest and best way to prepare sponges is to chop them up, add a little butter, salt, pepper, vinegar, onions, and parsley, and let them simmer slowly in their own broth.

**Description and Ecology (Gmelin 1817):** Golden yellow, yolk yellow, or pale yellow in color. The stem is single or several together, round, expanding upwards, and fleshy. The cap is initially domed, later becoming somewhat funnel-shaped, with wavy edges and more or less lobed. The folds or leaflets run slightly down the stem, divided, and somewhat swollen. The ring and bulge are absent. Grows frequently in flat and mountain forests, on the ground, in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Von goldgelber dottergelber oder blaßgelber Farbe. Der Strunck einzeln oder mehrere beisammen, rund, nach oben erweitert, fleischig. Der Hut anfangs gewölbt, nachher etwas trichterförmig eingedrückt, am Rande wellenförmig und mehr oder weniger gelappt. Die Falten oder Blättchen etwas am Struncke herablaufend, getheilt, und etwas aufgeschwollen. Ring und Wulst fehlen. Wächst häufig in ebenen und Gebirgswaldungen, auf der Erde, im August, September und October. Er ist von angenehmen Geschmacke, und wird daher in mehreren Gegenden häufig verspeist. Man pflegt ihn auf dem Roste mit frischer Butter, oder Baumöl, Pfeffer und Salz zu braten, oder in Butter mit Pfeffer, Salz und Zwiebeln zu kochen. Auch wird er in Weinessig mit spanischem Pfeffer, Salz und Knoblauch eingemacht. Andere trocken ihn und bedienen sich seiner zu allerley wohlschmeckenden Brühen. Da es schwer hält, die mannigfaltigen Schwämme mit Worten zu beschreiben und andern deutlich zu machen, sind naturgetreue und colorirte Abbildungen die vorzüglichsten Mittel sich mit denselben vertraut zu machen. Daher hielte ich, um jeden gegen Fehlgriffe zu sichern, für unumgänglich nöthig, bei jedem hier vorkommenden Schwamme, die vorzüglichsten Abbildungen beizusetzen. Auch muß ich jedem, der die verschiedenen eßbaren Schwämme nicht genau kennt, anrathen, sich nicht mit dem Einsammeln derselben zu befassen, um Unglück möglich zu verhüten. Man bereitet überhaupt die Schwämme am sichersten und besten zu, wenn man sie klein schneidet, etwas Butter, Salz, Pfeffer, Essig und Zwiebeln nebst Petersilie hinzusetzt, und sie in ihrer eigenen Brühe langsam schmoren läßt.

### ***Cardamine amara* L.**

*Synonyms: Cardamine amara f. grandiflora* O.E.Schulz; *Cardamine amara f. lilacina* Beck; *Cardamine amara f. minor* Lange; *Cardamine amara f. monochlamydea* Soó; *Cardamine amara f. parviflora* O.E.Schulz; *Cardamine amara f. stricta* O.E.Schulz; *Cardamine amara* subsp. *amara*; *Cardamine amara* var. *aequiloba* C.Hartm.; *Cardamine amara* var. *aquatica* Rupr.; *Cardamine amara* var. *erubescens* Peterm.; *Cardamine amara* var. *interrupta* O.E.Schulz; *Cardamine amara* var. *macrophylla* Wender.; *Cardamine amara* var. *petiolulata* O.E.Schulz; *Cardamine amara* var. *trisecta* DC.; *Cardamine bicolor* Opiz ex J.Presl & C.Presl; *Cardamine borealis* Laest. ex Nyman; *Cardamine grandis* Schur; *Cardamine libertiana* Lej.; *Cardamine macrophylla* Schur; *Cardamine melananthera* Steud.; *Cardamine melanthera* Stokes; *Cardamine nasturtiana* Thuill.; *Cardamine nasturtium* Wallr.; *Cardamine triphylla* Pall.; *Cardamine umbrosa* Lej.; *Cardamine wiedmanniana* Boiss.; *Crucifera amara* E.H.L.Krause; *Ghinia amara* Bubani

**Original name (Gmelin 1817):** *Cardamine amara*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 57. 58

**German names and French names (Gmelin 1817):** Bittere Kresse, Bittere Gauchblume, Bittere Cardamine; *Cardamine amère*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 130803 (Fig. 20)

Figure 20. *Cardamine amara* L.- KR 130803

**Botany and Ecology:** Perennial herb, rhizome creeping, stoloniferous; stem and leaves glabrous or pilose, 20-40, rarely up to 60 cm high; leaves with 4-7 pairs of leaflets; lateral leaflets sessile, obovate or oblong, obscurely angular-dentate to entire; terminal leaflet petioluled, larger and broader than lateral, leaflets of radical leaves subreniform. Raceme at flowering corymbiform, later elongating, rather loose, 6-30, usually 15-flowered; sepals 3.5-4 mm long, ovate; petals white, oboval, 6-9 mm long; stamens nearly as long as petals; anthers violet; siliques erect on ascending pedicels, 20-40 mm long, 1-2 mm broad; style 1-3 mm long, thin, subulate; seeds small, 1mm long, 0.75 mm broad, 0.25mm thick, short-ovate, rufous. Flowering and fruiting May June. Along banks of streams. (Bobrov and Bush 1939).

**Contemporary uses:** Leaves, shoots, buds, sometimes the whole plant as snack in early spring. Eaten mainly before St George's Day (24 Apr), raw with vinegar or oil, also added to soups and meat dishes. Leaves as salad. The leaves are used as salad, the seeds as mustard substitute. Also used mkhali, often together with many other species. (Bussmann et al. 2020e; 2025h; Paniagua-Zambrana et al. 2025i).

**Uses 1817 (Gmelin 1817):** When fed green, it provides healthy and pleasant food for cattle, horses, and pigs. The young leaves can be eaten as a salad and are preferred by many to watercress because of their pleasantly irritating, bitter flavor.

**Description and Ecology (Gmelin 1817):** It differs from the preceding species (*Cardamine pratensis*) in its creeping roots, which produce shoots; taller, thicker, succulent, and green stems; succulent, uniform, light green, smooth, oval, blunt, toothed leaflets; larger, snow-white, watery-veined petals; and violet anthers. Grows in abundance in moist, boggy, and wet sylvatica woodlands, especially in the Rhine and Pfalz regions, where it becomes very prevalent in wet years. It blooms in April and May. Its seeds ripen in June, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie unterscheidet sich von der vorhergehenden Art, durch die kriechende Sprossen treibende Wurzel, höhere dickere, saftigere und grüne Stengel, saftigere, einförmige, hellgrüne, glatte, ovale, stumpfe, gezahnte Blättchen; größere schneeweisse, wässerig geadernte Blüten-Blätter, und violette Staubbeutel. Wächst in großer Menge in feuchten, moorigen, nassen Ehrlen-Waldungen, vorzüglich in den Rhein- und Pfalz-Gegenden, wo sie in nassen Jahrgängen sehr überhand nimmt. Blühet im April, May. Reifet ihre Samen im Juni, und gehört unter die ausdauernden Pflanzen. Sie giebt grün verfüttert, dem Rindvieh den Pferden und Schweinen eine gesunde und angenehme Nahrung. Die jungen Blätter können als Salat verspeist werden, und werden wegen ihrem angenehm reizenden bitterlichen Geschmacke, von mehreren, der Brunnenkresse vorgezogen.

### ***Cardamine pratensis* L.**

**Synonyms:** *Cardamine pratensis* subsp. *atlantica* (Emb. & Maire) Greuter & Burdet; *Cardamine pratensis* subsp. *granulosa* (All.) Arcang.; *Cardamine pratensis* subsp. *major* Tomšovic; *Cardamine pratensis* subsp. *matthioli* (Moretti) Nyman; *Cardamine pratensis* subsp. *matthioli* Arcang.; *Cardamine pratensis* subsp. *paludosa* (Knaf) Celak.; *Cardamine pratensis* subsp. *paludosa* Ěelak; *Cardamine pratensis* subsp. *picra* De Langhe & D'hose; *Cardamine pratensis* subsp. *polemonioides* Rouy; *Cardamine pratensis* subsp. *rivularis* (Schur) O.Bolòs & Vigo; *Cardamine pratensis* subsp. *submatthioli* Tzvelev; *Cardamine pratensis* subsp. *typica* R.T.Clausen; *Cardamine pratensis* var. *rivularis* Popov

**Original name (Gmelin 1817):** *Cardamine pratensis*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 56. 57.

**German names and French names (Gmelin 1817):** Wiesenkresse, Wiesengauchblume, Guckucksblume, Wiesenschaumkraut, Braune Kresse, Wiesen-Cardamine; Cresson de près, Cardamine des près

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs perennial, (8-)15-55(-80) cm tall, glabrous or rarely sparsely pilose basally. Rhizomes tuberous, to 5 mm in diameter, without stolons. Stems erect, simple, 2-12 (-18)-leaved. Rhizomal leaves to 30 cm; petiole (1-)2-7(-10) cm; terminal leaflet orbicular or broadly obovate, 0.3-2 cm in diam., with a petiolule to 1.5 cm, base rounded, rarely subreniform or cuneate, margin repand, apex rounded; lateral leaflets (0 or)2-8(-15) on each side of rachis, about as large as or smaller than terminal leaflet, orbicular, ovate, or obovate, petiolulate or sessile, margin crenate or repand. Cauline leaves including petiole 2-17 cm, pinnatisect, glabrous; petiole base not auriculate; terminal lobe linear, oblong, ovate, or lanceolate, 1-2.5(-3.5) cm × 5-8(-10) mm, petiolulate or sessile; lateral lobes 4-7(-13) on each side of rachis, similar to terminal lobe, base petiolulate or sessile and decurrent, margin entire or rarely dentate. Fruiting pedicels erect-ascending or subdivaricate, (0.5-)1.2-2.5(-3) cm, slender. Sepals oblong or ovate, (2.5-)3-5(-6) × 1-2 mm, erect or spreading, base saccate, margin membranous. Petals purple or lilac, rarely white, obovate, (0.6-)0.8-1.5(-1.8) cm × 3-7.5(-10) mm, clawed, apex rounded or emarginate. Median filament pairs 5-10 mm, lateral pair 3-6 mm; anthers narrowly oblong, (0.8-)1.2-2 mm. Ovules 20-30 per ovary. Fruit linear, (1.6-)2.5-4.5(-5) cm × (1.2-)1.5-2.3 mm; valves glabrous; style (0.5-)1-2.2(-2.7) mm, stout. Seeds light brown, oblong, 1.2-1.8(-2) × 1-1.4 mm. Flowering April-July, fruiting May-August (Wu *et al.* 1994-2013).

**Contemporary uses:** Used in gastronomy. Eaten as salad. The leaves are used as salad, the seeds as mustard substitute. Also used mkhali, often together with many other species. (Bussmann *et al.* 2020e; 2025h; Paniagua-Zambrana *et al.* 2025i).

**Uses 1817 (Gmelin 1817):** The young leaves can be used in spring as a tasty side dish or salad, like watercress. The green plant is very good fodder for cattle, horses, and pigs. The flowers provide bees with abundant honey.

**Description and Ecology (Gmelin 1817):** The root is fibrous and white. The stems are 1-1.5 feet tall, erect, rounded, and smooth. The leaves are lined, those of the roots larger, the leaflets slightly stalked, partly alternate and opposite, oval to rounded, and toothed. The stem leaves are alternate. The leaflets are linear-lanceolate, somewhat entire at the margins,

and smooth. The flowers terminate in racemes. The calyx is tetrafoliate. The leaflets are oval, blunt, erect, and membranous at the margins, white. The corolla is tetrafoliate: the leaves are obovate, blunt, white or light purple-violet, marked with fine, reticulated, violet-blue veins. The pod is linear, somewhat compressed, and smooth. Grows frequently in moist and marshy meadows, along streams, and in slightly damp grasslands and orchards. Blooms in March, April, and May. Its seeds ripen in May and June, making it a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig, weiß. Die Stengel 1 - 1½ Fuß hoch, aufrecht, rund, glatt. Die Blätter gefüttert, die der Wurzeln größer, die Blättchen etwas gestielt, theils abwechselnd und gegenüberstehend, oval rundlich, gezahnt. Die Blätter der Stengel abwechselnd. Die Blättchen linien-lanzettförmig, am Rande etwas ganz, und glatt. Die Blüten endigend, auf Blumentrauben sitzend. Der Blumenkelch vierblättrig. Die Blättchen, oval, stumpf, aufrecht, am Rande häutig, weiß. Die Blumenkrone vierblättrig: die Blätter verkehrt eyrund, stumpf, weiß oder hell purpurviolett, mit feinen violett-netzförmigen blauen Adern bezeichnet. Die Schote linienförmig, etwas zusammengedrückt, glatt. Wächst häufig auf feuchten und sumpfigen Wiesen, an Bächen, und in etwas feuchten Gras- und Obstgärten. Blühet im März, April, May. Reifet ihre Samen im May, Juni, und gehört unter die ausdauernden Pflanzen. Die jungen Blätter können im Frühjahr als schmackhaftes Zugemüße und Salat, wie die Brunnenkresse benutzt werden. Die grüne Pflanze ist ein sehr gutes Futter, für Rindvieh, Pferde und Schweine. Die Blüten geben den Bienen reichlichen Honig.

### ***Carduus crispus* L.**

*Synonyms: Carduus crispus* subsp. *agrestis* Vollm.; *Carduus crispus* subsp. *incanus* (Klok.) Soó; *Carduus crispus* var. *albus* Makino; *Carduus crispus* var. *integrifolius* Rchb.; *Carduus crispus* var. *microcephalus* Domin; *Carduus fissurae* Nyár.; *Carduus incanus* Klokov; *Carduus inclinans* Stokes

**Original name (Gmelin 1817):** *Carduus crispus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 361. - 363.

**German names and French names (Gmelin 1817):** Krause-Distel; Chardon frisée

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs 40-150 cm tall, biennial or perennial. Stems erect, apically usually branched, sparsely hirsute, usually cobwebby above; wings toothed, teeth with slender spines 1-3 mm at margin and apex. Leaves dark green, abaxially sometimes gray and thinly cobwebby, sparsely hirsute along veins. Lower cauline leaves sessile, ± narrowly elliptic or oblanceolate, 5-18 × 1-7 cm, pinnatifid or lowermost undivided; segments 7-12 pairs, elliptic, triangular, or ovate-triangular, margin spinulose and unequally toothed, teeth triangular, laterally with short spinules, and apically with a spine to ca. 3 mm. Middle cauline leaves similar but smaller. Uppermost cauline leaves oblanceolate to broadly linear. Capitula mostly 3-5 clustered at end of stem or branches, rarely solitary. Involucre subglobose, 1.5-2(-2.5) cm in diam., glabrous or sparsely cobwebby. Outer phyllaries triangular, ca. 3 × 0.7 mm, apex mucronulate to spiniform; middle phyllaries 4-13 × 0.9-2 mm, narrowed into a triangular-subulate erect-patent or spreading spiny-tipped distal portion; inner phyllaries linear, straight, distally membranous and acuminate. Corolla purplish red or rarely white, ca. 1.5 cm, tube ca. 7 mm. Achene ca. 4 mm. Pappus bristles white, to 1.3 cm. Flowering and fruiting February-October (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** The young, tender leaves and shoots can be prepared and eaten as salads and vegetables. The stems and leaves provide good and plentiful fodder for pigs in March, April, and May. Bees collect honey and wax from the flowers. Of all our thistle species, the very young leaves and shoots can be eaten as salads and vegetables. Therefore, only a few of the most excellent are listed and described here.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 3-4-5 feet tall, erect, angular, somewhat tomentose, with the decurrent leaves winged, toothed, thorny, and branched. The branches are alternate and winged. The leaves are alternate, decurrent, semi-pinnate, lanceolate, tomentose below, pale gray, dark green above; the segments are wavy, serrated at the edges, and covered with fine thorns. The flowers, which are sessile or on very short, white, tomentose stalks, terminate the stem and branches and are crowded together in a cluster. They are purple-red, rarely white. The corolla is hair-like and stalkless. The receptacle is flat and covered with hairs. Often grows on scree slopes, around towns and villages, on hedges, fences, paths, in seed fields, in herb gardens, in vineyards, and along ditches. It blooms in June and July. Its seeds ripen in July and August and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 3 - 4 - 5 Fuß hoch, aufrecht, eckig, etwas filzig, mit den ablaufenden Blättern geflügelt, gezähnt, dornig, ästig. Die Aeste abwechselnd, geflügelt. Die Blätter abwechselnd, herablaufend, halbgefiedert, lanzettförmig, unten filzig, fahlgrau, oben dunkelgrün; die Abschnitte wellenförmig gekräuselt, am Rande gezähnt, und mit feinen Dornen besetzt. Die aufsitzenden, oder auf ganz kurzen weißfilzigen Stielen befindlichen Blüten, endigen den Stengel und die Aeste, und sitzen in einem Büschel gedrängt beisammen, sind purpurroth, seltener weiß. Die Samenkronen haarförmig, stiellos. Der Fruchtboden eben, mit Haaren bedeckt. Wächst häufig auf Schutthalden, um Städte und Dörfer, an Hecken, Zäunen, Wegen, auf Saatfeldern, in Krautgärten, in den Weinbergen, und an Wassergräben. Blühet im Juni, Juli. Reifet ihre Samen im Juli, August, und gehört unter die einjährigen Gewächse. Die jungen zarten Blätter und Sprossen, können als Salat und Gemüse zubereitet und verspeist werden. Die Stengel und Blätter geben im März, April und May, ein gutes und ergiebiges Futter für Schweine. Aus den Blüten sammeln die Bienen Honig und Wachs. Von unsern sämtlichen Distelarten, können die ganz jungen Blätter und Sprossen als Salat und Gemüse verspeist werden. Hier werden daher nur einige der vorzüglichsten angegeben und beschrieben.

***Carlina acaulis* L.**

*Synonyms: Carlina acaulis* var. *acaulis*; *Carlina alpina* Jacq.; *Carlina cirsioides* Klokov; *Carlina officinalis* Bubani; *Carlina subacaulis* DC.; *Chromatolepis acaulis* Dulac

**Original name (Gmelin 1817):** *Carlina acaulis*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p.385. 386. - Schkuhr. Bot. Handb. tab. 222.

**German names and French names (Gmelin 1817):** Eberswurz, Roßwurz, Wilde Artischocken; Carline, Camaeleon blanc, Artischaud sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Vulnerable, decline

**KR 114078** (Fig. 21)

**Botany and Ecology:** Perennial herb. All leaves in basal rosette petiolate, all irregularly and deeply (sometimes up to midrib) pinnatisect, with short, angular, spiny-toothed or distantly lobed, glabrous or subglabrous above, weakly arachnoid-hairy beneath, 4-12(25) cm long and 1.5-4(6) cm wide. Capitulum large, 70-150 mm wide when open, solitary among rosette of leaves. Outer involucral bracts herbaceous, green; middle bracts brownish to brown, cristate and sinuate-spiny along margin; innermost bracts whitish above, with wide dark purple stripe below on outer side, stiff-scaly and lustrous, linear, acuminate, not or slightly broadened above, much longer than outer bracts, exceeding florets by 25 mm, erect or radially divergent. Corolla whitish or reddish. Achenes 4-6 mm long; pappus three to four times as long as achenes, up to 15-18 mm long, its bristles connate at base in groups of five to eight. Meadows of forest and subalpine zone, on mountain slopes, forest glades. Northern Europe, Atlantic Europe (south), western Mediterranean (north), Balkans-Asia Minor (west). (Boborov & Shishkin 1998).

**Contemporary uses:** *Rhizome to treat wounds, ulcerations, skin infections, rough skin, swellings, vulnerary, anti-inflammatory. Flowers, leaves, roots against age spots. Flowers to treat epilepsy and fright. Flower and root consumed cooked, as raw snacks, tea. Macerated in olive oil; the resulting oil used as seasoning. Young leaves boiled in mixtures. Inner part of inflorescence was a raw snack. Receptacles eaten raw. Eaten raw by children. Rabka. Stems and roots as raw snack, sometimes roots boiled, stuffed with cheese and eggs. Good fodder for cattle and pigs. Used as ornamental. Dried flowering aerial parts are hung on the outside door year-round and used to forecast weather.* (Paniagua-Zambrana & Bussmann 2025b).

**Uses 1817 (Gmelin 1817):** The fleshy, juicy, tender flower base, after being freed from the calyx and florets, is prepared and eaten as a very tasty and healthy vegetable, like the base of an artichoke. The young stems, along with the lower fleshy parts of the flower heads, are also frequently consumed with salt, pepper, and tree oil, especially in the French and Spanish Pyrenees. Since this plant grows so widely in the regions mentioned above, and so far only its roots have been left to veterinarians, it should be used as a healthy, pleasant, and nutritious food. It deserves to be cultivated in our kitchen gardens, where the flower heads and stems grow larger and more tender, as our experiments with it over several years have shown.



Figure 21. *Carlina acaulis* L.- KR 114078

**Description and Ecology (Gmelin 1817):** The root is cylindrical, long, branched, wrinkled, and brown on the outside. The stem is very short, often only one to two inches long, sometimes 1/2 to 1 foot long, erect, and single-flowered. The root leaves are sessile, spreading outward, semi-pinnate, lanceolate: the segments are 2-3 toothed, smooth, and end in a spine. The flower is very large. The outer sepals are semi-pinnate, with palmate spines on the margins; the inner ones are much longer, linear-lanceolate, white, radiate, spreading out in sunlight, shiny, dry, and forming a multi-petaled corolla. The receptacle is flat, with cellular depressions, and within these, are provided with multi-lobed bracts, between which lie club-shaped bristles. Grows in the higher and middle mountain regions of the Baden and Württemberg Black Forest, and frequently on the rugged, rocky limestone hills and mountains around Villingen, Donaueschingen, Engen, Aach, Stockach, Möskirch, on the slopes of the Danube Valley, in the neighboring Kingdom of Württemberg, in Sigmaringen, in Switzerland, along the Jura, and in Bruntrut. It blooms in July and August. Its seeds ripen in September and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, lange, ästig, runzlich, aussen braun. Der Stengel ganz kurz, öfters nur ein bis zwey Zoll lang, zu Zeiten  $\frac{1}{2}$  - 1 Fuß lang, aufrecht, einblüthig. Die Wurzelblätter liegen auf der Erde auf, sind aufsitzend, in die Runde verbreitet, halbgefiedert, lanzettförmig: die Abschnitte 2 - 3 zahnig, glatt, sich in einen Dorn endigend. Die Blume sehr groß. Die äußern Kelchblätter halbgefiedert, am Rande mit handförmigen Dornen besetzt: die innern viel länger, linien-lanzettförmig, weiß, strahlenförmig, bei Sonnenschein ausgebreitet, glänzend, trocken, eine vielblättrige Blumenkrone vorstellend. Der Fruchtboden flach, mit zellenförmigen Vertiefungen, und in diesen, mit vielspaltigen Spreublättchen versehen, zwischen welchen noch keulenförmige Borsten liegen. Wächst in den höhern und mittlern Gebirgsgegenden, des Badischen und Würtembergischen Schwarzwaldes, und häufig an den rauhen steinigen Kalkhügeln und Bergen um Villingen, Donaueschingen, Engen, Aach, Stockach, Möskirch, an den Abhängen des Donauthals, im benachbarten Königreiche Würtemberg, im Sigmaringschen, in der Schweiz, längs dem Jura hin, und im Bruntrutdtschen. Blühet im Juli, August. Reifet ihre Samen im September, und gehört unter die ausdauernden Gewächse. Der fleischige, saftige, zarte Blütenboden wird, nachdem er vom Blütenkelche und den Blümchen befreuet worden, so wie der Boden der Artischocken, als ein sehr schmackhaftes und gesundes Gemüse zubereitet und verspeist. Auch werden die jungen Stengel nebst den untern fleischigen Theilen der Blütenköpfe vorzüglich auf den französischen und spanischen Pyrenäen mit Salz, Pfeffer und Baumöhl häufig genossen. Da diese Pflanze so häufig in oben gedachten Gegenden wächst, und bisher größtentheils nur deren Wurzeln, den Thierärzten überlassen werden, sollte sie bestens als gesunde angenehme und nahrhafte Speise benutzt werden. Sie verdient in unsern Küchengärten angebauet zu werden, wo der Blütenboden und die Stengel, größer und zarter werden, wie unsere damit mehrere Jahre über, dahier angestellten Versuche zeigten.

***Castanea sativa* Mill.**

*Synonyms: Castanea castanea* H.Karst.; *Castanea prolifera* (K.Koch) Hickel; *Castanea sativa* f. *discolor* Vuk.; *Castanea sativa* var. *hamulata* A.Camus; *Castanea sativa* var. *microcarpa* Laviolle; *Castanea sativa* var. *prolifera* K.Koch; *Castanea sativa* var. *spicata* Husn.; *Castanea vesca* Gaertn.; *Castanea vulgaris* Lam.; *Fagus castanea* L.; *Fagus castanea* var. *variegata* Weston; *Fagus procera* Salisb.

**Original name (Gmelin 1817):** *Fagus Castanea*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 702. 703. - *Castanea vesca*. Gaertn. fruct. et semina plant. I. p. 151. tab. 37. fig. 1.

**German names and French names (Gmelin 1817):** Kastanienbaum, Zahmer Kastanienbaum, Köstenbaum; Chataigner, Maronier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 203638** (Fig. 22); **203639** (Fig. 23)

**Botany and Ecology:** Tree to 30 m high, trunk 1.5-2 m in diameter, with a wide spreading top. Branches spreading, the young ones pubescent, reddish-brown, lenticelate. Buds ovoid, covered with 2 scales. Stipules soon caduceous, linear or lanceolate. Leaves born on long shoots, 10-25 cm long, lanceolate, tapering toward apex, subulate-tipped, narrowed and entire at base, margins serrate-dentate, leaves at first densely covered above with short hairs, sooner densely covered with stellate hairs below and glabrous above, the lower surface prominently nerved, the lateral veins terminating in teeth. Flowers arranged in long catkins of two kinds, with both kinds borne on every tree. Some catkins only have staminate (male) flowers, which mature first. Other catkins have staminate flowers but also carry near the twig small clusters of pistillate (female) flowers. Staminate flowers yellowish, 3 or more together on a long axis, the catkins not surpassing the adjoining leaves, falling after flowering; pistillate flowers greenish, clustered 3 or rarely 4-7 together; stigmas long, filiform, reddish. Fruit a 1-seeded (rarely 2-seeded) nut, with coriaceous castaneous shell; involucre crescent, coriaceous, spherical, covered with subulate prickles, enclosing 1-3 nuts. In broad-leaved woods, mostly at 800-1800 m. Found in middle Dnieper (cultivated there), Crimea (cultivated), Caucasus (Ciscaucasia, West, East and South Transcaucasia-- also cultivated in these regions). General distribution in South Central Europe, Mediterranean, Balkan Peninsula and Asia Minor, Lesser Armenia and Kurdistan. Flowers in June, fruits in September. The leaves provide food for some animals, including moths and butterflies (Lepidoptera) such as the case-bearer moth (*Coleophora anatipennella*). *Castanea sativa* requires a mild climate and adequate moisture for good growth and a good nut harvest. Its year-growth is sensitive to late spring and early autumn frosts and is intolerant of lime. Under forest conditions, it will tolerate moderate shade well. It prefers well-drained soil and can grow in nutritionally poor soil. *C. sativa* cannot grow in the shade. In the lower mountain belt, up to 1100 (1200) m forms chestnut forest adapted to the edges of valleys, but on watershed slopes grows as admixture to beech (*Fagus*), beech-horn-beech (*Carpinus-Fagus*),

beech-horn-beech -oak (*Carpinus-Fagus-Quercus*) forests. Rapid-growing perennial species reaching an age of more than 1000 years. Develops a thick stalky network of roots. Thermophilic species, suffers acutely from frost. Grows well in loose, fresh, deep soil where gives rich natural seeding. Flowering in June, fruiting in October-November. Forests in lower and middle montane zones from 500 to 1200-1400 m sometimes ascending to 1600 m with beech, hornbeam, linden and other deciduous species. (Flora of Azerbaijan 1950). Many *Castanea* forests are dying back due to chestnut blight.



Figure 22 *Castanea sativa* Mill. - KR 203638



Figure 23. *Castanea sativa* Mill. - KR 203639

**Contemporary uses:** An alcoholic extract of the flowers is used to treat rheumatism and anointing inflamed joints. Anthelmintic. The raw fruits have anthelmintic properties. The fruits are fried and then ground into powdered taken orally in cases of bleeding hemorrhoids and uterine hemorrhage. A water decoction of the bark is used for the same purpose, while an infusion of leaves is used as expectorant. A decoction of chestnut cups has astringent properties. Albania: leaves as tea for sore throat. Romania: varicose veins. Romania: leaves as astringent, anti-inflammatory; asthenia, diarrhea, hemorrhoids. The fruits are very nutritious and used in food raw, boiled and baked, as well as fried. They can be used as the component for cooking Plov (a common dish in the east. In Azerbaijan rice is boiled on a small fire until soft, in combination with other ingredients like meat, birds, fish, dried fruits, greens, beans) and Galya (pumpkin, stewed with fried onions, chestnuts, green beans, dried plums or cherry plums). Well-fried and then powdered chestnuts are used as replacement coffee. The fruits have a very specific flavor. Georgia: The fruits are widely used for food; leaves are used for Phkhali. Hungary: roasted or cooked for sweets and cakes. Czech Republic: Fruits eaten. A dye solution is prepared from the bark, leaves, aglet, young twigs, pericarp and fruity peel to obtain brown, black-brown, chestnut, grey-coffee, black coffee and other different colors and

shades which are used for dyeing wool, cotton and silk yarn as well as its products. Tanning material is obtained from them for curing leather. The trees have a high decorative quality, with beautiful chestnut-brown bark, huge spreading crown, beautiful large leaves, especially in fall. Suitable for creation of avenues, parks and gardens. One of the most valuable species for wood. Widely used in the production of furniture, doors, windows, parquet and other articles. Good nectariferous plant producing nectar and pollen. Suitable for establishment of forests on mountain slopes in the lower mountain belt. Chestnut is a preferred timber used in construction of wooden buildings. It also serves for fences, windows and doors, toll handles, walking sticks and carts. According to archaeological and ethnographic data Georgian tribes, especially Colchians were proficient sailors and shipbuilders. Local population of Adjara maintained rich traditions of cutting, transportation and treatment of large logs. These traditions might be related with development of navigation and when watercrafts made of a whole log were substituted by board-made boats, the entire large logs were used to make various household utensils. In board shipbuilding selection of timber was considered very important and Laz (a sub-group of the Georgian population of the south-eastern coast of the Black Sea) artisans made all parts of boats of chestnut wood and called chestnut "the golden tree" for its valuable properties: "chestnut material maintains hardness and acquires lightness when it dries up; it absorbs dyes perfectly and, most importantly, is well adapted to sea". Chestnut was also used to make lateral parts and interior details of riverboats, while their bottom was made of alder. Chestnut wood was also used to make parts of land vehicles, in particular, "peso", quarters of a cartwheel circle in Racha; other materials used to make "peso" were timber of *ek'lis khe* (*Robinia pseudoacacia* L.), *bzhola* (*Morus alba* L.), *mts'are bali* (*Cerasus silvestris* Garsault); however, the major tree species used for this purpose were beech and elm. The tree serves especially for house construction, and storage vessels, doors,). Czech Republic: valuable timber tree. Eastern Europe: for wooden home goods. Bulgaria: seeds consumed roasted or boiled (as a sweet) or as a bread flour ingredient. (Bussmann et al. 2025i; Paniagua-Zambrana et al. 2025j).

**Uses 1817 (Gmelin 1817):** Of all trees suitable for hard timber, the chestnut tree grows the fastest, and its foliage is rarely or never exposed to insect damage. The exceptionally good qualities of its wood and fruit reliably elevate it to the most useful of trees. Because of its hardness and durability, the wood is ideal for building, vine poles, and other supports. One of its poles can support at least seven fir poles. Such vine poles deserve to be planted above vineyards in the suitable Rhine and Neckar regions. For this purpose, chestnut trees are planted; they are cut down every five to seven years, then sprout again from the root and can be used every five years. Even the father of farmers, Columella, recommended these vine stakes: *Castanea roboribus* is close to the roots, and the idea is that it stabilizes *habilis* vines, which, in a relatively short time, can grow strong, and after five years, more *salicti recreatur*, but in a formatted tree, can be used in a permanent manner. Colum. de re rustica, Chapter XXXIII. - It provides the best wood for barrels and casks, which is why most wine containers, especially in Italy and France, are made from it. Because of the fine openings (*pori*) in the wood, the wine is said to ferment more slowly in these barrels, but evaporate less, thus remaining stronger and more pleasant. Carpenters and turners use it for columns, tables, chests, chairs, benches, and bed frames—it doesn't shrink or swell, and it is said to have many advantages for hydraulic engineering and, especially, for water pipes. It is very useful as firewood and can be used alongside beechwood. It is also very useful for carbonizing. The coals are highly valued as blacksmith coal because they give off intense heat, glow evenly and quickly, and can be easily extinguished. The ash, however, like that of oak, is useless for washing or bleaching. The bark contains a great deal of gallnut substance and is therefore excellent for tanning. Suckow obtained a beautiful reddish-brown broth from fresh, woody twigs with leaves, which, with potash, became a very fiery reddish-brown, even darker with caustic vegetable lye, yellow-brown with sal ammoniac, wine-yellow with allum, and black with iron and zinc vitriol. Cloth and silk prepared with various additives obtained almost the same colors; cloth and silk prepared with iron vitriol was particularly recommended because of its blackish-brown color. Damburnay obtained a good, strong musk color from chestnut bark on cloth prepared by dissolving bismuth. With the bark boiled in water, one can give hair a beautiful yellow color, see Böhmer, "Technical History of Plants," I, p. 79. It dyes linen such a permanent brown that it can never be used for white paper. See Parmentier. *Traité sur la Chataigne*. The leaves of the chestnut tree, which fall in late autumn, provide the tree with the necessary protection against the cold of winter and are useful as bedding for livestock. In France, mattresses are made from them, which are very elastic and provide a good night's sleep. However, when one turns over on them, the leaves make a noise and are therefore probably jokingly called by the French "lits du parlement," parliament beds. As for the fruits of the chestnut tree, we know that they have been known since ancient times as a tasty, popular, and good food. For this reason alone, the trees deserve to be optimally planted, grafted, and propagated in regions where they thrive. Pliny already writes, *apud graecos Sardinianos balanos appellat, nam divus Tiberius postea Balanum nomen imposuit excellentioribus satu factis. see its hister. mundi. Cap. XXXIII*. From this point it is clear that the Greeks made chestnuts larger and tastier by sowing them! - and Virgil writes: *Pars autem posito surgunt de semine: ut altae Castaneae! nemorumque Jovi quae maxima frondet Aerculus, atque habitae Grajis oracula quercus.* - see his *Georgica* II. From this passage we see that the Romans also grew the chestnut tree through sowing. - *Sunt nobis mitia poma, Castaneae molles, et pressi copia lactis.* Virgil. *Eclog. I*. He understands fruit that melts in the mouth and soft-boiled chestnuts, and imagines Tityrus to be a kind old

toothless man, so Melibaeus promises him that if he spends the night with him, he will serve him food that he can eat. - *Castaneasque nuces mea quas Amaryllis amabat!* Virg. In most parts of Italy, France, Spain, and Portugal, chestnuts are boiled and roasted and eaten with lemon or sweet orange juice. Here, it's served with fresh butter and a little salt. Once boiled, they are mixed with kale, and geese, ducks, and pigeons are also stuffed with them. Occasionally, they are placed in hot water, the skin removed, the fruit cut into pieces, and dried in ovens or kilns. In this way, they can be stored for many years in a dry, airy place. They are then boiled and, with milk, meat broth, butter, or goose fat, make a very tasty, nutritious, and healthy dish. From chestnuts chopped and dried in this way, one can make excellent groats and a very good flour, which can be used in all kinds of baked goods. Mixed with grain flour and fermented with sourdough, it even produces a tasty, nourishing, and healthy bread. Chestnut groats and flour cooked with milk make a very nourishing and tasty porridge. This flour, mixed with bread, butter, and eggs, makes dumplings with a very good flavor. In some French provinces, in Genoa, Tuscany, and Piedmont, the inhabitants make a thick, firm, cooked pastry (polenta) from the flour, which tastes very pleasant. Chestnuts can also be made into a good chocolate. The largest chestnuts are boiled in brandy until the skins fall off, then they are allowed to boil in milk until completely soft. The pulp is then mashed and boiled in the required amount of milk with sugar and a little cinnamon and then whisked again until it foams like chocolate. See Lieutaud, "The Essence of Medical Practice." B. 4. Chestnuts produce a good brandy through fermentation. Livestock, especially pigs, cows, sheep, and poultry, eat chestnuts very willingly; the smaller variety is chosen for this purpose, as it is excellent for fattening. Those who can appreciate the great advantages of chestnuts and other fruit-bearing trees must wish that their propagation, in suitable locations, be given the greatest possible attention. Those farmers who, despite exceptional winters such as that of 1788, when several chestnut, walnut and fruit trees, and even many other native trees in the forests froze to death, are discouraged from immediately replanting these trees with redoubled zeal, deserve, if they fail to appreciate the inevitable damage that must befall them and their descendants, to be treated with wise Roman severity: *Possum multa tibi veterum praecepta referre, Ni refugis tenuisque piget cognoscere curas!* Virg. Georg. I. In addition to the above-mentioned regions in Baden, Alsace, and the Rhenish Palatinate, I also propose the Kaiserstuhl in Breisgau, especially the sunny volcanic hills near Achkarn, Burgen, Sponeck, Rothweil, Bückensohl, the Lützelberg, and high Limburg, for chestnut groves, where they would thrive. And since those regions with abundant vineyards are sorely lacking in wood for vine stakes, the chestnut trees above the vineyards should be raised on stakes.

**Description and Ecology (Gmelin 1817):** It is one of the large and beautiful trees, usually the size of a mature medium-sized oak, of medium height, with spreading, alternate branches and smooth, blackish-grey bark. The leaves are alternate, lanceolate, serrated at the edges, and glossy green above. The flowers are both male and female on the same tree, separate from each other. The male flowers sit on long catkins (amentae) and have a small, five- to six-petaled calyx, no corolla, and five to twenty stamens. The female flowers have a common 2- to 3-petaled involucre, which is four times incised and provided with stiff, branched spines. The calyx stands above the receptacle and has 5- to 6 petals. No corolla. The style is 3- to 6 times divided. The seed capsule, which forms the floral covering during flowering, is large, round, covered with branchy, green, stiff spines, single-lobed, and four-valved. The fruit is usually made up of three chestnuts, which are firmly attached to the seed capsule at the base. The lateral chestnuts are oval-round, slightly pointed at the tip, convex on the outside, and flat on the inside. The third chestnut, located between the lateral chestnuts in the middle, is somewhat flat and compressed on both sides, and like the lateral chestnuts, covered on the outside with a leathery, smooth, shiny, reddish-brown bark, white and somewhat uneven at the base, single-lobed and without divisions, and on the inside with an ash-grey, silky covering, followed by a second, finer skin that covers the kernel and its folds. The kernel is whitish and solid. It grows primarily in Sicily, Italy, Tyrol, Carinthia, Hungary, Piedmont, southern France, Spain, and Portugal, as well as in the southern regions of the Rhine, in Alsace near Otterot, Rappolsweyer, Reichenweiher, Kronweissenburg, and Ruffach, in Baden near Gernsbach, Baden, and Bühl, in the Bühler and Neusatz valleys, in the Ortenau region near Oberkirch, Durrbach, and on the Neckar in the area around Heidelberg, Schriesheim, and Weinheim. It blooms in April and May. Its fruits ripen in October. Chestnuts can be prepared in many ways, fresh or dried, as a tasty, highly nutritious, and healthy dish. There are regions particularly in Italy, which include the Apennines, whose inhabitants, due to a lack of grain, feed on chestnuts all year round. They are strong and healthy, and among them you can find people over ninety years old. Since the chestnut groves in the Rhine and Neckar regions have been decaying more and more every day for the past thirty years, and we should strive to preserve, restore, improve, and increase them as best we can, it would not be out of place here to speak in more detail about their natural history and origin, the methods of improvement, propagation, and use. This tree probably originated in Greece. Some claim that it originally came from Asia Minor, and that Caesar brought it to Italy from Sardis in Natolia, and from there it spread to Hungary, France, Spain, and Portugal, to southern Germany, and especially to part of the Rhine. For the older natural history of this tree, Theophrastus's History of Plants is particularly worth reading. Two varieties of chestnut trees are distinguished: tame and wild. The former bears larger, tastier fruits, which it owes solely to cultivation and a more favorable location; these are the marrons, or chestnuts of the French. The so-called wild chestnut trees bear smaller, less tasty fruits,

but their wood is superior to that of tame chestnut trees. These wild chestnuts should not be confused with the horse chestnuts (*Aesculus Hippocastanum* Linn. Marronnier d'Inde). On the planting, cultivation, and grafting of the chestnut tree, see Philipp Miller's Dictionary. - The Bibliotheque physico-oeconomique 2, p. 1 et seq. - Parmentier's *Traité de la Chataigne*. 1780. Pietsch's *Treatise on Chestnut Trees*. Halle 1776. - Erhart's *Economic History of Plants*. 1761, Part 10, and Schreber's *Economic Collections*. However, despite the many instructive things one finds in these and other writings, I doubt that they outline and follow the true paths by which chestnut trees can be easily cultivated. It goes without saying that, above all, the chestnut tree to be grafted must be given its proper location and its appropriate soil. It prefers a temperate climate, a mountain soil of gravel mixed with clay, weathered coarse-grained granite, such as that found around Gernsbach, Baden, in the Bühlertal valley, around Durrbach, and the entire surrounding area. Opinions on grafting it differ. Some believe it should be grafted onto walnut trees (*Juglans regia*, Linn.), others onto beeches (*Fagus sylvestris*, Linn.), and others even onto oaks, methods which Miller, *op. cit.*, rightly rejects as useless. Some suggest grafting branches of already grafted chestnuts onto the wild chestnut tree, which certainly seems to be more in keeping with nature, since it grafts the wild trunk. Experience in our region, however, shows that such grafted chestnut trees become much more tender than wild ones, and thus more easily frostbite. Therefore, this type of grafting cannot be recommended with any benefit, at least not in the Rhineland and Neckar regions. Let us assume that all the chestnut trees found here were planted by our ancestors, and that they, as is the case, already belong to the category of somewhat grafted trees. From these, partly by winds and heavy rain, but especially by mice, squirrels, birds, and other animals, the fruits are occasionally carried into neighboring forests, which have grown up there, and thus removed from all human cultivation, they have been transformed into wild trees due to the change in location and soil—that is, into trees that bear smaller, less tasty fruits. If we further observe the plantations of our ancestors, which still stand here and there as chestnut groves (*Castaneta*), we can see clearly enough that, judging by their existing regularity and the constant distance between one tree and the next, they were planted and cultivated with great diligence. Later descendants completely neglected the cultivation of such groves, gave little thought to breeding, and left the matter to nature. Hence it is that very large fruit-bearing chestnut trees are so rare here today that many farmers and growers believe the large chestnuts (*Maronier*) are a different species and cannot grow here at all. This, however, is easily refuted if one can investigate the matter more closely on site. In the Bühlertal, but especially near Neusaz, there is still a small, formerly artificially planted chestnut grove, whose fruits are larger than those of the wild, but smaller than chestnuts. In some areas of the upper Bühler Valley, around Neusaz and Durrbach, one can still find here and there, above gardens or fields, isolated old trees bearing very large and delicious fruits, considered the finest chestnuts, and which, in size and flavor, yield little or nothing to the Italian and French ones. Since we are therefore convinced that genuine chestnuts are found in these regions, the question still arises as to whether these trees were perhaps planted and cultivated in a special way, and what kind. To learn as much about this as possible, I spoke 17 years ago with some of the oldest men in Neusaz and the upper Bühlertal valley, who unanimously assured me that these chestnut trees, as they had heard from their fathers and grandfathers, had frequently grown above the gardens at the edge of the oak forests, just like walnut trees, fifty years ago, and at that time had provided the most important source of food for the valley and mountain dwellers. Later, viticulture gradually became so prevalent that many areas where previously there nothing had been but chestnut, walnut, and other fruit trees were converted into vineyards. Since then, their planting has been considered a secondary concern. Moreover, in some exceptionally cold winters, many trees perished. If a tree is dug up or cut down, or otherwise damaged, one should not think about replanting one that one has grown but rather leave this almost entirely to nature. This is the reason why not only are trees that bear large fruits now so rare, but also why the mid-sized varieties are noticeably diminishing from year to year. As for the production of large chestnuts, the trees must be trained from the fruit, for which one must only choose the mid-sized chestnuts, since the side fruits, between which the mid-sized fruit stands, although they are usually larger, as experiments and experience have shown, also produce good, tasty chestnuts, but always remain smaller than those grown from the mid-sized fruit. Experiments had indeed been conducted with inoculating chestnuts, both medium-sized and wild, and these had been successful. However, it had been shown that the inoculated trees could tolerate less cold than those grown from the fruit. Regarding the cultivation of the large, tasty chestnuts, I learned something from the local inhabitants that I had never seen or read about before, and which is also quite easy to carry out and reliably corresponds to the nature of the matter. In order to best help the declining chestnut plantations, it would be desirable for a chestnut nursery to be established in the following way in every place where chestnut trees once grew, either by the municipality or the forestry office. A somewhat elevated location, protected from north winds, should be chosen for such a nursery. The best soil for this would be weathered granite mixed with clay. The land chosen for this purpose would have to be surrounded by a living fence, or a wooden wall, or a somewhat deep ditch, so that neither hares, nor goats, nor other animals, could enter. After this land has been thoroughly worked, take the middle fruits of the most perfect and largest chestnut trees, make a four-inch-deep furrow in the unfertilized soil, and place the chestnuts four inches apart, so that the tips point upwards. Then cover them with loose soil and make a second furrow about six inches from the previous one, and so on, so that there are six to eight rows in a bed, and a one-and-a-half-foot wide path is made between each bed, so that they can always be kept free of weeds. The quality

of the chestnuts must first be tested by water, and only those that sink to the ground in it should be selected. They must also be kept in dry sand over the winter until planting, so they don't attract mold, dry out too much, and are protected from mice and other animals. The best time to plant them is early spring, when the ground is open. They then sprout in April and require no maintenance other than diligent weed removal. If planted in the fall, the mice that stalk them so much would have to be kept away at all costs. They can remain on this land for two years and then, with the necessary care, be transplanted to a nursery in rows three feet apart, either in the spring or in October or November. After this transplanting, they are left for three years under diligent weed removal but then moved to a somewhat sheltered location where they are intended for permanent growth. With each transplant, care must be taken to ensure that the roots are not damaged when digging up the seedlings. Since the intention here is not so much for the trunk as for the fruit, it is a good idea to carefully cut off the straight, emerging spur roots with a sharp garden knife during the first transplant, as this will encourage more lateral roots to sprout, preventing them from snapping off so easily during the final transplant. This does indeed give the tree an unsightly trunk, as the shoots then extend further into the side branches, twigs, and wider, but it also means it bears more and larger fruit. Grass, moss, or other weeds must never grow near the soil, around the trunks. The soil around the trunks should be carefully dug up and loosened with a hoe at least once a year, so that moisture and air can properly penetrate and reach the tree roots. So that the young, somewhat tender trees are not only protected from winter frost, but also receive more nourishment, the leaves that fall off in late spring must not be removed from the soil. This would be the most simple and natural way to treat chestnut trees to produce large, tasty fruits. However, in areas where chestnut trees thrive, one sees not only large fruits, but also trunks and trees for timber and other lumber, obtaining the latter requires a different treatment. Near Gernsbach, around Baden, in the Bühlertal, near Oberkirch, on the Staufenberg, and in the Durrbach Valley, there are considerable stretches of forest where chestnut groves once stood, some of which now lie unused as pasture. These and other areas designated for chestnut groves would bring real profit in every respect, both in terms of timber and fruit, and great benefit to future generations, if they were converted back into chestnut groves as soon as possible. To achieve this in a simple and easy way, one does not need tree nurseries; instead, the fruits are planted right from the start, in straight furrows, allowed to germinate there, and left standing without transplanting, because the spur roots are the most important for maintaining a straight trunk, and they always suffer when transplanted. One should therefore proceed in the same way as when establishing oak groves. As is well known, the chestnut tree grows much faster than the oak, reaching a height of 20 to 25 feet in its 10th and 12th years and bearing fruit. In forests, the mature tree usually develops a long, thick, straight trunk, bears abundant fruit almost every year from its 10th year until its death, and reaches a very great age, like the oak—a thousand or more years. One can sometimes see exceptionally thick trunks of this tree. An example of this can be found on Mount Etna, at the famous Castagnaro di cento Cavalli, whose trunk has a circumference of 160 feet, but according to some, 224 feet. In 1779, during my botanical excursions in Upper Alsace, I saw a chestnut tree near Rappolsweiher, which was also of extraordinary circumference, probably at least 40 to 50 feet. Trees with a diameter of 7, 8, or 9 feet were not uncommon in our Rhine region, especially on the Staufenberg, forty years ago, and suggested an age of at least 500 to 800 years. I saw similar trees in southern France and Catalonia

**Original German text Gmelin (Gmelin 1817):** Er gehört zu den großen und schönen Bäumen, hat gewöhnlich die Größe einer ausgewachsenen mittelmäßigen Eiche, von mittlerer Höhe, ausgebreitete abwechselnd stehende Aeste, eine glatte schwärzlichgraue Rinde. Die Blätter sind abwechselnd, lanzettförmig, am Rande gesägt, oben glänzend grün. Die Blüten sind auf ein und demselben Baume sowohl männlich als weiblich, von einander abgesondert. Die männlichen Blüten sitzen auf langen Kätzchen (amenta) haben einen kleinen fünf bis sechsblättrigen Blumenkelch, keine Blumenkrone und fünf bis zwanzig Staubfäden. Die weiblichen Blüten haben eine gemeinschaftliche 2 - 3 blüthige Hülle, die viermal eingeschnitten und mit ästigen steifen Stacheln versehen ist. Der Blumenkelch steht über dem Fruchtboden, 5 - 6 blättrig. Keine Blumenkrone. Griffel 3 - 6 mal getheilt. Die Samen-Capsel, welche zur Blüthezeit die Blumenhülle bildete ist groß, rundlich, mit ästigen grünen steifen Stacheln besetzt, einfächerig, vierklappig. Die Frucht ist meistens aus drey Kastanien zusammengesetzt, welche am Grunde an der Samencapsel fest sitzen. Die Seiten-Kastanien sind ovalrund, an der Spitze etwas zugespitzt, an den Aussenseiten gewölbt, an der innern eben, Die dritte Kastanie, steht zwischen den Seiten-Kastanien in der Mitte, ist zu beiden Seiten etwas eben und zusammengedrückt, und wie die Seiten-Kastanien von aussen mit einer lederartigen glatten, glänzenden, röthlichbraunen Rinde überzogen, am Grunde weiß und etwas uneben, einfächerig und ohne Abtheilungen, inwendig mit einer aschgrauen seidenartigen Bekleidung versehen, auf welche alsdann eine zweyte feinere Haut folgt, welche den Kern und dessen Falten bekleidet. Der Kern ist weißlich, vest. Wächst nun vorzüglich in Sicilien, Italien, Tyrol, Kärnthen, Ungarn, Piemont - im südlichen Frankreich - in Spanien - Portugal - ferner an den südlichen Gegenden des Rheins, im Elsaß bei Otterot, Rappolsweyher, Reichenweiher, Kronweissenburg, Ruffach - im Badischen bei Gernsbach, Baden, Bühl, im Bühler- und Neusatzter-Thal - in der Ortenau bei Oberkich, Durrbach, am Neckar in der Gegend um Heidelberg, Schriesheim, Weinheim. Blühet im April, May. Reifet seine Früchte im October. Die Kastanien können auf mancherley Art als wohlschmeckende, sehr nährende und gesunde Speise, frisch und getrocknet, zubereitet werden. Es sind

besonders in Italien, wohin vorzüglich die Appenninen zu rechnen sind, Gegenden, deren Bewohner aus Mangel des Getreides, sich das ganze Jahr über von Kastanien nähren, dabey stark, und gesund sind, worunter man Leute die über neunzig Jahre alt sind antrifft. Da die Kastanienwäldungen in den Rhein- und Neckargegenden seit dreissig Jahren, mit jedem Tage mehr in Zerfall kommen, und wir trachten sollten, dieselben bestens zu erhalten, herzustellen, zu veredeln und zu vermehren, dürfte es hier nicht am unrechten Orte stehen, über deren natürliche Geschichte und Herkunft, die Arten der Veredlung, Vermehrung, und Benutzung, mich etwas ausführlicher zu äussern. Wahrscheinlich stammt dieser Baum aus Griechenland ab. Einige behaupten, er komme ursprünglich aus Kleinasien, Cäsar habe ihn aus Sardis in Natolien nach Italien gebracht, von da seyten sie nach Ungarn, Frankreich, Spanien und Portugal, in das südliche Deutschland und besonders an einen Theil des Rheinstroms gekommen. Ueber die ältere Naturgeschichte dieses Baums verdient vorzüglich Theophrasts Pflanzengeschichte nachgelesen zu werden. Man unterscheidet vom Kastanienbaume zweyerlei Sorten, als eine zahme und wilde, ersterer trägt größere schmackhaftere Früchte, die er aber einzig der Cultur und vortheilhaftern Lage zu verdanken hat, das sind die Maronen, Maronier der Franzosen. Die sogenannten wilden Kastanienbäume tragen kleinere weniger schmackhafte Früchten, dagegen ist das Holz vorzüglicher, als das der zahmen Kastanienbäume. Diese wilden Kastanien, müssen nicht mit den Roßkastanien *Aesculus Hippocastanum* Linn. Marronier d'Inde verwechselt werden. Ueber die Anpflanzung, Cultur, und Veredlung des Kastanienbaums, sind vorzüglich Philipp Miller Dictionary. - Die Bibliothèque physico-oeconomique 2. p. 1. u. f. - Parmentier Traité de la Chataigne. 1780. Pietsch Abhandlung der Kastanienbäume. Halle 1776. - Erhart ökonomische Pflanzenhistorie. 1761. 10ter Theil, und Schrebers ökonomische Sammlungen nachzusehen. So viel Belehrendes man aber in diesen und andern Schriften findet, so möchte ich doch zweifeln, daß sie die wahren Wege vorzeichnen und einschlagen, wodurch die Kastanienbäume zu ihrer Veredlung auf einfache Art gebracht werden können. Es versteht sich wohl von selbst, daß man vor allen Dingen dem zu veredelnden Kastanienbaume, seine gehörige Lage, seinen ihm angemessenen Boden, geben müsse. Er liebt ein gemäßigtes Clima, einen Bergboden von Kiesel mit Thon gemischt, verwitterten grobkörnigen Granit, wie der ist, der um Gernsbach, Baden, im Bühlerthal, um Durrbach und an der ganzen umliegenden Gegend sich findet. Die Meinungen über die Veredlung derselben, sind verschieden. Einige wollen, man solle sie auf Wallnußbäume (*Juglans regia*. Linn) - andere auf Buchen (*Fagus sylvestris*. Linn.) andere sogar auf Eichen impfen, welche Verfahrensarten aber Miller a.a.O. schon mit allem Recht, als unnütz verwirft. Einige schlagen vor, auf den wilden Kastanienbaum, Zweige von bereits veredelten Kastanien zu impfen, was zwar allerdings der Natur entsprechender zu seyn scheint, indem dadurch der Wildstamm veredelt wird. Die Erfahrung zeigt aber in unsern Gegenden, daß solche veredelten Kastanienbäume, ungleich zärtlicher werden, als es die wilden sind, also leichter erfrieren. Es kann daher diese Art der Veredlung, wenigstens in den Rheinischen- und Neckargegenden nicht mit Vortheil angerathen werden. Nehmen wir an, daß alle bei uns vorkommenden Kastanienbäume, durch unsere Vorfahren angepflanzt wurden, daß dieselben, wie es wirklich der Fall ist, also schon unter die einigermaßen veredelten Bäume gehören, und daß von diesen theils durch Winde, Regengüsse, vorzüglich aber durch Mäuse, Eichhörnchen, Vögel und andere Thiere, hie und da die Früchten in die benachbarten Wäldungen geschleppt, die daselbst aufgegangen sind, und so von aller menschlichen Cultur entfernt, dieselben wegen veränderter Lage und Boden zu wilden, das heißt zu Bäumen, die kleinere unschmackhaftere Früchten bringen, umgeschaffen wurden. Beobachten wir ferner die Anpflanzungen unserer Vorfahren, die noch hie und da als Kastanienwäldungen (*Castaneta*) stehen, so sehen wie deutlich genug, daß sie ihrer bestehenden Regelmäßigkeit nach, und der sich gleichbleibenden Entfernung von einem Baum zum andern, mit allem Fleiß angelegt und gezogen wurden. Die spätern Nachkommen vernachlässigten die Cultur solcher Wäldungen ganz, dachten wenig auf Nachzucht, überließen die Sache der Natur, und daher kommt es nun, daß ganz große Früchte tragende Kastanienbäume, bei uns dermalen so selten sind, daß viele Landwirthe und Pflanzer glauben, die großen Kastanien (Maronier) wären eine andere Art, könnten gar nicht bei uns wachsen, was aber leicht zu widerlegen ist, wenn man Gelegenheit hat, am Orte selbst die Sache genauer zu untersuchen. Im Bühlerthal, vorzüglich aber bei Neusaz ist noch ein kleiner ehemals künstlich angelegter Kastanienwald, dessen Früchten größer als die der wilden, aber kleiner als die Maronen sind. In einzelnen Gegenden des oberen Bühlerthals, um Neusaz, Durrbach, findet man oberhalb von Hausgärten oder Feldern, noch hie und da einzeln stehende alte Bäume, welche sehr große und schmackhafte Früchte tragen, die man für die schönsten Maronen hält, und welche an Größe und Geschmack, den italienischen und französischen wenig oder nichts nachgeben. Da wir also überzeugt sind, daß wirkliche Maronen in diesen Gegenden angetroffen werden, entsteht noch die Frage, ob diese Bäume nicht etwa auf eine eigene besondere und welche Art angepflanzt und veredelt worden seyen. Um mich hierüber so genau wie möglich zu belehren, besprach ich mich vor 17 Jahren, mit einigen der ältesten Männer in Neusaz und im oberen Bühlerthal, die mich damals einstimmig versicherten, daß diese Kastanienbäume, so wie sie noch von ihren Vätern und Großvätern hörten, vor fünfzig und mehreren Jahren häufig, und zwar oberhalb den Hausgärten am Rande der Eichwäldungen, so wie die Wallnußbäume gestanden, und damals den vorzüglichsten Nahrungszweig der dortigen Thal- und Bergbewohner abgegeben hätten. Späterhin hätte nach und nach der Weinbau daselbst, so überhand genommen, daß viele Gegenden, wo vorher nichts als Kastanienbäume, Wallnüsse und andere Obstbäume stunden, in Weinberge umgeschaffen wurden. Seit der Zeit betrachte man die Anpflanzung derselben als Nebensache. Ueberdiß seyen in einigen ausserordentlich kalten Wintern, sehr viele

Bäume zu Grunde gegangen. Wenn ein Baum ausgegraben oder niedergehauen werde, oder sonst Schaden leide, denke man nicht daran, wieder selbst erzogene nachzusetzen, sondern überlasse dieses fast einzig der Natur, und diß sey die Ursache, daß nicht nur die Bäume, welche große Früchte tragen, nun so selten würden, sondern auch die Mittelsorten von Jahr zu Jahr sich auffallend verminderten. Was die Erzielung der großen Kastanien betreffe, so müßten die Bäume aus der Frucht erzogen werden, wozu man aber nur die Mittelkastanien wählen müße, indem die Seitenfrüchte, zwischen welchen die Mittelfrucht steht, ob sie gleich meistens größer sind, wie die Versuche und Erfahrungen gelehrt hätten, zwar auch gute schmackhafte Kastanien abgäben, aber immer kleiner blieben, als die von der Mittelfrucht gezogenen. Man hätte zwar auch Versuche mit Einimpfung der Maronen, auf die Mittelsorte und wilden Kastanienbäume gemacht, die gelungen wären. Es hätte sich aber gezeigt, daß die geimpften Bäume, weniger Kälte ertragen könnten, als die, welche aus den Früchten erzogen wurden. In Betreff der Cultur der großen schmackhaften Kastanien habe ich also von den Einwohnern daselbst etwas gelernt, was ich noch nirgends weder gesehen noch gelesen hatte, und was zugleich so ganz leicht auszuführen ist, und der Natur der Sache zuverlässig entspricht. Um nun den im Sinken begriffenen Kastanienpflanzungen wieder bestmöglichst aufzuhelfen, wäre zu wünschen, daß in jedem Orte, wo vor Zeiten Kastanienbäume wuchsen, entweder von Seiten der Gemeinde, oder der Forstämter, eine Kastanienbaumschule auf folgende Art eingerichtet würde. Zu einer solchen Baumschule ist eine etwas hoch gelegene Stelle, die gegen Nordwinde geschützt ist, zu wählen. Das beste Erdreich dazu dürfte der verwitterte mit Thonerde gemengte Granit seyn. Das dazu ausersehene Land, müßte mit einem lebendigen Zaun, oder mit einer Bretterwand, oder einem etwas tiefen Graben umgeben werden, damit weder Hasen, noch Ziegen oder andere Thiere, hinein kommen könnten. Nachdem dieses Land gut umgearbeitet worden ist, nimmt man die Mittelfrüchte der vollkommensten und größten Kastanien, macht eine vier Zoll tiefe Furche, in den ungedüngten Grund, und legt die Kastanien vier Zoll weit von einander hinein, so daß die Spitze derselben aufwärts zu stehen kommt, bedeckt sie alsdenn mit lockerer Erde, und macht etwa sechs Zoll von der vorigen, eine zweyte Furche, und so ferner, daß in einem Beete sechs bis acht Reihen zu stehen kommen, und zwischen jedem Beet ein anderthalb Fuß breiter Weg gezogen werde, damit sie immer vom Unkraut rein gehalten werden können. Die Güte der Kastanien muß vorher durch die Wasserprobe geprüft, und nur diejenigen gewählt werden, die darin zu Boden sinken. Auch muß man sie über den Winter, bis zur Zeit, da man sie einsteckt, in trockenem Sand aufhalten, damit sie keinen Schimmel anziehen, nicht zu stark eintrocknen, und vor den Mäusen und andern Thieren geschützt sind. Die beste Zeit zum Einstecken ist gleich im Anfang des Frühlings, wenn der Boden offen ist. Sie gehen sodann im April auf, und erfordern alsdenn keine Wartung, als das fleißige Reinigen von dem Unkraut. Wollte man sie im Herbst stecken, so müßten, die ihnen so sehr nachstellenden Mäuse bestens davon abgehalten werden. Auf diesem Lande können sie zwey Jahre lang stehen bleiben, und nachher in eine Baumschule, in drey Fuß weit von einander entfernte Reihen entweder im Frühjahr oder im October oder November, mit der nöthigen Vorsicht versetzt werden. Nach diesem Versetzen, werden sie drey Jahre hindurch unter fleißigem Reinigen vom Unkraut gelassen, nachher aber an einen etwas geschützten Ort gebracht, wohin sie zum bleibenden Wachsthum bestimmt sind. Bei jedem Versetzen muß man sorgfältig darauf sehen, daß die Wurzeln beim Ausheben der Sezlinge keinen Schaden leiden. Da nun hier die Absicht, nicht sowohl auf den Stamm als vorzüglich auf die Frucht geht, so thut man wohl, wenn man beim ersten Versetzen, die gerade auslaufende Spießwurzeln behutsam mit einem scharfen Gartenmesser abschneidet, weil sie alsdann mehr Seitenwurzeln treiben, und dadurch verhindert wird, daß sie beim letzten Versezzen nicht so leicht umschlagen. Der Baum bekommt zwar dadurch einen unansehnlichen Stamm, indem alsdenn der Trieb mehr, in die Seitenäste, in die Zweige und Breite geht, aber deswegen trägt er mehr und größere Früchte. Gegen der Erde hin, um die Stämme herum, muß niemals Rasen, Moos, oder anderes Unkraut aufkommen. Die Erde soll um die Stämme herum wenigstens jährlich einmal mit einer Hacke behutsam aufgehackt und locker gemacht werden, damit Feuchtigkeiten und Luft gehörig eindringen, und sich den Wurzeln der Bäume gehörig mittheilen können. Damit die jungen etwas zärtlichen Bäume nicht nur vor Winterfrost geschützt werden, sondern auch mehrere Nahrung bekommen, muß das im Spätjahr abgefallene Laub derselben dem Boden nicht entzogen werden. Das wäre die ganz einfache und natürliche Behandlung der Kastanienbäume, um große schmackhafte Früchten von ihnen zu erziehen. Wenn aber in solchen Gegenden, wo Kastanienbäume gut fortkommen, nicht nur auf große Früchten, sondern auch auf Stämme und Bäume zu Bau- und anderem Nutzholz zu sehen ist, so erfordert die Erzielung letzterer eine andere Behandlung. Es sind bei Gernsbach, um Baden, am Bühlerthal, bei Oberkirch, am Staufenberg, im Durrbacher Thal, beträchtliche Waldstrecken, wo vor Zeiten Kastanienwaldungen standen, die nun theils unbenutzt zur Viehweide daliegen. Diese und andere für Kastanienwaldungen gemachte Gegenden würden in jedem Betracht, sowohl an Holz als an Früchten, wahren Gewinn, und den Nachkommen großen Vortheil bringen, wenn sie wieder zu Kastanienwaldungen baldmöglichst umgeschaffen würden. Um dieses auf eine einfache und leichte Art zu bezwecken, braucht man keine Baumschulen, sondern steckt die Früchten gleich im Anfang, in gerade gezogenen Furchen, läßt sie daselbst aufkeimen, und ohne zu versetzen, stehen, weil die Spießwurzeln zur Erhaltung eines geraden Stamms, das wichtigste sind, die beim Versezzen immer leiden. Man verfare also eben so, wie beim Anzuge der Eichwaldungen. Bekanntlich wächst der Kastanienbaum ungleich schneller als die Eiche, hat im 10ten und 12ten Jahre schon eine Höhe von 20 - 25 Fuß und trägt Früchte. Der erwachsene Baum macht in den Waldungen meistens einen langen und dicken geraden Stamm, trägt vom 10ten Jahr bis zu seinem Ableben beinahe

alle Jahre viele Früchten, erreicht ein sehr hohes Alter, so wie die Eiche - tausend und mehrere Jahre. Man sieht zu Zeiten ganz ausserordentliche dicke Stämme dieses Baums. Ein Beyspiel davon hat man am Aetna, an dem daselbst berühmten Castagnaro di cento Cavalli, dessen Stamm im Umfange hundert und sechzig, nach einigen aber zweyhundert und vier und zwanzig Fuß hat. Im oberen Elsaß sahe ich im Jahr 1779 auf meinen Botanischen Wanderungen, einen Kastanienbaum ohnweit Rappolsweiher, der ebenfalls von ausserordentlichem Umfange war, welcher wenigstens etliche 40 bis 50 Fuß betragen konnte. Bäume von einem Durchschnitt von 7 - 8 - 9 Fuß, waren noch vor vierzig Jahren in unsern Rheingegenden, vorzüglich am Staufenberg nicht selten, welche auf ein Alter von wenigstens 5 - 8 hundert Jahren schließen ließen. Aehnliche solche Bäume sahe ich im südlichen Frankreich und in Catalonien. Unter allen zu hartem Bauholz brauchbaren Bäumen, wird der Kastanienbaum am schnellsten wachsen, hat dabey ein Laub, das selten oder nie dem Insektenfraße ausgesetzt ist. Die vorzüglich guten Eigenschaften des Holzes und der Früchte, erheben ihn zuverlässig zu den nützlichsten Bäumen. Das Holz taugt wegen seiner Härte und Dauer vorzüglich zum Bauen, zu Wein- und anderen Pfählen. Es hält ein Pfahl desselben, wenigstens sieben Pfähle von Tannenholz aus. Solche Weinpfähle, verdienen in den dazu geeigneten Rhein- und Neckargegenden, oberhalb den Weinbergen angepflanzt zu werden. Zu diesem Behufe werden Kastanien gesteckt, die alle fünf bis sieben Jahre abgehauen werden, die dann wieder aus der Wurzel ausschlagen, und alle fünf Jahre benutzt werden können. Schon der Vater der Landwirthe Columella empfiehlt diese Weinpfähle: *Castanea roboribus proxima est, et ideo stabiliendis vineis habilis, ejus enim in repastinatu nux posita celeriter emicat, et post quinquennium caesa, more salicti recreatur, atque in palum formata, fere usque in alterum caesionem perennat. Colum. de re rustica. Cap. XXXIII.* - Er giebt das beste Holz zu Fässern und Tonnen, daher vorzüglich in Italien und Frankreich, die meisten Weinbehältnisse daraus verfertigt werden. - Es soll in diesen Fässern, wegen der feinen Oeffnungen (pori) des Holzes, der Wein langsamer gähren, hingegen desto weniger ausdünsten, und dadurch stärker und angenehmer bleiben. Die Schreiner und Dreher suchen es zu Säulen, Tischen, Kästen, Stühlen, Bänken, Bettgestellen - es schwindet nicht, quillt nicht, auch soll es zum Wasserbau und vorzüglich zu Wasserleitungen vielen Vorzug haben. Als Brennholz ist es sehr dienlich, und dem Buchenholze an die Seite zu setzen. Auch ist es zum Verkohlen sehr brauchbar. Die Kohlen werden als Schmiedekohlen sehr geschätzt, weil sie starke Hitze geben, gleichförmig und schnell glimmen, und leicht ausgelöscht werden können. Die Asche hingegen taugt wie die vom Eichenholze, zum Waschen und Bleichen nichts. Die Rinde hat sehr viel Galläpfelstoff, und kann daher vorzüglich als Gerberloh gebraucht werden. Von frischen holzigen Zweigen mit Blättern erhielt Suckow eine schöne rothbraune Brühe, welche mit Potasche sehr feurig rothbraun, mit äzendem vegetabilischem Laugensalze noch dunkler, vom Salmiak gelbbraun, vom Allaun weingelb, vom Eisen- und Zinkvitriol, schwarz wurde. Mit verschiedenen Zusätzen vorbereitetes Tuch und Seide, erhielten fast die nämlichen Farben; vorzüglich hat sich, das mit Eisenvitriol vorbereitete Tuch und Seide, wegen der schwarzbraunen Farbe empfohlen. Damburnay hat von der Kastanienrinde an dem durch Wismuth Auflösung vorbereiteten Tuche, eine gute und feste Moschusfarbe erhalten. Mit der im Wasser abgekochten Rinde, kann man den Haaren eine schöne gelbe Farbe geben, s. Böhmer Technische Geschichte der Pflanzen. I. p. 79. - Sie färbt Leinenzeug so dauerhaft braun, daß solches niemals zu weissem Papier verwendet werden kann. s. Parmentier. Traité sur la Chataigne. Die Blätter der Kastanienbäume geben, da sie im Spätjahr abfallen, dem Baume den nöthigen Schuz gegen die Kälte des Winters, und sind als Streu für das Vieh gut zu gebrauchen. Es werden in Frankreich Matrazen davon verfertigt, worauf sich gut schläft, sie sind sehr elastisch. Wenn man sich jedoch darauf umwendet, machen die Blätter ein Geräusche, und werden daher von den Franzosen vermuthlich scherzweise, Lits du Parlement, Parlamentsbetten genannt. Was die Früchten des Kastanienbaums betrifft, wissen wir, daß dieselben schon von den ältesten Zeiten her, als eine schmackhafte, beliebte und gute Nahrung bekannt waren. Schon in dieser Hinsicht allein, verdienen die Bäume in solchen Gegenden, wo sie gedeyen, bestens angepflanzt veredelt und vermehrt zu werden. Schon Plinius schreibt, *apud graecos Sardonios balanos appellant, nam divus Tiberius postea Balanum nomen imposuit excellentioribus satu factis.* s. dessen Hister. mundi. Cap. XXXIII. Aus dieser Stelle ist klar, daß schon die Griechen die Kastanien, durch die Aussaat größer und schmackhafter machten! - und Virgil schreibt: *Pars autem posito surgunt de semine: ut altae Castanae! nemorumque Jovi quae maxima frondet Aerculus, atque habitae Grajis oracula quercus.* - s. dessen Georgica II. Aus dieser Stelle sehen wir, daß auch die Römer, den Kastanienbaum, durch die Aussaat gezogen haben. - *Sunt nobis mitia poma, Castanae molles, et pressi copia lactis.* Virgil. Eclog. I. Er versteht auf der Zunge schmelzendes Obst, und weich gekochte Kastanien, und fingirt den Tityrus als einen lieben alten zahnlosen Mann, daher ihm Melibaeus verspricht, wenn er bei ihm übernachten wolle, er ihm Speißen auftischen würde, die er essen könne. - *Castaneasque nuces mea quas Amaryllis amabat!* Virg. In den meisten Gegenden Italiens, Frankreichs, Spaniens und Portugalls, werden die Kastanien gesotten und gebraten mit Citronen, oder süßem Pomeranzensaft gespeist. Bei uns geschieht es mit frischer Butter und etwas Salz. Abgesotten werden sie dem Braunkohl hinzugemengt, auch Gänse, Enten und Tauben damit gefüllt. Hie und da werden sie in heißes Wasser gelegt, die Hülle abgezogen, die Früchten zerschnitten und in Back- oder Dörröfen getrocknet. Auf diese Art lassen sie sich an einem trockenen luftigen Orte viele Jahre über aufhalten. Sie werden alsdann gekocht, und geben mit Milch, Fleischbrühe, Butter oder Gänsefett, eine sehr schmackhafte, starknährende und gesunde Speiße. Aus denen auf diese Art klein geschnittenen und gedörrten Kastanien, kann man eine treffliche Grütze und ein sehr gutes Mehl bereiten, dessen man sich zu allerley Backwerk bedienen kann. Mit Getreidemehl

vermischt, und mit Sauerteig in Gährung gesetzt, giebt es sogar ein schmackhaftes, nährendes und gesundes Brod. Kastanien-Grütze und Mehl mit Milch gekocht, giebt einen sehr nährenden und schmackhaften Brey. Dieses Mehl mit Semmelbrod Butter und Eyer vermischt, giebt Klöse von sehr gutem Geschmack. In einigen Provinzen Frankreichs, im Genuesischen, in Toskana und im Piemontesischen, machen die Einwohner aus dem Mehl derselben einen gekochten dicken festen Teig, (Polenta.) welcher sehr angenehm schmeckt. Aus den Kastanien kann auch eine gute Chocolate verfertigt werden. Man kocht nämlich die größten Kastanien in Brandtenwein so lange, bis die Häute davon abgehen, hernach läßt man sie in Milch aufwallen und vollends weich kochen; den Brey davon schlägt man durch, und kocht ihn in der erforderlichen Menge Milch mit Zucker und ein wenig Zimmt noch einmal und quirlt dieses so lange, bis es wie Chocolate schäumt. s. Lieutaud Innbegriff der medicinischen Praxis. B. 4. Die Kastanien geben durch die Gährung einen guten Brandtenwein. Das Vieh, vorzüglich Schweine, Kühe, Schaaf und Geflügel, fressen die Kastanien sehr gerne, dazu wählt man die kleinere Sorte, welche trefflich zur Mastung ist. Diejenigen, welche die großen Vortheile der Kastanien und anderer Obsttragenden Bäume berechnen können, müssen wünschen, daß deren Vermehrung, an den dazu geeigneten Stellen, bestmöglichst beherzigt werde. Die Landwirthe, die sich durch ausserordentliche Winter, wie der von 1788 war, wo mehrere Kastanien-, Wallnüz- und Obstbäume, ja sogar viele andere vaterländische Bäume in den Waldungen erfroren sind, abbringen lassen, diese Bäume, nicht sogleich mit verdoppeltem Eifer wieder nachzuziehen, verdienen, wenn sie den unausbleiblichen Schaden, der sie und ihre Nachkommen treffen muß, nicht einsehen, mit weiser Römischer Strenge behandelt zu werden: *Possum multa tibi veterum praecepta referre, Ni refugis tenuisque piget cognoscere curas!* Virg. Georg. I. Ausser den oben angeführten Gegenden im Badischen, Elsaß und in der Rheinpalz, schlage ich noch den Kaiserstuhl im Breisgau, und zwar vorzüglich die sonnenreichen vulkanischen Hügel bei Achkarn, Burgen, Sponeck, Rothweil, Bückensohl, den Lützelberg, und hohen Limburg, zu Kastanienwaldungen vor, wo sie trefflich gedeyen würden. Und da es jenen Gegenden, die vielen Weinbau haben, gar sehr an Holz zu Weinpfählen gebricht, sollten oberhalb der Weinberge, die Kastanien, auf Pfähle behandelt werden.

#### ***Catabrosa aquatica* (L.) P.Beauv.**

*Synonyms:* *Agrostis tillierii* Willd. ex Steud.; *Aira aquatica* L.; *Aira aquatica* var. *duplicata* Chaub.; *Aira aquatica* var. *multiplicata* Chaub.; *Aira aquatica* var. *ochroleuca* (Dumort.) Lej.; *Aira scabra* Zuccagni; *Aira viridula* Poir.; *Catabrosa airoides* Chevall.; *Catabrosa angusta* (Stapf) L.Liu; *Catabrosa aquatica* f. *latifolia* (Heuff.) Soó; *Catabrosa aquatica* f. *schurii* Soó; *Catabrosa aquatica* f. *uniflora* (Gray) Holmb.; *Catabrosa aquatica* f. *zapalowiczii* Soó; *Catabrosa aquatica* subsp. *aquatica*; *Catabrosa aquatica* subsp. *capusii* (Franch.) Tzvelev; *Catabrosa aquatica* subsp. *ochroleuca* (Dumort.) Nyman; *Catabrosa aquatica* subsp. *pseudairoides* (J.Herrm.) Tzvelev; *Catabrosa aquatica* var. *atrata* Tzvelev; *Catabrosa aquatica* var. *chionophila* Post; *Catabrosa aquatica* var. *laurentiana* Fernald; *Catabrosa aquatica* var. *littoralis* Parn.; *Catabrosa aquatica* var. *major* Peterm.; *Catabrosa aquatica* var. *minor* Bab.; *Catabrosa aquatica* var. *pamirensis* Maslenn. & Ovcz.; *Catabrosa aquatica* var. *subtilis* Andersson; *Catabrosa aquatica* var. *terrestris* Meinsh.; *Catabrosa aquatica* var. *uniflora* Gray; *Catabrosa atrata* (Tzvelev) Tzvelev; *Catabrosa elbursensis* Bornm. & Gauba; *Catabrosa kneuckeri* Tzvelev; *Catabrosa minor* (Bab.) Tzvelev; *Catabrosa ochroleuca* Dumort.; *Catabrosa pseudairoides* (J.Herrm.) Tzvelev; *Catabrosa scabra* (Zuccagni) Kunth; *Catabrosa sikkimensis* Stapf; *Catabrosa viridula* (Poir.) Roem. & Schult.; *Catapodium aquaticum* Willk.; *Colpodium aquaticum* (L.) Trin.; *Colpodium elbursense* (Bornm. & Gauba) Parsa; *Diarrhena aquatica* (L.) Raspail; *Festuca airoides* (Koeler) Mutel; *Glyceria airoides* Rchb.; *Glyceria aquatica* (L.) J.Presl & C.Presl; *Glyceria aquatica* var. *acutiflora* Maxim.; *Glyceria aquatica* var. *americana* Vasey ex Gatt.; *Glyceria aquatica* var. *latifolia* Heuff.; *Glyceria catabrosa* Klatt & Rchb.; *Glyceria dulcis* Holmb.; *Glyceria ochroleuca* (Dumort.) Guss.; *Glyceria viridula* (Poir.) Heynh.; *Hydrochloa airoides* Hartm.; *Melica altissima* Sobol.; *Molinia aquatica* (L.) Wibel; *Poa airoides* J.Herrm.; *Poa airoides* Koeler; *Poa airoides* var. *purpurascens* DC.; *Poa airoides* var. *uniflora* Gaudin; *Poa dulcis* Salisb.; *Poa grandiflora* Clairv.; *Poa pseudairoides* J.Herrm.; *Poa rivularis* Bernh.; *Poa sabauda* All.

**Original name (Gmelin 1817):** *Aira aquatica*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 159. 160. 161.

**German names and French names (Gmelin 1817):** Wasserschmiele, Wasserschmielen-Gras, Quellgras, Wassergras, Wasserhirse; Foin aquatique.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 49542** (Fig. 24); **49552** (Fig. 25)



Figure 24. *Catabrosa aquatica* (L.) P. Beauv. - KR 49542

**Botany and Ecology:** Perennial, rhizomatous; rhizome stout, creeping. Culms erect, succulent, 20-70 cm tall, unbranched. Leaf sheaths closed up to middle, upper shorter than internodes; leaf blades equally wide throughout, soft, 5-20 cm × 2-8 mm, apex boat-shaped; ligule 2-5 mm, obtuse. Panicle open or loosely contracted at anthesis, ovate to oblong in outline, 10-30 × 4-12 cm; branches whorled, slender, usually obliquely ascending, up to 10 cm, often bare of spikelets in lower part. Spikelets with (1-)2(-3) florets, 2-4(-5.8) mm; glumes obtuse or subtruncate; lower glume ovate to suborbicular, 0.5-1.2(-2) mm; upper glume broadly elliptic, 1-2(-3) mm; lemma 1.5-3 mm, green becoming brown at maturity, usually glabrous, apex truncate. Anthers 1-2 mm. Flowering and fruiting April-August (Wu *et al.* 1994-2014).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This succulent, soft, sweet grass, which, both fresh and dried, is very pleasant, healthy, and nourishing for cattle and horses, deserves to be put to good use, especially in regions frequently subject to flooding.



Figure 25. *Catabrosa aquatica* (L.) P. Beauv. - KR 49552

**Description and Ecology (Gmelin 1817):** The root is creeping and fibrous. The stem is 1-1.5 feet tall, prostrate at the base, striated, smooth, and leafy. The leaves are evenly broad, flat, somewhat blunt at the tip, soft, and smooth. The flower spike is erect and spaced apart. The corollas are awnless and longer than the calyx. It is common in wet, marshy meadows and pastures exposed to flooding, along the Rhine, Main, Neckar, and Danube, on Lake Constance, in the Fürstenberg region of the Baar region, and also occasionally along streams and ditches, which are often filled with water. It blooms in June and July, its seeds ripen in August and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend, faserig. Der Halm 1 - 1½ Fuß hoch, am Grunde niederliegend, gestreift, glatt, blätterig. Die Blätter gleichbreit, flach, an der Spitze etwas stumpf, weich, und glatt. Die Blütenrispe aufrecht, auseinanderstehend. Die Kronspelzen grannenlos, länger als der Kelch. Es kommt häufig auf nassen, sumpfigen, den Ueberschwemmungen ausgesetzten Wiesen und Weiden, längst dem Rheine, dem Main, Neckar, der Donau, am Bodensee, im Fürstenbergischen in der Baar vor, auch hie und da an Bächen, und an Wassergräben, welche letztere damit nicht selten angefüllt sind. Blühet im Juni, Juli, reifet seine Samen im August, und gehört unter die ausdauernden

Gewächse. Dieses saftige, weiche, süße Gras, welches sowohl frisch als getrocknet, dem Rindvieh und den Pferden, sehr angenehm, gesund und nährend ist, verdient, vorzüglich in solchen Gegenden, die öftern Ueberschwemmungen ausgesetzt sind, bestens benutzt zu werden.

***Cetraria islandica* (L.) Ach,**

*Synonyms: Lichen islandicus* L.; *Cetraria islandica* subsp. *islandica*; *Cornicularia islandica* (L.) H. Mart.; *Lichenoides islandicum* (L.) Hoffm.; *Lobaria islandica* (L.) Hoffm.; *Parmelia islandica* (L.) Hepp; *Physcia islandica* (L.) Michx.; *Platyphyllum islandicum* (L.) Vent.; *Platysma islandicum* (L.) Frege; *Cornicularia islandica* var. *islandica*; *Lichenoides islandica* (L.) Hoffm.

**Original name (Gmelin 1817):** Lichen Islandicus. Linn. Sp. pl. - *Cetraria Islandica*. Achar. Lichenogr.

**German names and French names (Gmelin 1817):** Isländische Flechte, Isländisch-Moos; Lichen d'Islande

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Endangered, steep decline (Wirth 2008).

**Botany and Ecology:** *Cetraria islandica* is a fruticose lichen with a small to medium brown thallus growing loosely on the soil. It is usually tufted, many lobed, and irregularly branched. Colonies 5-20 cm broad. Apothecia are generally rare. *Cetraria islandica* exhibits cushion-like growth, making it well suited to weather high winds in harsh environments. It imbibes water slowly and can endure prolonged wet periods. Its phycobiant member is of the genus *Aspicilia* which has optimum photosynthetic rates at the low temperatures found in alpine environments.

**Contemporary uses:** *The species is generally used for diseases of the chest and lungs and as a nutritional supplement in Colombia.* (Paniagua-Zambrana et al. 2020a).

**Uses 1817 (Gmelin 1817):** This highly nourishing plant, known to physicians as an excellent remedy, deserves its best use, with the necessary caution, especially in the Black Forest and similar regions when food is truly scarce. It does have a bitter taste, but this can largely be alleviated by pouring hot water over it, which is then drained after standing for an hour. The lichen is then boiled in pure spring water until a thick, gelatinous decoction is obtained, which, upon cooling, becomes a thick, slightly bitter-tasting jelly. Seasoned with milk and a little cinnamon or marigold, it acquires a not unpleasant flavor. If this lichen is boiled several times in hot water and then boiled in milk, a mash is obtained that, although somewhat bitter, does not taste unpleasant, and provides good, healthy, strengthening nourishment. This lichen has long been known in Iceland for its great value as a food. Icelanders gather it under the name *Fäldegräs* (rock grass) from rocky places and stony areas, only once every three years, from the same spot, selecting only the largest. This occurs primarily on damp and rainy days, because in persistently dry weather, this lichen becomes so stiff and hard that one can easily injure one's hands. It is eaten almost daily there, and it is estimated that one ton of this well-cleaned and powdered lichen is worth two tons of grain flour. The usual food prepared from it in Iceland is to soak it in cold water for a day, which loses much of its bitterness, then boil it into a porridge, extract the jelly with whey, and eat it with milk. Others dry this lichen, after scalding it with water to reduce its bitterness, in the sun or over a fire, which makes it horny, hard, and brittle. They then place it in sacks, pound it, and grind it into a coarse powder. It is then boiled in milk, and thus provides a pleasant, easily digestible, and very nutritious food. See Olafsen's *Travels to Iceland*, I. p. 159, and II. p. 816, etc. In Carniola, pigs are fattened with this lichen and become fatter in a short time than with any other fodder. The farmers there also tend to send their emaciated, weary horses, oxen, and cows to places where this lichen grows abundantly, where they recover, grow strong, and fat within three to four weeks. See Scopoli *Annus 2. historica - naturalis*. p. 114 et seq. and p. 112. This plant, so important as a food and medicine, deserves to be carefully protected, used, and propagated in our regions where it occurs. Only 30 years ago, when it was less well known to our Rhinelanders, I found it in such densely packed quantities on the peat moss grounds of the Kaitenbrunn that it had taken over large areas, and at that time, at that time, one could have collected at least a thousand hundredweight of this lichen from there alone. Since then, it has been so diminished from year to year that it can only be seen here and there as a single specimen. As I have learned from a reliable source, a large number of it was collected and sought out by material dealers and pharmacists, who in the past few years paid 2 to 3 guilders per hundredweight. These sterile peat moss regions, of which there are many in the Black Forest and Switzerland, should and could be transformed into the most beneficial and profitable areas through the planting and use of this lichen. I am far from suggesting this plant to my fellow countrymen as food, unless it is absolutely necessary, but I wish to preserve it for animals and for humans as an excellent medicinal remedy, which is so frequently used these days. Therefore, I suggest and recommend that they be protected as much as possible for the time being, so as not to eradicate both old and young lichens forever in a short period of time, as is already the case in many regions. When collecting them, proceed as the Icelanders do, who only visit the same spot every three years and

always collect only the oldest and largest lichens, while leaving the remaining smaller ones in these spots until they have reached their proper size again after three years. All moist and wet peat moss grounds found on the sandy slopes of the Black Forest, in Switzerland, and in the Vosges, where this Icelandic lichen has already been eradicated, could be easily replanted with it in a few years. To this end, scatter only this lichen in these areas, where it will soon multiply considerably. In late 1784, I took with me, along with other plants such as *Empetrum nigrum*, *Andromeda polifolia*, *Vaccinium uliginosum* and *Oxycoccus*, also the Iceland lichen, with the peat moss (*Sphagnum palustre*) on which it grew, to the Botanical Garden in Karlsruhe, and planted it there with the latter in a specially selected moist, shady area, which I watered heavily with water twice a day in dry weather, and was fortunate enough to possess the Iceland lichen, which multiplied for several years and was of quite exceptional size and beauty, to the considerable admiration of connoisseurs.

**Description and Ecology (Gmelin 1817):** This lichen species is upright, 3-7 inches tall, compressed, olive-colored, mixed with brown and white, mostly blood-red at the base, dissected upwards into two-lobed lobes, which are covered at the edges with stiff, blackish-brown fringes or spines. Like many other lichen species, it is hard and very fragile when dry, but quite soft and pliable when moist. Grows frequently in the Black Forest of Baden and Württemberg, on the Kaltenbrunn, Herrnwiese, Gniebis, Belchen, and Feldberg, especially on peat moss grounds, and in light, sandy upland forests and heathland, in Switzerland, in the Jura, and in the Vosges Mountains, where it can be found year-round, but is especially beautiful in spring and in November and December during wet weather.

**Original German text Gmelin (Gmelin 1817):** Diese Flechtenart, ist aufrecht, 3 - 7 Zoll hoch, zusammengedrückt, olivenfarb, mit braun und weiß gemischt, am Grunde größtentheils Blutroth, nach oben in zweispaltige Lappen zerschnitten, welche am Rande mit steifen schwärzlich braunen Franzen oder Dörnchen besetzt sind. Sie ist im trockenen Zustande wie viele andere Flechtenarten, hart und sehr zerbrechlich, im feuchten hingegen ganz weich und biegsam. Wächst häufig im Badischen und Württembergischen Schwarzwalde, auf dem Kalten-Brunn, der Herrnwiese, auf dem Gniebis, Belchen, Feldberg, vorzüglich auf Torfmoos-Gründen, und in den lichten sandigen Hochwaldungen und Heidengründen, in der Schweiz, am Jura, und auf den Vogesen, wo sie das ganze Jahr über, vorzüglich schön aber im Frühjahr, und im November, Dezember bei nasser Witterung, angetroffen wird. Diese sehr nährende Pflanze, welche den Aerzten als vorzügliches Heilmittel bekannt ist, verdient vorzüglich im Schwarzwalde und in ähnlichen Gegenden bei wirklichem Mangel an Nahrungsmitteln, mit der nöthigen Vorsicht, bestens benutzt zu werden. Sie schmeckt zwar bitter, was ihr aber größtentheils benommen werden kann, wenn sie mit heissem Wasser übergossen wird, welches nachdem es eine Stunde darüber gestanden, abgegossen wird. Alsdann wird die Flechte in reinem Brunnenwasser so lange abgekocht, bis man eine dicke gallertartige Abkochung erhält, die beim Erkalten zu einer dicklichen, etwas wenig bitterlich schmeckenden Gallerte wird. Diese mit Milch und etwas Zimmt oder Gewürznägelein gewürzt, erhält einen nicht unangenehmen Geschmack. Brühet man diese Flechte einigemal mit heißem Wasser ab, und kocht sie alsdann in Milch, erhält man ein Muß, das zwar etwas bitterlich, jedoch nicht unangenehm schmeckt, und eine gute und gesunde stärkende Nahrung giebt. Diese Flechte ist in Island wegen ihres großen Nutzens als Nahrungsmittel längst bekannt. Die Isländer sammeln sie unter dem Namen Fjäldegräs (Felsengras) an Felsenstellen und in steinigen Gegenden, und zwar nur alle drey Jahre, von einer und derselben Stelle, wo sie nur die größten davon aussuchen. Dieses geschieht vorzüglich an feuchten und regnerischen Tagen, weil bei trockner anhaltender Witterung, diese Flechte so steif und hart wird, daß man sich leicht die Hände daran verletzen kann. Sie wird daselbst fast zur täglichen Speiße genommen, und man rechnet, daß eine Tonne von dieser gutgereinigten und gepulverten Flechte, zwey Tonnen Getreidemehl gleich geschätzt werde. Die gewöhnliche Speiße, welche in Island daraus bereitet wird, ist die, daß man solche, nachdem sie einen Tag über, in kaltem Wasser eingeweicht worden, wodurch sie viel von ihrer Bitterkeit verliert, zu einem Brey kocht, aus dem man die Gallerte mit Molken ausziehet, und mit Milch verspeist. Andere trocknen diese Flechte, nachdem sie sie, um die Bitterkeit zu vermindern, mit Wasser abgebrüheth haben, an der Sonne oder über dem Feuer, wovon sie hornartig, hart und spröde wird, thun sie alsdann in Säcke, worinnen sie sie klopfen und zu einem groben Pulver reiben. Alsdann wird sie in Milch gekocht, und giebt so, eine angenehme, leicht verdauliche und sehr nahrhafte Speiße. s. Olafsen Reise igieunem Island. I. p. 159. - und II. p. 816. u. w. In Krain werden die Schweine mit dieser Flechte gemästet, und in kurzer Zeit so fett davon, wie von keinem andern Futter. Auch pflegen die Bauern daselbst, ihre abgemagerten, matten Pferde, Ochsen und Kühe, an solche Orte zu schicken, wo diese Flechte häufig wächst, welche daselbst innerhalb drey bis vier Wochen sich erholen, stark und fett werden. s. Scopoli Annus 2. historica - naturalis. p. 114. u. f. und p. 112. Diese als Nahrungsmittel und Arzney so wichtige Pflanze, verdient in unsern Gegenden, wo sie vorkommt, bestens geschont, benutzt und vermehret zu werden. Noch vor 30 Jahren, als sie unsern Rheinländern weniger bekannt war, fand ich sie in solcher Menge dicht beisammen auf den Torfmoosgründen auf dem Kaltenbrunn, daß sie große Strecken derselben eingenommen hatte, und man damals, daselbst allein, wenigstens gegen tausend Centner von dieser Flechte hätte einsammeln können. Seit dieser Zeit, wurde sie von Jahr zu Jahr, dermaßen vermindert, daß sie nur hie und da noch einzeln daselbst zu sehen ist. Wie ich aus sicherer Quelle erfahren habe, wurde eine Menge davon gesammelt und von Materialienhändlern und Apothekern aufgesucht, welche in den ersteren Jahren 2 bis 3 Gulden für den Centner bezahlt haben. Diese sterilen

Torfmoosgegenden, deren es eine Menge im Schwarzwalde und in der Schweiz hat, sollten und könnten zu den wohlthätigsten und einträglichsten Gegenden, durch die Anpflanzung und Benutzung dieser Flechte umgeschaffen werden. Ich bin weit entfernt meinen Landsleuten diese Pflanze, als Nahrungsmittel, im Fall es nicht die Noth fordert, vorzuschlagen, sondern wünschte sie den Thieren, und als vorzügliches Arzneymittel, das in unseren Tagen so häufig gebraucht wird, den Menschen bestens zu erhalten. Daher schlage und empfehle ich einstweilen die möglichste Schonung derselben vor, um nicht alt und jung in kurzer Zeit, wie es bereits der Fall in vielen Gegenden ist, auf immer mit einander auszurotten. Man verfare bei der Einsammlung, wie die Isländer, welche nur alle drey Jahre ein und dieselbe Stelle besuchen, und immer nur die ältesten und größten Flechten einsammeln, hingegen die übrigen kleinern auf diesen Stellen stehen lassen, bis sie nach drey Jahren wieder ihre gehörige Größe erreicht haben. Sämtliche feuchte und nasse Torfmoosgründe, die sich auf den ausgehenden Sandgebirgen des Schwarzwaldes, in der Schweiz und auf den Vogesen befinden, könnten, da wo diese isländische Flechte bereits ausgerottet ist, wieder auf die leichteste Art, mit derselben in wenigen Jahren bepflanz werden. Man streue zu diesem Behufe nur diese Flechte in diesen Gegenden aus, wo sie sich bald gehörig vermehren wird. Im Jahr 1784 nahm ich im Späthjahr, nebst andern Pflanzen, als *Empetrum nigrum*, *Andromeda polifolia*, *Vaccinium uliginosum* und *Oxycoccus*, auch die Isländische Flechte, mit dem Torfmoos (*Sphagnum palustre*) auf dem sie stunde, in den Botanischen Garten zu Carlsruhe mit mir, pflanzte sie mit letzterem daselbst in eine dazu auserlesenen feuchte Schattengegend, die ich bey trockener Witterung, täglich zweymal stark mit Wasser begießen ließ, und war so glücklich, die Isländische Flechte, die sich vermehrte, mehrere Jahre über, von ganz vorzüglicher Größe und Schönheit, zur nicht geringen Bewunderung der Kenner, zu besitzen.

### ***Chenopodium album* L.**

*Synonyms: Anserina candidans* (Lam.) Montandon; *Atriplex alba* (L.) Crantz; *Atriplex viridis* (L.) Crantz; *Blitum viride* (L.) Moench; *Botrys alba* (L.) Nieuwl.; *Botrys alba* var. *pauper* Lunell; *Botrys pagana* (Rchb.) Lunell; *Chenopodium agreste* E.H.L.Krause, *Chenopodium album* f. *cymigerum* (W.D.J.Koch) Aellen; *Chenopodium album* f. *dubium* Arlt & Jüttersenke; *Chenopodium album* f. *glomerulosum* (Rchb.) Aellen; *Chenopodium album* f. *heterophyllum* Wang-Wei & P.Y.Fu; *Chenopodium album* f. *lanceolatum* (Muhl. ex Willd.) Schinz & Thell.; *Chenopodium album* f. *leiospermum* Kuntze; *Chenopodium album* f. *opuliforme* Aellen; *Chenopodium album* f. *ovalifolium* Aellen; *Chenopodium album* f. *paucidentatum* Aellen; *Chenopodium album* f. *pseudozschackei* Aellen; *Chenopodium album* f. *spicatum* (W.D.J.Koch) Aelle; *Chenopodium album* subsp. *bernburgense* Murr; *Chenopodium album* subsp. *collinsii* Murr; *Chenopodium album* subsp. *densifolium* Ludw. & Aellen; *Chenopodium album* subsp. *pedunculare* (Bertol.) Murr; *Chenopodium album* subsp. *pseudopulifolium* (Scholz) Murray; *Chenopodium album* var. *album*, *Chenopodium album* var. *candicans* Moq.; *Chenopodium album* var. *coronatum* Beauge; *Chenopodium album* var. *cymigerum* W.D.J.Koch; *Chenopodium album* var. *dacoticum* Aellen; *Chenopodium album* var. *desertorum* Kuntze; *Chenopodium album* var. *glomerulosum* (Rchb.) Peterm.; *Chenopodium album* var. *lanceolatum* (Muhl. ex Willd.) Coss. & Germ.; *Chenopodium album* var. *laxiflorum* Wang-Wei & P.Y.Fu; *Chenopodium album* var. *missouriense* (Aellen) Bassett & Crompton; *Chenopodium album* var. *paganum* (Rchb.) Syme; *Chenopodium album* var. *polymorphum* Aellen; *Chenopodium album* var. *pseudopulifolium* (Scholz) Abrom.; *Chenopodium album* var. *spicatum* W.D.J.Koch; *Chenopodium album* var. *stevensii* Aellen; *Chenopodium album* var. *subaphyllum* (Phil.) Reiche; *Chenopodium album* var. *viride* (L.) Moq.; *Chenopodium album* var. *viride* (L.) Pursh; *Chenopodium bernburgense* (Murr) Druce; *Chenopodium bicolor* Bojer ex Moq.; *Chenopodium borbasiforme* (Murr) Druce; *Chenopodium borbasii* Murr; *Chenopodium browneanum* Schult.; *Chenopodium candicans* Lam.; *Chenopodium catenulatum* Schleich. ex Steud.; *Chenopodium concatenatum* Willd.; *Chenopodium diversifolium* var. *montuosum* F.Dvorák; *Chenopodium elatum* Shuttlew. ex Moq.; *Chenopodium glomerulosum* Rchb.; *Chenopodium laciniatum* Roxb.; *Chenopodium lanceolatum* Muhl. ex Willd.; *Chenopodium lanceolatum* R.Br.; *Chenopodium lanceolatum* f. *opizii* F.Dvorák; *Chenopodium lanceolatum* f. *sessiliflorum* F.Dvorák; *Chenopodium lanceolatum* var. *antiquum* F.Dvorák; *Chenopodium leiospermum* DC.; *Chenopodium lobatum* (Prodan) F.Dvorák; *Chenopodium missouriense* Aellen; *Chenopodium missouriense* var. *bushmanum* Aellen; *Chenopodium neglectum* Dumort.; *Chenopodium neoalbum* F.Dvorák; *Chenopodium opulaceum* Neck.; *Chenopodium ovalifolium* F.Dvorák; *Chenopodium paganum* Rchb.; *Chenopodium paucidentatum* (Aellen) F.Dvorák; *Chenopodium pedunculare* Bertol.; *Chenopodium probstii* Aellen; *Chenopodium probstii* f. *lanceolatum* Aellen; *Chenopodium probstii* f. *parvoangustifolium* Aellen; *Chenopodium pseudoborbasii* f. *aellenii* F.Dvorák; *Chenopodium pseudoborbasii* f. *albiforme* F.Dvořák; *Chenopodium pseudoborbasii* f. *borbasiforme* F.Dvořák; *Chenopodium pseudoborbasii* f. *longipedicellatum* F.Dvořák; *Chenopodium pseudoborbasii* f. *ramosum* F.Dvořák; *Chenopodium riparium* Boenn. ex Moq.; *Chenopodium serotinum* Ledeb.; *Chenopodium subaphyllum* Phil.; *Chenopodium superalbum* F.Dvorák; *Chenopodium superalbum* f. *kuehnii* F.Dvořák; *Chenopodium viride* L.; *Chenopodium viridescens* (St.-Amans) Dalla Torre & Sarnth.; *Chenopodium vulgare* Gueldenst. ex Ledeb.; *Chenopodium vulpinum* Buch.-Ham.; *Chenopodium zobellii* Murr ex Asch. & Graebn.; *Chenopodium zobellii* f.

hircinifolium Aellen; *Chenopodium zobellii* f. *multidentatum* Aellen; *Chenopodium zobelli* A.Ludw. & Aellen; *Chenopodium* × *borbasioides* f. *hircinifolium* (Aellen) Hyl.; *Chenopodium* × *densifoliatum* (Ludw. & Aellen) F.Dvorák

**Original name (Gmelin 1817):** *Chenopodium album*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 566. 567.

**German names and French names (Gmelin 1817):** Weisser Gänsefuß; Patte d'oie blanchâtre

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 108149** (Fig. 26)



Figure 26. *Chenopodium album* L. - KR 108149

**Botany and Ecology:** Annual herb 10-300 cm tall. Highly variable in all characteristics. Mealy textured in all parts. Usually much branched. Leaves distinctly longer than broad and usually ovate-deltoid, sometimes rhombic or ovate-lanceolate, entire or toothed. Larger leaves with uneven teeth and lower leaves often 1-3 lobed. Flowers in round clusters disposed in branching spike-like inflorescences disposed from leaf axils. Flowers yellowish-brown to yellowish-green, floral parts rounded on the back and keeled and with pustules. Seeds free from wall of the fruit, seeds tiny, black and shiny with radial furrows. An abundant species in waste areas, roadsides, agricultural fields or gardens. Cosmopolitan distribution. The species is one of the more robust and competitive weeds, capable of producing considerably crop losses in corn, soybeans, and sugar beets. As a pest control, *Chenopodium album* is vulnerable to leaf miners, making it a useful trap crop as a companion plant. Growing near other plants, it attracts leaf miners, which might otherwise have attacked the crop to be protected. It is a host plant for the beet leafhopper, an insect that transmits curly top virus to beet crops. Very common weed of winter crops like wheat, potato, lentil, rape mustard, and winter vegetables. (Komarov & Shishkin 1936).

**Contemporary uses:** *The leaves are thoroughly boiled and fried in oil, and eaten as a vegetable or prepared with yogurt and chili as a salad (Pohle, 1990). The dried leaves are also consumable as a winter vegetable. The tender part of the plant is boiled and put spices and condiments with boiled oil. It is very tasty with beaten rice (shown below). Fruits are used for beer-making. The consumption of young shoots is widespread in the Caucasus. It is customary to eat them boiled and prepared in a form of mkhal/phkhali (a vegetable spread made from various herbs). The leaves are edible, although they should be consumed ideally cooked. They are usually used as a substitute for chard and spinach in different preparations, including soup. Eaten as vegetable. Albania: immuno-stimulant. Jordan: Hepatic and vesicular disorders, skin irritation. A local dish Saag is prepared and is good for somebody whose body is hot. It removes thirst. It is used as emollients. The seeds are used for unconsciousness. They are also used to relieve constipation. Dried powdered plant considered as carminative and diuretic agent. Cooked leaves are used as laxative. As laxative to cure constipation, abdominal pain and jaundice. Leaf infusion used for rheumatism and leaves poultice is used for swollen feet, sunstroke, sunburn, freckles. Plant is used as blood purifier, diarrhea, jaundice, laxative, piles, and stomach pain. Roots of the plant used in jaundice. Used as a food and also used as a cathartic, anthelmintic, in hepatic disorder, and enlarged spleen. The roots are used in guidance and urinary disease and rheumatism also used as laxative. The plant is used as laxative, for liver disorder, and pot herb. The plant is used for ulcer, swellings and seminal weakness. The whole plant is used in joint-ache. Cooked seeds used to treat cough and cold. Cold decoction or juice of plants is taken to cure eye troubles. Plant is diuretic, laxative, appetizer and anthelmintic. Fried seeds are given for stomach pain and gastritis and plant juice and the tender part of the plant is taken orally for treatment of pains in the joints. Local beer prepared from it is used to stop profuse menstruation. The plant served as a vegetable cleanses the stomach, relieves constipation and has an invigorating effect of the body; root decoction enhances cleansing of bronchi and lungs after excessive smoking of ganja and tobacco. Root juice, about 6 teaspoons three times a day, is given to treat "bloody" dysentery. The tender aerial parts cooked as vegetable are consumed, regularly, to treat dyspepsia. The small seeds of this plant are boiled in cows' milk and drunk for muscle ailments and for gastritis. One bowl of dark liquid made by boiling dried leaf is drunk to treat high intoxication due to cannabis. Seeds are chewed in case of urinary trouble and are also useful to relieve the discharge of semen through the urine. The seeds are used as a laxative and the juice of the plant as a digestive and antiparasitic. The species is used to treat fevers, flu, constipation and as anthelmintic. To treat constipation and indigestion. Used also as emollient. For jaundice, abdominal pain and as laxative. To treat swollen feet, sunstroke, digestive problems, joint pains, as well as swollen gums. In Jammu and Kashmir as laxative, to treat painful urination, stomach-ache, biliousness, eye ailments, piles, anemia, constipation, and as anthelmintic. Fresh leaves are cooked as vegetable and eaten raw, and as a vegetable (saag). Tender portions/tenders/leaves are cooked as vegetable. Hungary: salad and vegetable. Croatia: leaves. Belarus: for soups. Poland: non-sour soups, dried for winter use, leaves boiled. Romania: boiled. Bulgaria: stew, soup, pie. Czech Republic: raw in salads. Ukraine: boiled and eaten with sour cream, added to soups. Leaves are rubbed into the skin to remove nicotine stains (i.e. after tobacco harvest). Used as forage. Used as fodder. (Batsatsashvili et al. 2017b; Bussmann et al. 2025j; Dangol et al. 2021; Fahd et al. 2024; Paniagua-Zambrana et al. 2020b; 2025k).*

**Uses 1817 (Gmelin 1817):** The young leaves are occasionally prepared as a vegetable in the spring. Since this plant often takes over grain fields, gardens, and vineyards in wet years to such an extent that it often completely suppresses the grain, the German colonists on the Volga, who are often very embarrassed by the frequent poor growth of the grain, help themselves by using this weed instead of cabbage. They also use the seeds that this plant very frequently produces, which, when ground and mixed with a little grain flour, can be used very well for bread as a tasty and healthy porridge. See Knight of Pallas, Nordic Contributions, Vol. I, p. 328. The fresh plant provides good fodder for cows and pigs. The quinoa plant is also a goosefoot (*Chenopodium quinoa*), which grows in the mountains of Peru. It has been introduced into European botanical gardens for several years, where it thrives in open garden land. It could also be cultivated on a large scale in our fields and gardens. Each of these quinoa plants produces over a thousand seeds, which are said to be equal to, if not even surpass, the quinoa in quality. Presumably, after fifty, a hundred, or more years, it will be planted and used in Europe and

our region, just like the ground pear, which was also cultivated in botanical gardens for over 100 years before it was used on a large scale.

**Description and Ecology (Gmelin 1817):** The stem is 1 to 1.5 to 2 feet tall, erect, furrowed, branched, covered with a white flour. The leaves are alternate, stalked, somewhat diamond-shaped, sinuously toothed, entire at the base; the upper and branch leaves are lanceolate, entire at the margins, and white-mealy on both sides. The flower clusters are erect, composed of small spikes. The calyxes are pentagonal and white-dusted. This plant grows particularly in wet years in great abundance as a pest weed in gardens, grain fields, fields, vineyards, and along roads. It blooms in July and August. Its seeds ripen in September and October and is considered an annual.

**Original German text Gmelin (Gmelin 1817):** Der Stengel 1 - 1½ bis 2 Fuß hoch, aufrecht, gefurcht, ästig, mit einem weissen Mehle bestreut. Die Blätter abwechselnd, gestielt, etwas rautenförmig, buchtig gezahnt, am Grunde ganz, die obern und Astblätter, lanzettförmig, am Rande ganz, auf beiden Seiten weißmehlig. Die Blumentrauben aufrecht, aus kleinen Aehren zusammengesetzt. Die Blütenkelche fünfeckig, weiß bestäubt. Diese Pflanze wächst vorzüglich in nassen Jahrgängen in größter Menge als verwünschtes Unkraut in Gärten, Getreide-Aeckern, Feldern, in den Weinbergen, an Wegen, blühet im Juli, August. Reifet ihre Samen im September, October, und gehört unter die einjährigen Pflanzen. Die jungen Blätter werden im Frühjahr hie und da als Gemüse zubereitet. Da diese Pflanze in nassen Jahrgängen oft auf den Getreideäckern, in den Gärten und Weinbergen dermaßen überhand nimmt, daß sie nicht selten das Getreide gänzlich unterdrückt, so helfen sich die deutschen Colonisten an der Wolga, die wegen des häufigen Mißwachses des Getreides oft sehr verlegen sind, damit, daß sie dieses Unkraut anstatt des Kohls benutzen. Auch benutzen sie den Samen, den diese Pflanze sehr häufig trägt, welcher als eine schmackhafte und gesunde Grütze, und geschrotet mit etwas Getreidemehl vermischt, zum Brod ganz gut gebraucht werden kann. S. des Ritters von Pallas Nordische Beyträge. B. I. S. 328. Die frische Pflanze giebt den Kühen und Schweinen ein gutes Futter. Die Quinoapflanze ist ebenfalls ein Gänsefuß, (*Chenopodium Quinoa*) welche in den Gebirgen von Peru wächst, sie ist seit mehreren Jahren in den europäischen Botanischen Gärten eingeföhret, wo sie im freyen Gartenlande trefflich gedeyet. Sie könnte ebenfalls bey uns auf Aeckern und in Gärten im Großen angebauet werden. Jede solcher Quinoapflanzen giebt über tausend Samen, welche dem Reiß an Güte gleich kommen, wo nicht gar denselben noch übertreffen sollen. Vermuthlich wird sie, nach fünfzig, hundert und mehrerern Jahren in Europa und in unseren Gegenden, so wie dermalen die Grundbirn, die man ebenfalls über 100 Jahre lang in den Botanischen Gärten hatte, ehe man davon Gebrauch im Großen machte, angepflanzt und benutzt werden.

### ***Chenopodium album* L.**

*Synonym:s see Chenopodium album* L.

**Original name (Gmelin 1817):** *Chenopodium viride*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 567. 568

**German names and French names (Gmelin 1817):** Grüner Gänsefuß; Patte d'oi verde

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** see *Chenopodium album* L.

**Contemporary uses:** see *Chenopodium album* L. (Batsatsashvili *et al.* 2017b; Bussmann *et al.* 2025j; Dangol *et al.* 2021; Fahd *et al.* 2024; Paniagua-Zambrana *et al.* 2020b; 2025k).

**Uses 1817 (Gmelin 1817):** This plant, which is considered by several plant experts to be a mere variation of the white goosefoot, possesses the same properties. All domestic goosefoot species (*Chenopodia*) except for the stinking orache, dog orache, and stinking goosefoot (*Chenopodium vulvaria*, Linn.), can be used as excellent fodder for pigs.

**Description and Ecology (Gmelin 1817):** This plant grows in large quantities in the same places as the white goosefoot, especially in wet years, where it often completely suppresses the grain. It has many similarities to it and differs in its often entire leaves and longer flower clusters, which are thinner, naked, and divided. It is also greener and rarely dusted with a barely visible white powder.

**Original German text Gmelin (Gmelin 1817):** Diese Pflanze wächst an denselben Orten, wie der weisse Gänsefuß in großer Menge, vorzüglich in nassen Jahrgängen, wo sie nicht selten das Getreide gänzlich unterdrückt. Sie hat viele Aehnlichkeiten mit ihm, und unterscheidet sich durch die öfters ganzen Blätter und längere Blüthentrauben, welche dünner, nackt und

geteilt sind. Auch ist sie grüner, und selten mit einem weissen Mehl kaum sichtbar bestäubt. Diese Pflanze, welche von mehreren Pflanzenkennern als eine bloße Abänderung des Weissen Gänsefußes gehalten wird, besitzt dieselben Eigenschaften. Alle inländische Gänsefuß-Arten (*Chenopodia*) bis auf die stinkende Melde, Hundsmelde, Stinkender Gänsefuß *Chenopodium Vulvaria*. Linn. können als vorzügliches Futter für die Schweine benutzt werden.

***Chenopodium bonus-henricus* L.**

*Synonyms: Agathophytum bonus-henricus* (L.) Moq.; *Agatophyton bonus-henricus* (L.) E.H.L.Krause; *Anserina bonus-henricus* (L.) Dumort.; *Atriplex bonus-henricus* (L.) Crantz; *Blitum bonus-henricus* (L.) Rchb.; *Blitum bonus-henricus* var. *alpinum* (DC.) Moq.; *Blitum bonus-henricus* var. *erosum* Moq.; *Blitum perenne* Bubani; *Chenopodium bonus-henricus* var. *alpinum* DC.; *Chenopodium hastatum* St.-Lag.; *Chenopodium ruderales* Kit. ex Moq.; *Chenopodium ruderales* St.-Lag.; *Chenopodium sagittatum* Lam.; *Chenopodium spinacifolium* Stokes; *Chenopodium triangulare* Dulac; *Chenopodium triangularifolia* Gilib.; *Orthospermum bonus-henricus* (L.) Schur; *Orthosporum bonus-henricus* (L.) T.Nees

**Original name (Gmelin 1817):** *Chenopodium Bonus Henricus*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 562. - 563

**German names and French names (Gmelin 1817):** Guter Heinrich, Stolzer Heinrich, Schmergel, Wilder Spinat, Schmieriger Gänsefuß, Lämmerohren; Bon Henry

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Threatened, strong decline

**KR 108578** (Fig. 27)

**Botany and Ecology:** Perennial, 15-60 cm high, somewhat viscid and slightly farinaceous; stems numerous, mostly unbranched; leaves alternate, long-petioled, triangular -hastate to sub-sagittate, acute or acuminate, entire or slightly repand, somewhat lustrous, the uppermost ovate-lanceolate or even narrower; inflorescence a spikelike panicle, leafy in lower part; terminal flowers in glomerules, perfect, 5-merous; lateral ones 3- or 4-merous, with 2 or 3 stamens or more often pistillate; perianth segments obtuse, ecarinate, irregularly toothed at the summit; seeds always vertical, broadly reniform, 1.5-2 mm long, with obtuse margins, black, lustrous, smooth, obscurely striate longitudinally from 2 obtuse angles; pericarp thin, scarious. Flowering and fruiting May-August. Refuse dumps and gardens. (Komarov & Shishkin 1936).

**Contemporary uses:** *Slovakia: boiled and/or fried as potherb, soup or with potatoes and flatbread. Poland: Used as vegetable. Ukraine: stewed. Eastern Europe: Widely used in soups. Czech Republic: vegetable dishes. Ukraine: boiled and eaten with sour cream, added to soups. As salad, snack, soup. Bulgaria: pie, soups. Albania: roots for making halva (dessert based on flour, butter, and sugar). In Italy for omelets.* (Batsatsashvili et al. 2017b; Bussmann et al. 2025j; Dangol et al. 2021; Fahd et al. 2024; Paniagua-Zambrana et al. 2020b; 2025k).

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be used and prepared in the spring like spinach. The young stems can be prepared and eaten like our asparagus. In former times, this plant was cultivated in our gardens, in France and England, like spinach.

**Description and Ecology (Gmelin 1817):** The stem is 1-1.5 feet tall, erect, somewhat thick, furrowed, smooth, simple, covered with a greasy meal. The leaves are alternate, stalked, triangular, arrow-shaped, smooth above, mealy beneath. The spike is compound, oblong, leafless, mealy. The small flowers are greenish-yellow. This plant is abundant along roads, in and around villages, towns, and cities, on walls and near dung heaps, and also on rubble heaps. It blooms in June and July. Its seeds ripen in August and September and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Der Stengel 1 - 1½ Fuß hoch, aufrecht, etwas dick, gefurcht, glatt, einfach, mit einem schmierigen Mehl bedeckt. Die Blätter abwechselnd, gestielt, dreieckig, pfeilförmig, oberhalb glatt, unterhalb mehlig. Die Aehre zusammengesetzt, länglich, blattlos, mehlig. Die kleinen Blumen grünlichgelb. Diese Pflanze kommt an Wegen, in und um Dörfer, Flecken und Städten, an Mauern und ohnweit der Dunggruben, auch auf den Schutt-Häufen, reichlich vor, blühet im Juni, Juli. Reifet ihre Samen im August, September, und gehört zu den ausdauernden Gewächsen. Die jungen zarten Blätter können im Frühjahr wie der Spinat benutzt und zubereitet werden. Die jungen Stengel können wie unsere Spargeln zubereitet und verspeist werden. Ehedem wurde bey uns, in Frankreich und England diese Pflanze in den Gärten wie der Spinat angebauet.



Figure 27. *Chenopodium bonus-henricus* L. - KR 108578

### ***Cichorium intybus* L.**

*Synonyms: Cichorium balearicum* Porta; *Cichorium byzantinum* Clem.; *Cichorium byzantinum* Clementi; *Cichorium caeruleum* Gilib.; *Cichorium callosum* Pomel; *Cichorium casnia* C.B. Clarke; *Cichorium casnia* Wall.; *Cichorium cicorea* Dumort.; *Cichorium commune* Pall.; *Cichorium cosnia* Buch.-Ham.; *Cichorium divaricatum* Heldr. ex Nyman; *Cichorium glabratum* C. Presl; *Cichorium glaucum* Hoffmanns. & Link; *Cichorium hirsutum* Gren.; *Cichorium illyricum* Borb.; *Cichorium intybus* f. *alba* Farw.; *Cichorium intybus* f. *crispum* Makino; *Cichorium intybus* f. *intybus*; *Cichorium intybus* f. *rubicunda* Farw.; *Cichorium intybus* f. *sativum* Bisch.; *Cichorium intybus* f. *sylvestre* Bisch.; *Cichorium intybus* subsp. *balearica* (Porta) Gand.; *Cichorium intybus* subsp. *foliosum* (Hegi) Janch.; *Cichorium intybus* subsp. *glabratum* (C. Presl) Arcang.; *Cichorium intybus* subsp. *glabratum* (C. Presl) Wagenitz & U. Bedarff; *Cichorium intybus* subsp. *glaucum* (Hoffmanns. & Link) Tzvelev; *Cichorium intybus* subsp. *illyricum* (Borb.) Jáv.; *Cichorium intybus* subsp. *intybus* L.; *Cichorium intybus* subsp. *sativum* (Bisch.) Janch.; *Cichorium intybus*

subsp. *sylvestre* (Bisch.) Janch.; *Cichorium intybus* var. *callosum* (Pomel) Batt.; *Cichorium intybus* var. *callosum* (Pomel) Maire; *Cichorium intybus* var. *eglandulosum* Freyn & Sint.; *Cichorium intybus* var. *foliosum* Hegi; *Cichorium intybus* var. *glabratum* (C.Presl) Batt.; *Cichorium intybus* var. *glabratum* (C.Presl) Gren. & Godr.; *Cichorium intybus* var. *glabrum* (C.Presl) Gren. & Godr.; *Cichorium intybus* var. *intybus*, *Cichorium intybus* var. *longipes* Faure & Maire; *Cichorium intybus* var. *radicosum* Alef.; *Cichorium intybus* var. *sativum* (Bisch.) Janch.; *Cichorium officinale* Gueldenst. ex Ledeb.; *Cichorium perenne* Stokes; *Cichorium rigidum* Salisb.; *Cichorium sylvestre* Garsault; *Cichorium sylvestre* Lam.; *Hieracium cichorium* E.H.L.Krause

**Original name (Gmelin 1817):** *Cichorium Intibus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 351. 352. - Schkuhr. Bot. Handb. tab. 226.

**German names and French names (Gmelin 1817):** Wegwart, Cichorien, Hundsläufte; Cichorée sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial. Plants 20-150 cm high, green or glaucous-green; stem erect, usually more or less branched, branches often strongly divergent and slightly thickened toward apex, more or less setose or with crisped hairs, often glabrous or almost so. Leaves dorsally setose or crisped hairy, ventrally more or less crisped hairy; basal leaves usually persisting during flowering, truncately pinnatifid to undivided, but more or less toothed, gradually narrowed into winged petiole; cauline leaves (except lowermost; these similar to basal leaves) relatively less numerous and highly reduced, lanceolate-ovate to lanceolate, amplexicaul, with roundish or sagittate, often more or less toothed auricles. Capitula usually numerous, solitary or a few grouped together, terminal on stem and branches, and also in axils of middle and upper cauline leaves. Involucre 17-14 mm long; outer involucre bracts half to two-thirds as long as inner ones and usually more or less divergent, unequal in shape and length, relatively thin coriaceous in lower part, more or less ciliate along margin, more or less hairy on outer side, with simple or glandular hairs, often entirely glabrous; inner bracts usually more or less hairy or ciliate in upper part. Corolla 15-25 mm long, with varying shades of blue, sometimes whitish, rapidly discolored in water. Achenes 2-3 mm long, with 0.2-0.3 mm long pappus. Flowering July to October. Caucasus, Altai, Middle Asia, in meadows, forest glades, grassy slopes, near roads, in the fields, near settlements, along stony and clay dry creek beds, up to 2000 m above sea level. (Boborov and Tsvelev 1964). In steppes, meadows, ruderal places, near roads, from lower to sub-alpine mountain belt, on the altitude 900-2400 m. Flowers from May to October, fruits from June to October. Distributed in all floristic regions. Distributed across Azerbaijan from lowland to middle mountain zone. Grows as weed plant in crops, gardens and orchards, fields and edges of roads, among shrubs. Flowering in June-October, fruiting in August-October. (Flora of Azerbaijan, 1950-1961).

**Contemporary uses:** In the Ural the decoction of the roots serves as emollient for angina and pneumonia, as sedative for heart disease. The leaf ash is applied topically to excema, chicken pox, and skin diseases, and the extract used as shampoo to strengthen the hair and as remedy for sunburns. The stem extract is used to treat malaria. Armenia: The roots contain vitamin B1, leaves vitamin C. Roots contain inuline, which sometimes is used as sugar substitute. The roots are used against kidney diseases. Ash used against leishmaniasis). In the folk medicine of Armenia, a decoction or infusion of the roots improves the functioning of the gastrointestinal tract, and is used for diabetes, jaundice, malaria, gallstones, hemorrhoids, and anemia. The alcoholic infusion or decoction of the roots is used to treat wounds and tumors from the bites of poisonous snakes and scorpions. In addition, used for lumbar pain, gout, rheumatism and skin diseases. A decoction and extract of the roots, stems, leaves, and seeds or the whole plant is used internally as antipyretic, cooling, adipose, and sudorific for malaria and colds, and also to stimulate appetite, improving digestion and for general weakness. A distillate called «kasni aragi» (obtained by steam distillation,) sometimes mixed with the juice of watermelon is also used for malaria. The water decoction and infusion of root and dried flowers is ingested for diseases of liver, jaundice, and as choleric. The infusion of flowers is used to reduce blood sugar and helps to treat kidney and spleen problems. In Nakhchivan and southern regions «kasni aragi» is applied as anointment to sick joints, and the water infusion of the flowers and stem is taken internally to treat rheumatism and arthritis. Georgia: A water decoction and infusion of above-ground parts and roots is used to gargle to cure inflammations of the gums. After bathing children, they are rinsed with a water decoction of the plant to strengthen the immune system and protection from sunstroke. A decoction of the leaves is given to women after birth. *Cichorium* root is used as tea to treat diabetes, gallbladder and gastrointestinal ailments, and oral inflammation. Diabetes, diarrhea, gallbladder, gastrointestinal system, gum inflammation, liver, tooth problems. Georgia: The roots are used as coffee surrogate, and flavoring agent for sweets. It is used all-year round. In Tusheti eaten raw and dipped in sour milk. The herbs are only gathered in early spring, during summer and even autumn, until tomatoes, eggplants, spinach, cucumbers can be harvested. By this time, the ingredients of pkhali (mostly weeds) loose softness, tenderness, taste; they become rough already producing seeds and probably for this reason are not collected by late autumn. Early spring they taste very differently than in summer. In summer and winter young

leaves are using as salad. In late autumn the stems are stored in the cellar so that they produce leaves in winter that can be used as salad. The dried and crushed roots are often used as an additive to coffee. In the Talish young leaves are used raw condition as vegetables as well as for making salads. Fried roots are good replacement coffee. The leaves are used to make sats'ebai (a disk with vegetables dipped in sour milk) and Phkhali (herb pie). In Tusheti many herbaceous plants are used as food and are kept for winter, either dried or pickled, to make mixed mkhali and sauces, and to accompany the main dishes, including kumeli ქუმელი q'va ყვა. It is used all-year round, is made of roasted kerī ქერი (barley) grains. Can be made of ipkli იფკლი (Georgian endemic wheat), corn, svili სვილი (rye), kersvili ქერსვილი (mixture of barley and rye) and tsetsvi ცერცივი (faba bean, when mixed with corn: giera-ი გიერა-ი Brassica campestris subsp. oleifera (DC.) Schübl. & Mart., gomati გომატი Bunias orientalis L., dutsi დუცი Angelica tatianae Bordz., kharnuq'a-ი ხარნუყა-ი Lactuca serriola L., buera ბუერა Petasites ssp., shubq'a-ი შუბყა-ი Heracleum asperum M. Bieb., khap'ara-ი ხაპარა-ი Cichorium intybus L., mariamdzmara მარიამძმარა Ligusticum alatum (M. Bieb.) Spreng. ch'imi ჩიმი Chaerophyllum bulbosum L., diq'i დიყი Heracleum ssp., jork'uda-ი ჯორთუდა-ი Artemisia vulgaris L., sagvidzla საღვიძლა Taraxacum officinale (L.) Weber ex F.H. Wigg., dzirkhvena ძირხვენა Arctium lappa L., ch'ivana ჩივანა Silene wallichiana Klotzsch, kvishamkhala კვიშამხალა Silene laera (Stev.) Sims, khavrat'ai ხავრატაი Capsella bursa-pastoris (L.) Medik., jorik'udai ჯორიკუდაი Artemisia vulgaris L., and giera გიერა Sinapis arvensis L. There are several ways to season mkhali in Tusheti: 1. well-cleaned plants are placed in a pot and cooked without water. The cooked plants are placed on a sieve to cool and cut into pieces. After that the dish is seasoned with onions browned in clarified butter, eggs and salt. 2. After cooking the plants in the same way, fresh cottage cheese, onions browned in clarified butter, eggs and salt are added. 3. After boiling the mkhali is seasoned with vinegar, garlic and salt. Normally, in Tusheti mkhali is not seasoned with walnuts and vinegar. In Tusheti ch'imi ჩიმი Chaerophyllum bulbosum L., giera გიერა Brassica campestris subsp. oleifera (DC.) Schübl. & Mart., machigt'ara მაჩიგტარა Campanula rapunculoides L., khap'ara ხაპარა (ვარდკაჭაჭა) Cichorium intybus L., diq'i დიყი Heracleum ssp., shup'q'a შუპყა Heracleum asperum M. Bieb., ap'q'i აპყი Heracleum leskovii Grossh., dutsi დუცი Angelica tatianae Bordz, giera გიერა Sinapis arvensis L., jork'uda ჯორთუდა (wild estragon) Artemisia vulgaris L., mariamdzmara მარიამძმარა Ligusticum alatum (M.Bieb.) Spreng., and kharnuq'a ხარნუყა Lactuca serriola L. are eaten raw and also dipped in sour milk. These herbaceous plants for dipping (sats'ebaci, sats'ebi "chatseba" means "dip" in Georgian) are harvested and a bowl with curd "shegdebul ze" „შეგდებულ ზე" is filled; then leaves and young shoots from the mentioned herbaceous plants are plucked, dipped in the curd and eaten. In Samegrelo vardkach'ach'a ვარდკაჭაჭა (Cichorium intybus L.) roots is used as tsik'ori ციკორი — a surrogate of coffee. In Imereti the following plants are mixed for cooking "meadow pkhali" "მინდვრის ფხალი": natsarkatama ნაცარკათამა Chenopodium album (a lot), jijilaq'a ჯიჯილაყა Amaranthus retroflexus L. (a lot), ts'its'marit'a წიწმარიტა or kharik'bila ხარიკბილა Capsella bursa-pastoris (L.) Medik (a lot), andzla ანძლა Cirsium incanum (S.G. Gmel.) Fisch. (a lot), katmikona კათმიკონა Valerianella locusta (L.) Laterr. (a lot), dedaput'k'ara დედაფუტკარა Lamium album L. (a few), msukana მსუკანა Portulaca oleracea L. (a lot, makes pkhali slimy), birk'abalakhi ბირკაბალახი Xanthium spinosum L. (a few, early spring), zhunzhruk'o ჟუნჟრუკო Stellaria media (L.) Vill., mat'it'ela მატიტელა Polygonum aviculare L. (moderately), ხვართელა Convolvulus arvensis L. (moderately), k'obchkhila კობჩხილა, bat'ispekhebi ბატისფეხები Falcaria vulgaris Bernh. (a few), ჰინჭარი Urtica dioica L. (a lot), Ch'inch'ris deda ჩინჭრის დედა Lamium album (a few, adds bitterness), sama'ura სამყურა Trifolium ssp. (a few), ionja იონჯა Medicago ssp. (a few), tavshava თავშავა Origanum vulgare L. (a few), purtskhala ფურცხალა Sonchus ssp. (a few), young leaves of potato k'art'opili კარტოფილი (a few, slimy), Ia ია Viola ssp. (a few, makes slimy and dangerous if used a lot, can be in a way intoxicating), babuats'vera ბაბუაწვერა Taraxacum ssp. (a few, adds bitterness), leaves of endro ენდრო Rubia tinctorum L. (a few), msukana მსუკანა Portulaca oleracea L., khbosshubla ხბოშუბლა Galega orientalis Lam., ia ია Viola sp. dedabrik'onk'a დედაბრიკონკა Lamium purpureum L. (a few), vardk'ach'ach'i ვარდკაჭაჭი Cichorium intybus L. (a few, makes bitter), gholo ღოლო Rumex (a few, makes the dish brown), q'aq'acho ყაყაჩო Papaver ssp. (a few), mzhauna მჟაუნა Rumex acetosa L. (a few, makes sour), balba ბალბა Malva sylvestris L., Malva neglecta Wallr. (a lot, makes slimy), ch'lak'vi ჩლაკვი ჭლაკვი (Allium fistulosum). The herbs are only gathered in early spring, during summer and even autumn, until tomatoes, eggplants, spinach, cucumbers can be harvested. By this time, the ingredients of pkhali (mostly weeds) loose softness, tenderness, taste; they become rough already producing seeds and probably for this reason are not collected by late autumn. Early spring they taste very differently than in summer. While making pkhali, some finely minced kitchen herbs are added after boiling the main herbs: a little dill (კამა), a little tseretso dill (ცერეცო), a little p'rasa პრასა, coriander, parsley, celery, green onions, estragon, mint. All these herbs are mixed with finely crushed walnuts; the boiled pkhali will be minced, desirably on a wooden gobi (wide shallow bowl with a flat bottom) and seasoned with herbs, walnuts, add salt and pepper by your taste. Coffee replacement, Phkhali, Satsebai. Armenia: In summer and winter young leaves are using as salad. In late autumn the stems are stored in the cellar so that they produce leaves in winter that can be used as salad. The dried and crushed roots are often used as an additive to coffee. Aerbaian: In the Talish

young leaves are used raw condition as vegetables as well as for making salads. Fried roots are good replacement coffee. Iran: The aerial part, flower, leaf, root, and stalk of *Cichorium intybus* are prepared as an infusion, decoction, tea, cooked, taken with yogurt, powdered flower, arrack, cataplasm, and maceration and are used as a laxative, diuretic, tonic, analgesic, reducing blood sugar, facilitating delivery, against cancer, antimicrobial, skin whitening, blood purifier, febrifuge, antihypertensive, tranquilizer, diaphoretic, and stomach strengthening and to treat stomach pain, skin disorders, kidney stones, liver disorders, jaundice, nervous disorders, lipid disorders, heart pain, headache, joint pain, epistaxis, eye problems anemia, abscesses, hiccups The whole plant is prepared as sweat chicory or boiled and is used for acne, and freckle, lowering blood sugar and fat, and drinking it before meals, helps in liver purification. Ash from the burning plant can be used externally for infected wounds. As nematocide in agriculture. Fodder for cattle, to increase milk yield. Wounds of domestic animals are dressed with crushed *Cichorium* stems mixed with oil. Nectariferous plant, producing much nectar and pollen (. Wounds of domestic animals are dressed with crushed *Cichorium* stems mixed with oil. Azerbaijan: Wounds of domestic animals are dressed with crushed *Cichorium* stems mixed with oil. Nectariferous plant, producing much nectar and pollen Iran: In veterinary medicine whole part of *Cichorium intybus* is used for chewing, it can be used for vegetable or fodder wrapping. Albania /Serbia /Montenegro: bones, stomachache, gastritis, urinary system stones. Hungary: wounds, heart and circulatory system, fever. Romania: acne, eczema, furuncle, skin infections, seborrhea, skin infections, wounds, cuts, eczema, cosmetic, depurative, anti-infective, vulnerary, beautifying. Poland: rachitis, digestive. Ukraine: digestive system, liver. Hungary: cough. Romania: high blood pressure, furuncle, cough, stomach, liver and bile disorders. Gastroenteritis-related diarrhea in children. Appetizer, eupeptic, tonic, bitter, astringent, diuretic, laxative, anti-inflammatory; anorexia, urinary disorders, constipation. Algeria: Nerve problems, diuretic, digestive. Cholecystitis, hepatotoxicity, diuretic dyspepsia. Jordan: Antiseptic, anti-diabetic, eczema. Morocco: Kidney problems, diabetes. Lebanon: Decoction of leaves and roots is used as depurative, cholagogue, digestive troubles. Cyprus: Skin problems). A leaf infusion is used in Middle Asia for the treatment of diseases of the gastrointestinal tract, as anti-inflammatory, astringent. The inflorescences are used to increase the appetite, improve digestion, to treat inflammation of the stomach, diseases of the large and small intestines, gall bladder, kidneys, as well as kidney and gallstones. The inflorescences are also used to treat swellings related to heart conditions The fresh leaf juice is used to improve digestion, stimulation of appetite, with stomach ulcers, gastritis, liver cirrhosis, hepatitis, with diseases of the spleen, kidneys, as diuretic, and for anemia). Externally the leaf extract is applied as poultice for rheumatism, arthritis, with wounds, ulcers, swellings, eczema, furunculosis, carbuncles, stomatitis, conjunctivitis. The plant is considered as diuretic, sedative, and reducing fever. Decoction and demulcent of stem and root of chicory are used for dermal wounds, typhoid, cuttings, depurative and herpes. Aerial part including flowers are used as decoction, infusion or distilled water to treat the epistaxis, hyperlipidemia and diabetes, eye problem, jaundice, stomach problem or liver disease and sweating. Chicory root decoction: 1 teaspoon of crushed chicory root. Fill the raw material with 200 ml of boiling water, put on weak fire and warm for 10 minutes from the moment of boiling, then strain and cool. Drink 50 ml 3 times a day in diabetes mellitus. Chicory root decoction is also used as a bile agent for diseases of the pancreas, gallbladder, liver (including bile stone disease); as diuretic in kidney disease; to improve digestion and treat metabolic disorders. Externally, it is used for baths, lotions and compresses for skin diseases and gout. Chicory root infusion: 2 teaspoons of crushed chicory root. Fill the raw material with 200 ml of boiling water, allow to infuse for 1-2 hours, then strain. Drink infusion for the day at 3-4 receptions. Use a treatment for diabetes mellitus. Infusion of grass and chicory root: 1 tablespoon of crushed flowering chicory tops, 1 tablespoon of crushed chicory root (<https://planta-medica.uz/cichorium-intybus-l-czikorij-obyknovennyj/>). Hungary: grated and roasted as a coffee substitute. Croatia: leaves eaten raw or boiled. Poland: roasted, as a coffee substitute, also used as a vegetable. Romania: root as coffee supplement. Czech Republic: dried grounded roots as a coffee substitute, flowers eaten. Young leaves eaten raw or added to soups, roots raw in salads, preserved into sugar, dried and ground into coffee substitutes. Eaten raw and as salad. Hungary: veterinary use. (Bussmann et al. 2024a; Jan et al. 2021a; Khojimatov & Bussmann 2025b; Mehdiyeva et al. 2025b; Paniagua-Zambrana et al. 2025k)

**Uses 1817 (Gmelin 1817):** The young leaves and shoots can be prepared and eaten in spring as salads and vegetables. The roots have a bitter pith and sweet flesh. They are cleaned of the former by cutting them lengthwise and removing the pith, and then provide a tasty, nourishing dish. They were also used for baking bread when there was a shortage. The well-known chicory coffee is made from them, which is why they are grown in abundance in fields in several regions. If the chicory roots are placed in a holey barrel filled with garden soil and sand in a somewhat warm or temperate place, the roots will sprout a multitude of young shoots through the holes, which can be cut and used in this way throughout the winter in salads and as a side dish. The young leaves and stems provide good food for cattle and pigs, and the flowers provide honey for bees.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, sometimes branched, yellowish on the outside, whitish on the inside. The stem is 2-4 feet tall, upright, furrowed, angular, rough-haired, and branched. The branches are alternate. The root leaves are saw-like, those on the stem alternate, encompassing, and toothed. The branch leaves are smaller, narrower, and recurved. The flowers are arranged on the sides of the stems and branches in twos or threes, blue, rarely

rose-red or white. The seeds are compressed and angular. The corolla has five teeth. The receptacle is somewhat bare. Often grows along paths, at the edges of fields and vineyards. It blooms in July, August, and September. Its seeds ripen in September and October and is classified as a perennial.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel spindel-walzenförmig, auch ästig, aussen gelblich, innen weißlich. Der Stengel 2 - 4 Fuß hoch, aufrecht, gefurcht, eckig, rauhaarig, ästig. Die Aeste abwechselnd. Die Wurzelblätter schrotsägenartig, die am Stengel abwechselnd, umfassend, gezahnt. Die Astblätter kleiner, schmaler und zurückgebogen. Die Blüten an den Seiten der Stengel und Aeste, zu 2 - 3 aufsitzend, blau, seltener rosenroth oder weiß. Die Samen zusammengedrückt, eckig. Die Samenkronen fünfzählig. Der Fruchtboden etwas nackt. Wächst häufig an Wegen, am Rande der Aecker und der Weinberge. Blühet im Juli, August, September. Reifet seine Samen im September, October, und gehört unter die ausdauernden Gewächse. Die jungen Blätter und Sprossen, können im Frühlinge als Salat und Gemüse zubereitet und verspeist werden. Die Wurzeln haben ein bitteres Mark und süßes Fleisch, sie werden von ersterem gereinigt, indem sie der Länge nach durchgeschnitten und das Mark herausgenommen wird, und geben alsdann eine schmackhafte nährnde Speise. Auch wurden sie bei Mangel zum Brodbacken verwendet. Aus ihnen wird der bekannte Cichorien-Kaffee bereitet, weswegen sie in mehreren Gegenden in Menge auf den Aeckern angebaut werden. Legt man die Cichorienwurzeln in ein mit Garten-Erde und Sand angefülltes löcheriges Faß, an einen etwas warmen oder temperirten Ort, so treiben die Wurzeln durch die Löcher, eine Menge junger Sprossen heraus, welche man abschneiden, und auf diese Weise, den ganzen Winter hindurch, zum Salat, und auch als Zugemüße benutzen kann. Die jungen Blätter und Stengel geben dem Rindvieh und den Schweinen eine gute Nahrung, und die Blüten den Bienen Honig.

#### ***Cirsium arvense* (L.) Scop.**

*Synonyms:* *Aplotaxis pungens* DC.; *Breea arvensis* (L.) Less.; *Breea dioica* Less.; *Breea ochrolepidia* (Juz.) Soják; *Breea praealta* Less.; *Breea segeta* f. *segeta*; *Breea setosa* (Willd.) Kitam.; *Breea setosa* (Willd.) Kitam.; *Carduus arvensis* (L.) Robson; *Carduus arvensis* var. *arvensis*; *Carduus haemorrhoidalis* Auct. ex DC.; *Carduus serratuloides* Neck.; *Cephalonoplos arvense* (L.) Fourr.; *Cephalonoplos arvensis* Fourr.; *Cephalonoplos arvensis* var. *arvensis*; *Cephalonoplos ochrolepidium* (Juz.) Juz.; *Cephalonoplos setosus* (Willd.) Kitam.; *Cirsium albicans* Willk.; *Cirsium albiflorum* Kitag.; *Cirsium argenteum* Peyer ex Vest; *Cirsium argunense* DC.; *Cirsium arvense* f. *albiflorum* Kitag.; *Cirsium arvense* f. *albiflorum* Ralph Hoffm.; *Cirsium arvense* f. *arvense*; *Cirsium arvense* f. *incanum* (Beck) Gajić; *Cirsium arvense* f. *rubricaula* Lepage; *Cirsium arvense* subsp. *Arvense*; *Cirsium arvense* subsp. *incanum* (S.G.Gmel.) Iljin; *Cirsium arvense* subsp. *setosum* (Willd.) Iljin; *Cirsium arvense* subsp. *setosum* (Willd.) Iljin; *Cirsium arvense* subsp. *vestitum* (Wimm. & Grab.) Petr.; *Cirsium arvense* var. *argenteum* (Peyer ex Vest) Fiori; *Cirsium arvense* var. *arvense*; *Cirsium arvense* var. *horridum* Wimm. & Grab.; *Cirsium arvense* var. *incanum* (S.G.Gmel.) Ledeb.; *Cirsium arvense* var. *mite* Wimm. & Grab.; *Cirsium arvense* var. *setosum* (Willd.) Ledeb.; *Cirsium arvense* var. *subulatum* (Ledeb.) Ledeb.; *Cirsium arvense* var. *vestitum* Wimm. & Grab.; *Cirsium celakovskianum* K.Knaf; *Cirsium dioicum* Cass.; *Cirsium halophilum* Turcz. ex Herder; *Cirsium horridum* (Wimm. & Grab.) Stankov; *Cirsium incanum* (S.G.Gmel.) Fisch.; *Cirsium incanum* M.Bieb.; *Cirsium laevigatum* Tausch; *Cirsium macrostylon* Rchb.; *Cirsium mutatum* Menyh.; *Cirsium mutatum* Menyh.; *Cirsium neglectum* Fisch. ex Spreng.; *Cirsium ochrolepidium* Juz.; *Cirsium praealtum* Cass.; *Cirsium rubricaula* Novopokr.; *Cirsium ruthenicum* Fisch.; *Cirsium segetum* f. *segetum*; *Cirsium setosum* (Willd.) Besser ex M.Bieb.; *Cirsium setosum* f. *albiflorum* Kitag.; *Cirsium setosum* var. *mite* (Wimm. & Grab.) Tzvelev; *Cirsium setosum* var. *setosum*; *Cirsium setosum* var. *subulatum* Ledeb.; *Cirsium sordidum* Wallr.; *Cirsium stocksii* Boiss.; *Cnicus arvensis* (L.) G.Gaertn. & al.; *Cnicus arvensis* (L.) Hoffm.; *Cnicus arvensis* (L.) Roth; *Cnicus arvensis* f. *albiflorus* E.L.Rand & Redfield; *Cnicus arvensis* f. *arvensis*; *Cnicus arvensis* var. *arvensis*; *Cnicus arvensis* var. *setosus* (Willd.) Maxim.; *Cnicus lanatus* Willd.; *Cnicus macrostylus* Moretti; *Cnicus ruthenicus* J.Henning; *Cnicus setosus* Besser; *Cynara repens* Stokes; *Ixine arvensis* Hill; *Saussurea pungens* (DC.) Sch.Bip.; *Serratula arvensis* L.; *Serratula campestris* Schweigg. ex DC.; *Serratula complanata* Schweigg.; *Serratula incana* S.G.Gmel.; *Serratula lanata* Poir.; *Serratula setosa* Willd.; *Serratula spinosa* Forssk.; *Serratula spinosa* Gilib.

**Original name (Gmelin 1817):** *Serratula arvensis*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 357. 358

**German names and French names (Gmelin 1817):** Ackerscharten, Haberdistel, Ackerdistel, Saudistel, Felddistel; Serrette des champs, Cirse des champs

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs 30-160 cm tall, perennial, dioecious. Roots far creeping, bearing adventitious shoots. Stems erect, branched above, unwinged. Leaf surface smooth. Capitula often numerous, terminal, corymbose. Involucre ± narrowly ovoid,

1.5-2 cm in diam. Phyllaries imbricate, in 5-7 rows, lacking wings and scarious appendage; outer and middle phyllaries triangular to ovate, 3-8 × 1.2-2.5 mm, apex acute; inner phyllaries elliptic-lanceolate to broadly linear, 9-20 × 1-3 mm, apex acute to acuminate and scarious. Corolla reddish purple or rarely white; female florets 1.6-2.4 cm, tube 1.3-1.8 cm; male florets 1.5-1.8 cm, tube 0.9-1.2 cm. Achene yellowish, 3-4.5 mm. Pappus bristles dirty white, 2.5-3.5 cm. (Wu *et al.* 1994-2013).

**Contemporary uses:** *Thistle leaves are used to make sats'ebai (a dish with vegetables dipped in sour milk). Stems are sometimes eaten raw. Also, in phkhali. Thistle leaves are used to make sats'ebai (a dish with vegetables dipped in sour milk). Stems are sometimes eaten raw. Serves as emetic, for headache, indigestion and vomiting.* (Batsatsashvili *et al.* 2017b; Busmann *et al.* 2025k).

**Uses 1817 (Gmelin 1817):** The young, tender leaves provide a nourishing, tasty vegetable. Cut young, it provides pigs with a plentiful supply of fattening. The flowers provide honey and wax for bees. This odious weed, in times of scarcity, is among the most beneficial phenomena and should be used as food for humans and animals.

**Description and Ecology (Gmelin 1817):** The root is cylindrical, spreading widely and off-white. The stems are 3-4-5 feet tall, erect, rounded at the base, woolly, angular at the top, somewhat smooth, and branched. The leaves are sessile, alternate, incised, semi-pinnate, sinuate, somewhat wavy, toothed, and spiny; the uppermost leaves are small and somewhat entire. The flower heads terminate the stem and branches, borne on bare stalks, are ovoid-oblong, pale purple-red, rarely white. The calyx scales are clustered, close-fitting, lanceolate, smooth, and blue-purple-red. The seeds are obovate. The corolla is feathery and sessile. The receptacle is flat and covered with chaff. Grows in abundance in grain fields, vineyards, herb gardens, along ditches, paths, and hedges. Blooms in July and August. Its seeds ripen in August and September, and it is considered a perennial plant. This plant, cursed by farmers in grain fields and vineyards, becomes so prevalent, especially in wet years, that it often completely suppresses the grain, which is often the case in the lower-lying Rhine and Neckar regions.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, weit und breit kriechend, schmutzig weiß. Die Stengel 3 - 4 - 5 Fuß hoch, aufrecht, am Grunde rund, wollig, oben eckig, etwas glatt, ästig. Die Blätter aufsitzend, abwechselnd, eingeschnitten, halbgefiedert, gebuchtet, etwas wellenförmig, gezähnt, stachelig; die obersten klein, etwas ganz. Die Blumenköpfe endigen den Stengel und die Aeste, stehen auf nackten Stielen, sind eyförmig-länglich, blaßpurpurroth, seltener weiß. Die Kelchschuppen gehäuft, anliegend, lanzettförmig, glatt, blau-purpurroth. Die Samen verkehrt eyförmig. Die Samenkronen federartig, aufsitzend. Der Fruchtboden eben, mit Spreu besetzt. Wächst in Getreidefeldern, Weinbergen, Krautgärten, an Wassergräben, Wegen und Hecken hie und da in Menge. Blühet im Juli, August. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Diese dem Landmanne auf den Getreide-Aeckern und in den Weinbergen verwünschte Pflanze, nimmt vorzüglich bei nassen Jahrgängen dermaßen überhand, daß sie nicht selten das Getreide ganz unterdrückt, welches oft der Fall in den tiefer liegenden Rhein- und Neckar-Gegenden ist. Die jungen zarten Blätter geben ein nährendes schmackhaftes Gemüse. Jung abgeschnitten, giebt sie den Schweinen, eine ergiebige Mastung. Die Blüthen geben den Bienen Honig und Wachs. Dieses gehässige Unkraut, gehört bei Mangel, unter die wohlthätigsten Erscheinungen, und sollte als Nahrung für Menschen und Thiere wohl benutzt werden.

#### ***Cirsium eriophorum* Scop.**

**Synonyms:** *Cirsium chatenieri* Legrand; *Cirsium chodatii* Barb.-Gamp.; *Cirsium corbariense* var. *costae* Sennen & Pau; *Cirsium dinaricum* Vandas; *Cirsium eriocephalum* Wallr.; *Cirsium eriophorum* subsp. *britannicum* Petr.; *Cirsium eriophorum* subsp. *chatenieri* (Legrand) P.Fourn.; *Cirsium eriophorum* subsp. *chodatii* (Barb.-Gamp.) Rivas Mart., T.E.Díaz, Fern.Prieto, Loidi & Penas; *Cirsium eriophorum* subsp. *degenii* (Petr.) Soó; *Cirsium eriophorum* subsp. *dinaricum* (Vandas) Petr.; *Cirsium eriophorum* subsp. *eriochorum*, *Cirsium eriophorum* subsp. *velenovskiyi* (Vandas) Petr.; *Cirsium eriophorum* subsp. *vulgare* Petr.; *Cirsium eriophorum* var. *costae* (Sennen & Pau) O.Bolòs & Vigo; *Cirsium eriophorum* var. *eriochorum*; *Cirsium insubricum* Moretti ex Bertol.; *Cirsium ligulare* var. *bosniacum*; *Cirsium oviforme* Gand.; *Cirsium proponticum* Griseb.; *Cirsium vandasii* Petr.; *Cirsium velenovskiyi* Vandas; *Cnicus cinaroides* Sm.; *Cnicus cynaroides* Sm.; *Cnicus eriophorus* Roth; *Cnicus eriophorus* subsp. *eriochorum*; *Cnicus eriophorus* var. *eriochorum*; *Cnicus spinosissimus* M.Bieb.; *Epitrachys propontica* K.Koch

**Original name (Gmelin 1817):** *Cnicus eriophorus*. Gmel. Flor. Badens. III. p. 371. 372. - *Carduus eriophorus*. Linn. Sp. pl.

**German names and French names (Gmelin 1817):** Großköpfige Wollendistel, Großköpfiges Wollkratzkraut; Cirse laineux

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but extinct in the region

**Botany and Ecology:** Perennial. Stem 40-80 cm high, thick, simple, more or less densely white tomentose, densely leafy. Leaves with numerous appressed spinelike bristles above, more or less thinly arachnoid-hairy, with yellowish prominent veins and midrib broadened at base, densely grayish-tomentose beneath, with very prominent thick and ligneous midrib and lateral veins extending to apices of lobes as hard, stramineous spines, oblong or ovate-oblong, deeply sinuately palmately divided into broadly deltoid-lanceolate or deltoid-ovate segments, spiny-ciliate on margin, to 15-17 cm long; apical segments oblong, lanceolately tapered into hard spines up to 10 nun long, lateral segments usually nonuniformly 2-parted, with more or less reduced anterior lobe; all lobes and teeth tapered to thick, hard spines 10-12 mm long; basal and lower cauline leaves more deeply pinnately incised, to 25 cm long, narrowed in more or less short, narrow-winged spinulose petiole, middle and upper leaves sessile, with long semiamplexicaul auricles, 2-parted into deltoid lobes, tapered to long, hard spines; rosette of small leaves often in axils of upper leaves surrounding undeveloped axillary capitula; apical leaves at base of capitula, morphologically similar to remaining leaves, almost as long as or surpassing capitula. Capitula 3-4, globose-ovate, 5-6 cm in diameter, subsessile, clustered at stem apices in shortly racemose inflorescence, surrounded by deeply pinnately divided apical leaves surpassing them. Involucre densely grayish arachnoid-hairy; outermost involucral bracts scabrous above, gradually narrowed from broad base into long straight spines, densely arachnoid-hairy, other bracts from outer ovate-oblong to inner oblong-broadly lanceolate, glabrous, scarious, carinate, gradually narrowed above middle into linearly lanceolate, slightly curved tip, weakly arachnoid-hairy above. Florets pink, 30-32 mm long; limb as long as narrow corolla tube or somewhat longer, to middle 5-parted. Pappus golden, sordid-white above, with scarcely long, scabrous tips of inner pappus hairs; achenes brown, to 6 cm long. Flowering August to September. Stony slopes, from 2200 to 3500 m. (Wu *et al.* 1994-2013).

**Contemporary uses:** *Sometimes used as forage*

**Uses 1817 (Gmelin 1817):** The young, tender leaves and shoots can be eaten as a healthy and tasty vegetable in the spring. The leaves also provide adequate, plentiful food for pigs in April and May. Since this plant is so common in the harsher and colder, heavy, stony limestone soils around Villingen, Donaueschingen, Engen, Aach, Stockach, Möskirch, and in the neighboring Danube Valley in Württemberg, it should be used there in times of scarcity. Perhaps a good oil can be extracted from the seeds of this thistle, which would be desirable for the areas where it is common and has so far remained completely unused. The flowers provide the bees with abundant honey and wax. This plant is considered an ornamental plant and, as such, deserves to be planted in gardens.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 4-6 feet tall, erect, angular, softly tomentose, and branched. The branches are alternate and divided. The leaves are alternate, stalked, semi-pinnate, the lower ones very large: the segments are deeply bifid, spreading, directed upwards and downwards, covered with long, pointed spines at the base and at the tips, soft, white-tomentose beneath, light green above. The flower heads are rounded and solitary, ending the stem and branches, almost sessile, purple-red, rarely white. The calyxes are large, round, and entirely covered with a lovely, loose, spidery weave. The seed wool is feathery and sessile. The receptacle is covered with fine hairs. This exceptionally beautiful and large thistle grows in abundance on sunny limestone hills and mountains in Baden, Württemberg, Sigmaringen, and Switzerland, as well as along paths, roads, and vineyards that lead through limestone areas. It blooms in July and August. Its seeds ripen in September and is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 4 - 6 Fuß hoch, aufrecht, eckig, weichfilzig, ästig. Die Aeste abwechselnd, getheilt. Die Blätter abwechselnd, gestielt, halbgefiedert, die untern sehr groß: die Abschnitte tief zweigespalten, ausgebreitet, nach oben und unten gerichtet, am Grunde und an den Spitzen mit langen spitzigen Dornen besetzt, unten weich, weißfilzig, oben hellgrün. Die Blütenköpfe rundlich, einzeln, den Stengel und die Aeste endigend, fast aufsitzend, purpurroth, seltener weiß. Die Blütenkelche groß, rund, ganz mit einem niedlichen lockern spinnenartigen Gewebe bedeckt. Die Samenwolle federartig, aufsitzend. Der Fruchtboden mit feinen Haaren besetzt. Diese ausgezeichnet schöne und große Distel, wächst in großer Menge an sonnenreichen Kalksteinhügeln und Bergen, im Badischen, Württembergischen, Sigmaringischen, und in der Schweiz, auch längst den Wegen, Straßen und Weinbergen, welche durch Kalksteigegebenen führen. Blühet im Juli, August. Reifet ihre Samen im September, und gehört unter die zweijährigen Gewächse. Die jungen zarten Blätter und Sprossen können als gesundes und schmackhaftes Gemüse im Frühjahr verspeist werden. Auch geben die Blätter im April und May, den Schweinen eine angemessene ergiebige Nahrung. Da diese Pflanze so häufig in den rauhern und kältern, schweren steinigen Kalkböden, um Villingen, Donaueschingen, Engen, Aach, Stockach, Möskirch, und in dem benachbarten Donauthal, dem benachbarten Württembergischen, in großer Menge vorkommt, sollte sie daselbst bei Mangel bestens benutzt werden. Vielleicht läßt sich, aus dem Samen dieser Distel, ein gutes Oehl, mit Vortheil pressen, welches für die Gegenden, wo sie häufig vorkommt, und bisher ganz unbenutzt liegen blieb, erwünscht wäre. Die Blüten geben den Bienen reichlich Honig und Wachs. Diese Pflanze gehört zu den Zierpflanzen, und verdiente als solche, in den Gärten angepflanzt zu werden.

***Cirsium oleraceum* Scop.**

*Synonyms: Carduus acanthifolius* Lam.; *Carduus oleraceus* Vill.; *Carduus parviflorus* L.; *Carduus rigens* Godr.; *Carduus tataricus* L.; *Cirsium braunii* F.Schultz ex Nyman; *Cirsium flavescens* Lam.; *Cirsium pallens* DC.; *Cirsium parviflorum* DC.; *Cirsium parviflorum* Schleich. ex Steud.; *Cirsium praemorsum* W.D.J.Koch; *Cirsium rigens* Spreng.; *Cirsium subalatum* Gaudin; *Cirsium thomasii* Nägeli; *Cirsium variabile* Moench; *Cnicus bracteatus* Gilib.; *Cnicus oleraceus* L.; *Cnicus pratensis* Lam.; *Cynara colorata* Stokes; *Onotrophe oleracea* Cass.;

**Original name (Gmelin 1817):** *Cnicus oleraceus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 381. 382.- Schkuhr. Bot. Handb. tab. 230.

**German names and French names (Gmelin 1817):** Wiesendistel, Gelbe Distel, Kohl-Distel, Wiesenkohl; Cirse des près, Quenoville des près

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial. Rhizome horizontal, with funiform fibrous roots; stem ascending, more or less branched from middle, 60-150 cm high, sulcate, subglabrous or scatteredly arachnoid-hairy. Leaves elliptical or ovate, green and glabrous above, glaucescent beneath, somewhat arachnoid-hairy on veins; lower cauline leaves 20-40 cm long, 10-30 cm wide, narrowed to winged, more or less elongate petiole, sinuate-pinnately parted into ovate, unevenly toothed segments, teeth tapered to thin spines 2-3 mm long; middle cauline leaves more or less deeply pinnatisect into lanceolate, spinescent approximate lobes, sessile, amplexicaul, usually 15 cm long, 5 cm wide; upper cauline leaves ovate or oblong-ovate, more or less pinnately toothed or almost entire, with spinelike cilia, long-acuminate, usually 10 cm long, 4 cm wide. Capitula globose-ovate, 2-3 cm in dia, in clusters of 2-5 at apices of stem and few, long branches, basally surrounded by yellowish-green and broadly ovate, in upper capitula more or less lanceolate, apical leaves; capitula more or less nodding. Involucre finely arachnoid-hairy; outer involucral bracts lanceolate, weakly arachnoid-hairy, narrowed into deflexed yellowish spine, with dark green band above, weakly carinate; inner bracts linearly-lanceolate, glabrous, narrowed into long scarious tip. Florets greenish-yellow, 22 mm long; corolla tube narrow, 8 mm long; limb lobed almost to middle. Achenes 4.5 mm long, pale yellowish-gray; pappus sordid-white, to 19 mm long, hairs with long filiform tips. Flowering July to September. Commonly in forest zone, occasionally in forest steppe, from time to time in steppe regions; in coniferous and birch-aspen forests, pine forests, along forest edges, among scrubs, in wet meadows, often on edges of swamps. (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be prepared and eaten as a tasty, nourishing, and healthy vegetable. They are used not only by the Russians, but also occasionally in Germany and France. They are eaten in sod by peasants under the name "Speckschwarte" (bacon rind), alone or mixed with other vegetables, as a delicacy; see Flora der Wetterau 3, p. 166. This plant, so common in the Rhine region, is hitherto unknown to our farmers and, in times of scarcity, deserves to be used not only for humans, but also for cattle and pigs. It is particularly abundant in wet seasons, where it is easily distinguished from other thistles by its pale green-yellow stems and leaves.

**Description and Ecology (Gmelin 1817):** The root is cylindrical, fibrous, and white. The stem is 2-3-4 feet tall, erect, striated, somewhat smooth, thick, and simple. The leaves are alternate, sessile, clasping the stem, semipinnate, veined, and somewhat smooth. The segments are oval-lanceolate, serrate, and finely spined along the margins. The pale yellow flowers are borne in sets of three at the end of the stem. They are conical, surrounded by ovoid or ovoid-lanceolate, hollow, whitish or whitish-yellow bracts. The calyx scales are smooth, pale green, with a spiny tip. The corolla is feathery and sessile. The receptacle is hairy. Grows abundantly in the Rhine, Neckar, Main, Danube, and other river regions, both in low-lying flood-prone meadows and pastures, as well as in higher mountain and valley meadows and pastures, in marshy, wet places, along ditches, streams, and at the edges of forest meadows. It blooms in July, August, and September. Its seeds ripen in August, September, and October, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, faserig, weiß. Der Stengel 2 - 3 - 4 Fuß hoch, aufrecht, gestreift, etwas glatt, dicklich, einfach. Die Blätter abwechselnd, aufsitzend, stengelumfassend, halbgefiedert, aderig, etwas glatt. Die Abschnitte oval-lanzettförmig, gesägt, am Rande feindornig. Die blaßgelben Blüten stehen zu drey am Ende des Stengels, sind kegelförmig, mit eyrunden oder eyrund-lanzettförmigen hohlen, weißlichen oder weißlich gelben Deckblättern umgeben. Die Kelchschuppen sind glatt, blaßgrün, an der Spitze mit einem Dörnigen versehen. Die Samenkronen federartig, aufsitzend. Der Fruchtboden haarig. Wächst in den Rhein-, Neckar-, Main-, Donau-, und andern Flußgegenden, sowohl auf niedern Ueberschwemmungen ausgesetzten, als höher liegenden Berg- und Thalwiesen und Weiden, auf sumpfigen nassen

Stellen, an Wassergräben, Bächen, und am Rande der Waldwiesen in Menge. Blühet im Juli, August, September. Reifet ihre Samen im August, September, October, und gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter, können als ein schmackhaftes nährendes und gesundes Gemüse zubereitet und verspeist werden. Sie werden nicht nur von den Russen, sondern auch hie und da in Teutschland und Frankreich dazu verwendet. Sie werden in Soden von den Landleuten unter dem Namen Speckschwarte allein und mit anderm Gemüse vermischet, als ein Leckerbissen gegessen, s. Flora der Wetterau 3 p. 166. Diese so häufig in den Rheingegenden vorkommende Pflanze, ist unsern Landwirthen bisher unbekannt, und verdient, bei Mangel, nicht nur für Menschen, sondern auch für das Rindvieh und die Schweine bestens benutzt zu werden. Vorzüglich häufig kommt sie in nassen Jahrgängen vor, wo sie leicht durch die blaßgrün-gelben Stengel und Blätter von andern Disteln zu unterscheiden ist.

#### ***Cirsium palustre* Scop.**

*Synonyms: Carduus chailletii* Godr.; *Carduus laciniatus* Lam.; *Carduus palustris* L.; *Cirsium chailletii* Gaudin; *Cirsium forsteri* Loudon; *Cirsium horridum* (Posp.) Trotter; *Cirsium kochianum* Loehr; *Cirsium laciniatum* Doell ex Nyman; *Cirsium lacteum* Schleich.; *Cirsium lacteum* Schleich. ex W.Koch; *Cirsium palatinum* Sch.Bip. ex Nyman; *Cirsium palustre* f. *horridum* Posp.; *Cirsium palustre* f. *palustre*; *Cirsium palustre* subsp. *palustre*; *Cirsium palustriforme* Dalla Torre & Sarnth.; *Cirsium parviflorum* Lange ex Nyman; *Cirsium pseudopalustre* Schur; *Cirsium semidecurrans* Richt.; *Cnicus forsteri* Sm.; *Cnicus lacteus* Schleich.; *Cnicus palustris* Willd.; *Cynara palustris* Stokes;

**Original name (Gmelin 1817):** *Cnicus palustris*. Gmel. Flor. Badens. III. p. 369. 370. - *Carduus palustris*. Linn. Sp. pl.

**German names and French names (Gmelin 1817):** Sumpfdistel. Sumpfkraatzkraut; Cirse des Marais

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Biennial 30-200 cm, the stem spiny-winged by the decurrent leaf-bases; arachnoid; heads purple, several or many, clustered, involucre 1-2 cm, its bracts not at all spine-tipped; mature pappus 1 cm or less; achenes 3 mm.

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** The very young leaves and shoots can be prepared and eaten as vegetables in the spring.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 2-4-9 feet tall, erect, angular, winged, hairy, spiny, simple or branched. The branches are alternate, winged, and spiny. The root leaves are stalked, those on the stem alternate, sessile, lanceolate, acute, decurrent, semi-pinnate, toothed, curled, veined, spiny at the margins, hairy; the uppermost ones are narrower. The purple-red, densely clustered, sessile flowers terminate the stems and branches. The corolla is sessile and feathery. The fruiting receptacle is hairy. Grows consistently in abundance on moist, marshy, and sometimes flood-prone meadows and pastures, both in low and high mountain and valley regions. It blooms in June, July, and August. Its seeds ripen in August and September, and it is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 2 - 4 - 9 Fuß hoch, aufrecht, eckig, geflügelt, rauhaarig, dornig, einfach, oder ästig. Die Aeste abwechselnd, geflügelt, dornig. Die Wurzelblätter gestielt, die am Stengel abwechselnd, aufsitzend, lanzettförmig, spitzig, herablaufend, halbgefiedert, gezahnt, krause, geadert, am Rande dornig, rauhaarig; die obersten schmaler. Die purpurrothen, dicht beisammen stehenden aufsitzenden Blüthen endigen Stengel und Aeste. Die Samenkronen aufsitzend, federartig. Die Fruchtboden haarig. Wächst durchgängig in Menge auf feuchten sumpfigen und theils Ueberschwemmungen ausgesetzten Wiesen und Weiden, sowohl in niedern als höhern Berg- und Thalgegenden. Blühet im Juni, Juli, August. Reifet ihre Samen im August, September, und gehört unter die zweyjährigen Gewächse. Die ganz jungen Blätter und Sprossen, können im Frühjahr als Gemüse zubereitet und verspeist werden.

#### ***Cirsium rivulare* (Jacq.) All.**

*Synonyms: Carduus erisithales* Vill.; *Carduus pontederiae* Steud.; *Carduus rivularis* Jacq.; *Carduus salisburgensis* Pers.; *Carduus tricephaloides* Lam.; *Cirsium carniolicum* All.; *Cirsium gracile* Schur; *Cirsium salisburgense* G.Don; *Cirsium semipectinatum* Rchb.; *Cirsium tricephalodes* DC.; *Cirsium tricephalum* St.-Lag.; *Cnicus autareticus* Loisel.; *Cnicus pontederiae* Pollini; *Cnicus rivularis* Willd.; *Cnicus salisburgensis* Willd.; *Cnicus seminudus* Schleich. ex DC.;

**Original name (Gmelin 1817):** Cnicus rivularis. Gmel. Flor. Badens. III. p. 376. 377. - Carduus rivularis. Jacq. Flor. Austr. tab. 91.

**German names and French names (Gmelin 1817):** Bachdistel. Bachkratzkraut. Dreyköpfige Distel; Cirse a trois têtes

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but extinct in the region

**KR 115355** (Fig. 28)



Figure 28. *Cirsium rivulare* (Jacq.) All. - KR 115355

**Botany and Ecology:** Perennial. Rhizome with numerous thin-funifiform roots; stem 75-100 cm high, yellowish, ascending, sulcate, scatteredly crisped-hairy below, thinly arachnoid-hairy above, simple, with long few-leaved peduncle bearing solitary terminal capitula. Leaves subglabrous above and green or sparsely crisped-hairy above, grayish-green and more or less densely crisped-hairy beneath, especially along veins; basal leaves 15-25 long, 5.5-9.5 cm wide, obovate or ovate-lanceolate, narrowed at both ends basally narrowed into more or less short winged petiole, with large remote lobes, tapered to long, thin spines, usually unequally pinnately incised into approximate, deltoid-ovate, broadly deltoid-lanceolate or more or less digitately elongated segments; each segment with subacute deltoid teeth, with dense, short (2-3 mm long) spinelike cilia; apical segments acuminate; lower cauline leaves narrowed at base, auriculate, broadly ovate, very unequally, more or less deeply pinnatisect into oblong, toward middle of lamina almost digitately elongated segments, 9-18 cm long, 6.5-8.5 cm wide, occasionally almost undivided; upper leaves small, lanceolate, 1-2 on common peduncles. Capitula globose-ovate, apical, solitary or in clusters of 2-3, 1.3-2.3 cm in diameter, on short peduncles. Involucre imbricate, dark purple, scatteredly arachnoid-hairy; outer involucral bracts ovate-lanceolate, tiny ciliate on margins, spinescent; inner bracts linearly-lanceolate, acuminate. Florets red, to 19 mm long; corolla tube narrow, 8 mm long; limb lobed to middle. Achenes yellowish, 4.5 mm long; pappus sordid-white, with inner hairs toothed at tips. Flowering June to July. Wet, marshy meadows, coniferous forests in logged areas, black alder forests, and along ditches (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** The tender leaves and shoots provide a healthy, nutritious, and tasty vegetable in the spring. The leaves and young stems are eagerly eaten by pigs and cattle, providing them with good and plentiful food. This beautiful thistle, which is considered a rare plant in Germany, I found in large quantities in the places mentioned during my subsequent botanical excursions, especially during the previous wet year. It is previously unknown to our farmers and should be put to good use there. It was worth the effort to experiment with the very fleshy, strong roots to see whether they could be used as a good food for humans and animals in the absence of other sources.

**Description and Ecology (Gmelin 1817):** The root is cylindrical, thick, long, fibrous, and white. The stem is 2-3 feet tall, erect, simple, furrowed below, covered with leaves up to the middle, rounded above, striped, leafless, whitish-gray, and tomentose. The leaves are semi-pinnate, more or less deeply incised: the segments are somewhat parallel, lanceolate; the lowest leaves are arranged in a toothed stalk, the others are alternate, sessile, and clasping the stem. The purple-red flowers terminate the stem, often in groups of three, the middle one being larger, or in groups of four, five, or seven (rarely just one). The calyx is oval. The scales are brownish-purple, thornless. The corolla is feathery and sessile. The receptacle is hairy. Grows frequently in wet, damp meadows and pastures, along ditches, around Villingen, Donaueschingen, Hüfingen, Geisingen, Engen, Aach, Stockach, Möskirch, Pfulendorf, on Lake Constance, in neighboring Switzerland, the Württemberg and Simaring regions. It blooms in May and June. Its seeds ripen in July and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, dicklich, lang, faserig, weiß. Der Stengel 2 - 3 Fuß hoch, aufrecht, einfach, unten gefurcht, bis über die Mitte mit Blättern bewachsen, oben rundlich, gestreift, blätterlos, weißgrau, filzig. Die Blätter halbgefiedert, mehr oder weniger tief eingeschnitten: die Abschnitte etwas parallel laufend, lanzettförmig; die untersten Blätter laufen in einem gezahnten Stiel, die übrigen sind abwechselnd, aufsitzend, stengelumfassend. Die purpurrothen Blüthen endigen den Stengel, sitzen öfters zu drey, wovon die mittlere größer ist, auch zu 4 - 5 - 7, (selten nur eine) beisammen. Der Blumenkelch ist eyrund. Die Schuppen braun-purpurroth, stachellos. Die Samenkronen federartig, aufsitzend. Der Fruchtboden haarig. Wächst häufig auf nassen feuchten Wiesen und Weiden, an Wassergräben, um Villingen, Donaueschingen, Hüfingen, Geisingen, Engen, Aach, Stockach, Möskirch, Pfulendorf, am Bodensee, in der angränzenden Schweiz, dem Würtenbergischen und Simaringischen. Blühet im May, Juni. Reifet ihre Samen im Juli, und gehört unter die ausdauernden Gewächse. Die zarten Blätter und Sprossen, geben im Frühjahr ein gesundes, nährendes und schmackhaftes Gemüse. Die Blätter und jungen Stengel fressen die Schweine und das Rindvieh begierig, denen sie eine gute und reichliche Nahrung geben. Diese schöne Distel, welche in Deutschland unter die seltenen Pflanzen gehört, fand ich auf meinen spätern Botanischen Wanderungen, vorzüglich in dem vorigen nassen Jahre, an den angeführten Orten durchgängig in großer Menge. Sie ist bisher unsern Landwirthen unbekannt, und sollte daselbst bestens benutzt werden. Es verlohnte sich der Mühe, mit den sehr fleischigen starcken Wurzeln, Versuche anzustellen, ob sie nicht als ein gutes Nahrungsmittel für Menschen und Thiere, bei Mangel anderer, benutzt werden könnten.

***Cladonia rangiferina* (L.) Weber ex F.H.Wigg.**

**Synonyms:** *Lichen rangiferinus* L.; *Cladina rangiferina* (L.) Nyl.; *Cladonia fusca* var. *rangiferina* (L.) Rabenh.; *Cenomyce rangiferina* (L.) Ach.

**Original name (Gmelin 1817):** Lichen rangiferinus. Linn. Sp. pl. - Cladonia rangiferina. Achar.

**German names and French names (Gmelin 1817):** Rennthier-Flechte, Rennthier-Moos; Lichen des Rennes

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Endangered, steep decline (Wirth 2008).

**Contemporary uses:** *Used in alcoholic beverages.*

**Uses 1817 (Gmelin 1817):** In the north, it is the usual food for reindeer. Cattle and pigs eat it willingly, which is why it is also collected in Carniola to fatten the pigs. The larger lichen species can, for the most part, serve as fodder for livestock when there is a shortage.

**Description and Ecology (Gmelin 1817):** It forms round, white or ash-gray turf, is upright, composed of many round, hollow, very branchy, and divided stems, which overhang at the tips and are covered with small, round, dark-brown heads. Grows abundantly in lower and higher mountain regions, especially on dry, sandy heaths and moist peat-moss grounds. In the Black Forest of Baden and Württemberg, it is also common in sandy areas in the Hardt, where it is found year-round.

**Original German text Gmelin (Gmelin 1817):** Sie bildet runde weiße oder aschgraue Rasen, ist aufrecht, aus vielen runden inwendig hohlen, sehr ästigen und getheilten Stengel zusammengesetzt, welche an den Spitzen überhängend, und mit kleinen runden dunkelbraunen Köpfchen versehen sind. in Menge in niederen und höheren Berggegenden, vorzüglich auf trockenen sandigen Heidestellen, und feuchten Torfmoosgründen. Im Badischen und Württembergischen Schwarzwalde, auch häufig in Sandgegenden in der Hardt, wo sie das ganze Jahr hindurch angetroffen wird. Sie ist im Norden das gewöhnliche Futter der Rennthiere. Das Rindvieh und die Schweine fressen sie gerne, daher wird sie auch in Krain eingesammelt, um die Schweine damit zu mästen. Die größeren Flechtenarten, können größtentheils, bei Mangel, als Viehfutter dienen.

#### ***Clavaria albida* Schaeff.**

*Synonyms: Ramaria coralloides* (L.) Holmsk.; *Clavaria cristata* subsp. *coralloides* (L.) S. Lundell; *Clavaria holmskjoldii* Fr.; *Clavaria holmskjoldii* Fr.; *Clavaria holmskjoldiana* Fr.; *Clavaria alba* Pers.

**Original name (Gmelin 1817):** *Clavaria albida*. Schaeff. Fung. tab. 170. - flava. ej. iab. 175. - flavercens ej. tab. 285. - pallida. ej. tab. 286. - aurea. ej. tab. 287. - acroporphyrea. ej. tab. 176. - rufescens. ej. tab. 288.

**German names and French names (Gmelin 1817):** Korallenschwamm, Weißgelblicher-rothgelblicher Korallenschwamm, Geisbart, Ziegenbart, Zieserlein, Händelschwamm; Menotte, Ganteline, Barbe-de-Bouc, Bouquinbarbe, Tripette, Cheveline, Pied-de-coq, Clavaire coralloïde

**Contemporary uses:** *Edible when fresh.*

**Uses 1817 (Gmelin 1817):** It is one of the edible mushrooms that are brought to market, especially the yellow variety, which is prepared in various ways and also eaten as a salad.

**Description and Ecology (Gmelin 1817):** The stem is thick, soft, fleshy, divided into many rounded branches and lateral branches, whitish-yellow, yellowish, or yellow-reddish, depending on the age and location. The branches and twigs are more or less upright, dense, and fragile, the latter often bifurcated and pointed. Grows singly or in clusters in close bushes. Grows frequently in low and mountain forests on the ground in late autumn.

**Original German text Gmelin (Gmelin 1817):** Einzeln oder mehrere nahe buschig beisammen stehend. Der Strunck dick, weich, fleischig, in viele rundliche Aeste und Seitenäste getheilt, weißgelblich, gelblich, gelbröthlich, nach der Verschiedenheit des Alters und der verschiedenen Standörter. Aeste u. Zweige sind mehr oder weniger aufrechtstehend, dicht, zerbrechlich, die letztern Zweige öfters zweygetheilt und zugespitzt. Wächst häufig in niedrigen und Bergwaldungen auf der Erde im Späthjahre. Gehört unter die eßbaren Schwämme, welche zu Markte gebracht werden, welches sich vorzüglich von der gelben Abänderung versteht, welche auf verschiedene Art zubereitet, und auch als Salat verspeist wird.

#### ***Clavaria cinerea* Bull.**

*Synonyms: Ramaria cinerea* (Bull.) Gray; *Corallium cinereum* (Bull.) G. Hahn; *Merisma cinereum* (Bull.) Spreng.; *Clavaria cristata* subsp. *cinerea* (Bull.) S. Lundell; *Clavaria coralloides-cinerea* Bull.

**Original name (Gmelin 1817):** *Clavaria cinerea*. Bulliard. tab. 354.

**German names and French names (Gmelin 1817):** Aschgrauer Korallenschwamm, Aschgrauer Geisbart, Aschgraue Zieserlein; Menotte gris, Ganteline gris, Clavaire cendrée

**Contemporary uses:** *Edible when fresh.*

**Uses 1817 (Gmelin 1817):** It is occasionally brought to market and prepared in the same way as the former and is preferred by some.

**Description and Ecology (Gmelin 1817):** It bears a great resemblance to the preceding variety (*C. coralloides*), differing from it by its gray color and its slightly broader branches at the tips. Grows in forests on the ground in late autumn.

**Original German text Gmelin (Gmelin 1817):** Hat sehr viele Aehnlichkeit mit dem vorhergehenden, von dem er sich durch die graue Farbe, und die an der Spitze etwas breit gedrückten Zweige unterscheidet. Wächst in den Waldungen auf der Erde im Späthjahre. Wird hie und da zu Markte gebracht und auf gleiche Weise, wie der erstere zubereitet, und von einigen, demselben vorgezogen.

#### ***Clavulina coralloides* (L.) J. Schröt.**

*Synonyms: Clavaria coralloides* L.; *Ramaria coralloides* (L.) Holmsk.; *Clavaria cristata* subsp. *coralloides* (L.) S. Lundell; *Clavaria holmskioldii* Fr.; *Clavaria holmskjoldiana* Fr.; *Clavaria alba* Pers.

**Original name (Gmelin 1817):** *Clavaria coralloides*. Linn. Sp. pl. - Bulliard. tab. 496 fig. 3. - tab. 222. und 358. fig. B. C. D. E. acroporphryea. ej. tab. 176. - rufescens. ej. tab. 288.

**German names and French names (Gmelin 1817):** Korallenschwamm, Weißgelblicher-rothgelblicher Korallenschwamm, Geisbart, Ziegenbart, Zieserlein, Händelschwamm; Menotte, Ganteline, Barbe-de-Bouc, Bouquinbarbe, Tripette, Cheveline, Pied-de-coq, Clavaire coralloïde

**Contemporary uses:** *Edible when fresh.*

**Uses 1817 (Gmelin 1817):** It is one of the edible mushrooms that are brought to market, especially the yellow variety, which is prepared in various ways and also eaten as a salad.

**Description and Ecology (Gmelin 1817):** The stem is thick, soft, fleshy, divided into many rounded branches and lateral branches, whitish-yellow, yellowish, or yellow-reddish, depending on the age and location. The branches and twigs are more or less upright, dense, and fragile, the latter often bifurcated and pointed. Grows singly or in clusters in close bushes. Grows frequently in low and mountain forests on the ground in late autumn.

**Original German text Gmelin (Gmelin 1817):** Einzeln oder mehrere nahe buschig beisammen stehend. Der Strunck dick, weich, fleischig, in viele rundliche Aeste und Seitenäste getheilt, weißgelblich, gelblich, gelbröthlich, nach der Verschiedenheit des Alters und der verschiedenen Standörter. Aeste u. Zweige sind mehr oder weniger aufrechtstehend, dicht, zerbrechlich, die letztern Zweige öfters zweygetheilt und zugespitzt. Wächst häufig in niedrigen und Bergwaldungen auf der Erde im Späthjahre. Gehört unter die eßbaren Schwämme, welche zu Markte gebracht werden, welches sich vorzüglich von der gelben Abänderung versteht, welche auf verschiedene Art zubereitet, und auch als Salat verspeist wird.

#### ***Cormus domestica* (L.) Spach**

*Synonyms: Sorbus domestica* L.; *Pyrus domestica* (L.) Ehrh.; *Pyrus domestica* (L.) Sm.; *Pyrus serrulata* hort.

**Original name (Gmelin 1817):** *Sorbus domestica*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 378 -379. Jacqu. Flor. Austr. tab. 447.

**German names and French names (Gmelin 1817):** Zahmer Sperberbaum, Zahmer Sperbirnbaum, Speyerling, Zahmer Spierlingsbaum, Sorbäpfel, Sorbbirn, Sperrbirn, Escherizen; Sorbier domestique, Cochène cultivé

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but almost extinct in the region

**Botany and Ecology:** Tree 4-10 m high; bark scabrous, gray, on young branches olive -gray or reddish-brown: buds glabrous, glutinous, somewhat pubescent at the ends; leaves 7-10 -paired, to 20 cm long, lanceolate, acute; leaflets broad, 3-50 mm long, 15 — 2 mm broad, or else narrow, 40-50 mm long, 15-20 mm broad, acutely serrate, smooth above, deep green, initially tomentose like the petioles, losing their pubescence at maturity; inflorescence branching, densely tomentose, broadly pyramidal, 6-10 cm diameter; flowers 1.5 cm in diameter; fruits globose or pyriform, greenish yellow or red, often brownish red; seeds flattened, with subacute margin. Flowering May, fruiting September-October. Deciduous forests on mountain slopes. (Yuzepchuk 1939)

**Contemporary uses:** *Fruits fermented in beverages.* (Batsatsashvili *et al.* 2017a; Bindu *et al.* 2021; Busmann *et al.* 2020b,c; 2025c; Paniagua-Zambrana *et al.* 2025e).

**Uses 1817 (Gmelin 1817):** The fruits, as picked from the tree, are very tart and astringent. When placed on straw for a few days, they turn brown, very juicy, and soft, and then taste pleasantly sour-sweet and mild, and can be eaten as a very healthy food. Through fermentation, they produce good vinegar and brandy, and also an excellent cider when apples are added to the fermentation, for which one usually uses two parts apples for one part of these fruits. This tree deserves to be planted and propagated in every respect in the low mountain regions, not so much in the forests as around villages, and also above and next to vineyards. Its wood is highly sought after by coopers, carpenters, and turners, and bees obtain plenty of honey and wax from the blossoms. Just 20 years ago, this tree was much more common in several regions than it is today. In general, on my subsequent botanical excursions, I miss many beneficial old fruit trees that I admired 20 to 30 years ago, and find many empty spots that would be perfectly suited for their replacement.

**Description and Ecology (Gmelin 1817):** Often a fairly tall tree. The bark is fissured, gray-brown. The branches are alternate. The leaves are alternate, stalked, and pinnate. The leaflets are sessile, opposite, oblong, pointed, finely serrated, flat, somewhat smooth, the younger ones somewhat finely hairy. The flowers are borne in upright, compound umbels. The calyx is five-divided and woolly. The corolla is larger than the calyx, five-petaled, white or pale yellow. The stamens are five, rarely three. The fruits are pear- or apple-shaped, smooth, greenish-yellow or reddish, five-lobed. The seeds are oval, very compressed, smooth, shiny, and brown. We have two varieties of this, one with pear-shaped fruits and the other with apple-shaped ones. It occurs here and there in low mountain forests near Niefern, Bauschlott, Stein, Pforzheim, Weissenstein, and in the neighboring Kingdom of Württemberg, in the Basel region near Rissach and Raucheptingen, near Arlesheim, in the Jura Mountains, and in the central Vosges Mountains. It is also occasionally found in orchards around villages, especially in the Breisgau and Ortenau regions. It blooms in May and June and ripens its fruits in September and October.

**Original German text Gmelin (Gmelin 1817):** Oft ein ziemlich hoher Baum. Die Rinde rissig, grau-bräunlich. Die Aeste abwechselnd. Die Blätter abwechselnd, gestielt, gefiedert. Die Blättchen aufsitzend, gegenüberstehend, länglich, spitzig, fein gesägt, flach, etwas glatt, die jüngern etwas fein behaart. Die Blüthen ausgehend, in aufrechtstehenden zusammengesetzten Doldentrauben. Der Blüthenkelch fünfmal getheilt, wollig. Die Blumenkrone größer als der Kelch, fünfblättrig, weiß, oder blaßgelb. Staubwege 5, seltener 3. Die Früchten birn- oder apfelförmig, glatt, grünlich-gelb oder röthlich, fünffächerig. Die Samen eyrund, sehr zusammengedrückt, glatt, glänzend, braun. Davon habe wir zwey Abänderungen, die eine mit birnförmigen Früchten, und die andere mit apfelförmigen. Er kommt hie und da in Mittel-Gebirgs-Waldungen bei Niefern, Bauschlott, Stein, Pforzheim, Weissenstein, und in dem benachbarten Königreiche Würtenberg vor, im Basler Gebiete bei Rissach und Raucheptingen, bei Arlesheim, am Juragebirge, und an den mittlern Vogesen, und wird auch in Obstgärten um Dörfer hin und wieder vorzüglich im Breisgau und in der Ortenau angetroffen. Blühet im May, Juni, reifet seine Früchten im September und October. Die Früchten sind, so wie sie vom Baume abgenommen werden, sehr herbe und zusammenziehend. Einige Tage über auf Stroh gelegt, werden sie braun, sehr saftig, weich, und schmecken alsdann angenehm säuerlich-süß, milde, und können als eine sehr gesunde Nahrung verspeist werden. Sie geben durch die Gährung guten Essig und Brandtwein, auch einen trefflichen Cyder, wenn Aepfel mit untergekeltert werden, wozu man gewöhnlich auf einen Theil dieser Früchten zwey Theile Aepfel nimmt. Dieser Baum verdient in jeder Hinsicht, in denen Mittelgebirgsgegenden, nicht sowohl in den Waldungen, als um Dörfer, auch oberhalb und neben den Weinbergen, angepflanzt und vermehrt zu werden. Sein Holz ist von Böttchern, Schreibern und Drehern, sehr gesucht, und die Bienen erhalten viel Honig und Wachs, aus den Blüthen. Noch vor 20 Jahren, kam dieser Baum viel häufiger in mehreren Landesgegenden vor, als dermalen; überhaupt, vermisse ich auf meinen spätern Botanischen Wanderungen manchen wohlthätigen alten Obstbaum, den ich vor 20 bis 30 und mehreren Jahren bewunderte, und finde so manche leere Stelle, welche zum Nachzuge derselben trefflich geeignet wäre.

***Crataegus laevigata* (Poir.) DC.**

*Synonyms: Crataegus calycina* var. *walokochiana* (Hrabětová) Cinovskis; *Crataegus coriacea* Gand.; *Crataegus cuneato-trifida* Lojac.; *Crataegus laevigata* subsp. *carnoviensis* (Hrabětová) Dostál; *Crataegus laevigata* subsp. *laevigata*, *Crataegus laevigata* subsp. *palmstruchii* (Lindm.) Franco; *Crataegus laevigata* subsp. *vulgaris* (Medik.) T.Baranec; *Crataegus laevigata* subsp. *walokochiana* (Hrabětová) Dostál; *Crataegus laevigata* var. *carnoviensis* (Hrabětová) Hrabětová; *Crataegus laevigata* var. *integrifolia* (Wallr.) Ker.-Nagy; *Crataegus laevigata* var. *microphylla* (Lange) Hrabětová; *Crataegus laevigata* var. *vulgaris* (DC.) P.A.Schmidt; *Crataegus oxyacantha* f. *auriculata* (Lange ex Dippel) C.K.Schneid.; *Crataegus oxyacantha* f. *ellipticifolia* Cinovskis; *Crataegus oxyacantha* f. *glabrata* Sanio; *Crataegus oxyacantha* f. *laevigata* (Poir.) Beck; *Crataegus oxyacantha* f. *vernica* (Lange) C.K.Schneid.; *Crataegus oxyacantha* subsp. *carnoviensis* Hrabětová; *Crataegus oxyacantha* subsp. *oxyacanthoides* (Thuill.) Maire; *Crataegus oxyacantha* subsp. *palmstruchii* (Lindm.) Hrabětová; *Crataegus oxyacantha* subsp. *polygyna* H.L.v.; *Crataegus oxyacantha* subsp. *vernica* Lange; *Crataegus oxyacantha* var. *auriculata* Lange ex Dippel; *Crataegus oxyacantha* var. *eriocarpa* (Gillot) H.L.v.; *Crataegus oxyacantha* var. *eriocarpa* Gillot; *Crataegus oxyacantha* var. *globosa* Hrabětová; *Crataegus oxyacantha* var. *integrifolia* (Wallr.) H.L.v.; *Crataegus oxyacantha* var. *integrifolia* (Wallr.) Rouy & E.G.Camus; *Crataegus oxyacantha* var. *laevigata* (Poir.) H.L.v.; *Crataegus oxyacantha* var. *laevigata* (Poir.) Rouy & E.G.Camus; *Crataegus oxyacantha* var. *mathei* Pénzes; *Crataegus oxyacantha* var. *microcarpa* H.L.v.; *Crataegus oxyacantha* var. *microphylla* Lange; *Crataegus oxyacantha* var. *microoxyacantha* Pénzes; *Crataegus oxyacantha* var. *obtusata* Ser.; *Crataegus oxyacantha* var. *obtusiloba* Schur; *Crataegus oxyacantha* var. *ovoxyacantha* Pénzes; *Crataegus oxyacantha* var. *oxyacanthoides* (Thuill.) H.L.v.; *Crataegus oxyacantha* var. *oxyacanthoides* (Thuill.) K.Koch; *Crataegus oxyacantha* var. *palmstruchii* (Lindm.) Gams; *Crataegus oxyacantha* var. *vulgaris* Willd.; *Crataegus oxyacanthoides* Thuill.; *Crataegus palmstruchii* Lindm.; *Crataegus palmstruchii* subsp. *rhenana* R.Knapp; *Crataegus subinermis* Gand.; *Crataegus walokochiana* (Hrabětová) Soó; *Crataegus xorbifolia* Lange; *Mespilus digyna* Gray; *Mespilus intermedia* Poir.; *Mespilus laevigata* Poir.; *Mespilus oxyacantha* var. *integrifolia* Wallr.; *Mespilus oxyacantha* var. *obovata* M, rat; *Mespilus oxyacantha* var. *obtusata* (DC.) Wenz.; *Mespilus oxyacanthoides* DC.; *Oxyacantha obtusata* M.Roem.; *Oxyacantha vulgaris* M.Roem.

**Original name (Gmelin 1817):** *Crataegus oxyacantha*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p.371. - 373.

**German names and French names (Gmelin 1817):** Weisdorn, Gemeiner Hagdorn, Möllerbrod, Mehdorn, Frauenbirnlein, Hagäpfelein, Mehlfäsgen; Epin blanche, Aubepine, Noble Epine

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

#### KR 225951

**Botany and Ecology:** Shrub or small tree with glabrous shoots and light gray branches; axillary spines 1-2 cm long (very few in cultivated specimens), sometimes leafy spines present; leaves usually quite glabrous, very rarely with small beards in angles of main veins below, thin, initially cartaceous, later rather firm, bright green, slightly lighter below, obovate, cuneate at base, with short petioles as long as the blade; lower leaves entire, dentate only at the apex, the others trilobate in upper part, the lobes mostly obtuse, rarely acuminate, crenate-dentate, rarely acutely dentate, the middle lobe sometimes trifid; leaves on sterile shoots larger, broader, more deeply dissected, 3- 5-partite; inflorescences glabrous, 6- 10-flowered, sparse, with 3 or 4 pedicels; sepals broad, oval-triangular, not longer than hypanthium, spreading; stamens 18-20; styles 2 or 3; fruits to 12 mm in diameter. Flowering June, fruiting from end of August. Deciduous forests, forest edges, shrubby slopes. (Yuzepchuk 1939).

**Contemporary uses:** *Algeria: Hypertension, urinary calculus. Slovakia: mainly as children's snack. Poland: formerly eaten by poor people, now wine, jams or eaten as a children's snack.* (Batsatsashvili et al. 2017c; Bencheikh et al. 2024; Bussmann et al. 2020f; Khojimatov & Bussmann 2023b; Paniagua-Zambrana et al. 2025k; Zeraatkar et al. 2025).

**Uses 1817 (Gmelin 1817):** The ripe berries have a slimy, sweet taste, can be eaten, and must be used as a good food when there is a shortage. They provide pigs and poultry with a pleasant and excellent source of fat, for which we highly recommend them, especially in the low-lying Rhine forests, which are subject to flooding. The many beautiful blossoms provide the bees with plenty of wax and honey. Only 20 to 30 years ago, there were many very strong hawthorn trees, 20 to 25 feet tall, in the Rhine forests, but their numbers have declined considerably in recent times. They deserve to be protected in every respect and frequently replanted there. The very hard wood is sought after by wheelwrights and turners for a variety of purposes. It also serves as impenetrable hedges and fences, which attract the so beneficial songbirds, both large and small, especially nightingales. The wise Grand Duke Carl Friedrich, of blessed memory, had, among others, at the beginning of the 1770s, many hundreds of such young shrubs and trees, along with the following species, transplanted into the pheasant garden, the only one of its kind here. These trees grew excellently and became a source of food for the pheasants and so many songbirds, especially the nightingales, which flock there in large numbers every year. When later in 1784 I had the

good fortune to admire with this unforgettable prince the many portable hedges and trees in this complex that struck me, and I could hardly explain how they came to be there in such numbers, he replied: This always gives me pleasure, it was done by several hundred good people to whom I had bread, wine, and other necessities distributed during this expensive time.

**Description and Ecology (Gmelin 1817):** A shrub, often a medium-sized tree. The bark is ash-colored and smooth. The branches are alternate and thorny. The leaves are alternate, petiolate, often crowded together, somewhat wedge-shaped, rounded, blunt, trifoliate or almost quinque-lobed, with deeply serrated edges and smooth. The leaf bases at the base of the petioles are toothed and deciduous. The flowers are borne at the tips of the branches in spreading umbels. The calyx is five-lobed. The corolla is five-petaled and white. Anthers are 2, 3, 4, or 5. The stigmas are round. The berries are ovoid-round, smooth, and red. The seeds are ovoid, hard, and rough, numbering 2, 3, or 5. It is a shrub and tree that is very common along paths, hedges, fences, thickets, and woodlands, both in low-lying and high-lying areas, and in large numbers in the Rhine forests, which are frequently subject to flooding. It blooms in April, May, and June, and its berries ripen in September and October.

**Original German text Gmelin (Gmelin 1817):** Ein Strauch nicht selten ein mittelmäßiger Baum. Die Rinde aschfarben, glatt. Die Aeste abwechselnd, dornig. Die Blätter abwechselnd, gestielt, öfters gedrängt beysammen, etwas keilförmig, rundlich, stumpf, drey oder beynahe fünfpaltig, am Rande tief sägeartig eingeschnitten, glatt. Die Blattansätze am Grunde der Blattstiele, gezahnt, abfallend. Die Blüthen an den Spitzen der Aeste in ausgebreiteten Doldentrauben. Der Blüthenkelch fünfmal eingeschnitten. Die Blumenkrone fünfblättrig, weiß. Staubwege 2 - 3 - 4 - 5. Die Narben rund. Die Beeren eyförmig-rund, glatt, roth. Die Samen eyförmig, hart, rauh, 2 - 3 - 5 an der Zahl. Kommt als Strauch und Baum durchgängig sehr häufig an Wegen, Hecken, Zäunen, Gebüsch und Waldungen, in niedern und höherliegenden Gegenden vor, und in großer Menge in den Rheinwaldungen, welche öfters Ueberschwemmungen ausgesetzt sind, blühet im April, May, Juni, und reifet seine Beeren im September, October. Die reifen Beeren schmecken schleimig-syß, können verspeist werden, und müßen bei Mangel als ein gutes Nahrungsmittel benutzt werden. Sie geben den Schweinen und dem Geflügel, eine angenehme und treffliche Mastung, wozu wir sie vorzüglich dermalen, in den niederliegenden, Ueberschwemmungen ausgesetzten Rheinwaldungen bestens empfehlen. Die vielen schönen Blüthen geben den Bienen viel Wachs und Honig. Noch vor 20 - 30 Jahren, fanden sich in den Rheinwaldungen eine Menge sehr starker, 20 - 25 Fuß hoher Weißdornbäume, die sich in neuern Zeiten daselbst sehr vermindert haben. Sie verdienen in jedem Betrachte geschont und daselbst häufig wieder angepflanzt zu werden. Das sehr harte Holz, ist zu mancherlei Arbeiten von Wagnern und Drehern gesucht. Auch dienet er zu undurchdringlichen Hecken und Zäunen, welche die so wohlthätigen größern und kleinern Singvögel, vorzüglich die Nachtigallen anlocken. Der weise Großherzog Carl Friderich höchstseeligen Andenkens, hat unter andern, zu Anfang der 1770 Jahre, viele hundert solcher jungen Sträucher und Bäume, nebst der folgenden Art, in den, in seiner Art einzigen Fasanengarten dahier, verpflanzen lassen, die trefflich heranwachsen, die Azung für die Fasanen und so viele Singvögel, vorzüglich für die Nachtigallen wurden, die sich alle Jahre in großer Menge daselbst einfinden. Als ich späterhin im Jahre 1784 das Glück hatte, mit diesem unvergeßlichen Fürsten die mir auffallenden vielen tragbaren Hecken und Bäume in dieser Anlage zu bewundern, und mir kaum erklären konnte, wie sie in solcher Menge dahin gekommen, antwortete derselbe: dieses macht mir immer Freude, es geschahe durch mehrere Hundert gute Menschen, denen ich in der theuren Zeit, Brod, Wein, und das nöthige, austheilen ließ.

#### ***Crataegus monogyna* Jacq.**

**Synonyms:** *Crataegus aegeica* Pojark.; *Crataegus alemanniensis* Cinovskis; *Crataegus alemanniensis* f. *microalemanniensis* Cinovskis; *Crataegus apiifolia* Medik.; *Crataegus azarella* Griseb.; *Crataegus bracteolaris* Gand.; *Crataegus brevispina* Kunze; *Crataegus calycina* var. *cuneata* Diap.; *Crataegus chlorocarpa* Gand.; *Crataegus cuneata* Halácsy, *Crataegus curvisepala* subsp. *colorata* Hrabětová; *Crataegus dissecta* Borkh.; *Crataegus floribunda* Gand.; *Crataegus hirsuta* Schur; *Crataegus intermedia* Fuss; *Crataegus intermedia* Schur; *Crataegus krumbholzii* R.Doll; *Crataegus laciniata* var. *decussata* (Wallr.) Diap., *Crataegus lasiocarpa* Lange; *leiomonogyna* Klokov; *Crataegus lipskyi* Klokov; *Crataegus maroccana* Pers.; *Crataegus maura* L.f.; *Crataegus maura* var. *diversifolia* Pers.; *Crataegus monogyna* f. *azarella* (Griseb.) Buia; *Crataegus monogyna* f. *biflora* (Weston) Rehder; *Crataegus monogyna* f. *decussata* (Wallr.) Hegi; *Crataegus monogyna* f. *denudata* (Schumach.) Beck; *Crataegus monogyna* f. *dissecta* (Borkh.) Buia; *Crataegus monogyna* f. *fissa* (Poir.) Hegi; *Crataegus monogyna* f. *genuina* Posp.; *Crataegus monogyna* f. *hirsuta* (Schur) Buia; *Crataegus monogyna* f. *hirsuta* (Schur) Hegi; *Crataegus monogyna* f. *insegrae* (Tineo ex Guss.) Hayek; *Crataegus monogyna* f. *inzengae* Hayek; *Crataegus monogyna* f. *karpatii* P.nzes; *Crataegus monogyna* f. *macrocarpa* Szafer; *Crataegus monogyna* f. *microphylla* Chenev. ex Gams; *Crataegus monogyna* f. *nordica* (Franco) P.D.Sell; *Crataegus monogyna* f. *polyacantha* (Jan ex Guss.) Bui; *Crataegus monogyna* f. *polyacantha* (Jan ex Guss.) Gand.; *Crataegus monogyna* f. *praecox* (Loudon) Hegi; *Crataegus monogyna* f. *schizophylla* Beck; *Crataegus monogyna* f.

*szaferi* Gost.-Jak.; *Crataegus monogyna* f. *trifida* (Wallr.) Beck; *Crataegus monogyna* f. *trifida* (Wallr.) Hegi; *Crataegus monogyna* f. *trilobata* Ny r. ex Buia; *Crataegus monogyna* f. *villosa* (Peterm.) Beck; *Crataegus monogyna* subsp. *acutiloba* (Kerner) T.Baranec; *Crataegus monogyna* subsp. *azarella* (Griseb.) Franco; *Crataegus monogyna* subsp. *brevispina* (Kunze) Franco; *Crataegus monogyna* subsp. *insegnae* (Tineo ex Guss.) Lange; *Crataegus monogyna* subsp. *intermedia* (Schur) J v. ex P,nzes; *Crataegus monogyna* subsp. *jacquinii* A.Kern. ex P,nzes; *Crataegus monogyna* subsp. *latiloba* Hrabětová; *Crataegus monogyna* subsp. *leiomonogyna* (Klokov) Franco; *Crataegus monogyna* subsp. *monogyna* Jacq., *Crataegus monogyna* subsp. *nordica* Franco; *Crataegus monogyna* subsp. *tauscheri* Gand. ex P,nzes; *Crataegus monogyna* var. *acutiloba* J.Kern.; *Crataegus monogyna* var. *arborescens* Kuntze ex P,nzes; *Crataegus monogyna* var. *azarella* (Griseb.) Koehne; *Crataegus monogyna* var. *brevispina* (Kunze) P.D.Sell; *Crataegus monogyna* var. *contracta* Hrabětová; *Crataegus monogyna* var. *coriacea* Podp.; *Crataegus monogyna* var. *csatoi* P,nzes; *Crataegus monogyna* var. *decussata* (Wallr.) P,nzes; *Crataegus monogyna* var. *denudata* Schumach.; *Crataegus monogyna* var. *dissecta* (Borkh.) Gost.-Jak.; *Crataegus monogyna* var. *flabellata* Lange; *Crataegus monogyna* var. *granatensis* (Boiss.) P.D.Sell; *Crataegus monogyna* var. *halacsyi* Hayek; *Crataegus monogyna* var. *horrida* (K.Koch) Dippel; *Crataegus monogyna* var. *insegnae* (Tineo ex Guss.) Beck; *Crataegus monogyna* var. *intermedia* (Fuss) Gams; *Crataegus monogyna* var. *intermedia* (Schur) Buia; *Crataegus monogyna* var. *inzensis* Briq.; *Crataegus monogyna* var. *javorkae* Pénzes; *Crataegus monogyna* var. *laciniata* hort. ex K.Koch; *Crataegus monogyna* var. *lanigera* Beck; *Crataegus monogyna* var. *latimonogyna* P,nzes; *Crataegus monogyna* var. *mandyi* P,nzes; *Crataegus monogyna* var. *microphylla* Csató; *Crataegus monogyna* var. *monogyna*, *Crataegus monogyna* var. *oliveriana* (Poir.) K.Koch; *Crataegus monogyna* var. *plesivecensis* (Hrabětová) T.Baranec; *Crataegus monogyna* var. *semperflorens* hort. ex Dippel; *Crataegus monogyna* var. *splendens* (Wender. ex K.Koch) Dippel; *Crataegus monogyna* var. *szepesfalvyi* P,nzes; *Crataegus monogyna* var. *tauscheri* (Gand.) Soó; *Crataegus monogyna* var. *trilobata* (Nyar. ex Buia) Gost.-Jak.; *Crataegus monogyna* var. *typica* Beck; *Crataegus oligacantha* Gand.; *Crataegus orientobaltica* Cinovskis; *Crataegus orientobaltica* f. *glabra* Cinovskis; *Crataegus orientobaltica* f. *laciniata* Cinovskis; *Crataegus oxyacantha* subsp. *inzensis* (Tineo ex Guss.) Fiori; *Crataegus oxyacantha* subsp. *maura* (L.f.) Maire; *Crataegus oxyacantha* subsp. *monogyna* (Jacq.) Rouy & E.G.Camus; *Crataegus oxyacantha* subsp. *oxyacantha*, *Crataegus oxyacantha* var. *acutiloba* H.L.v.; *Crataegus oxyacantha* var. *azarella* (Griseb.) Sanio; *Crataegus oxyacantha* var. *biflora* Weston; *Crataegus oxyacantha* var. *brevispina* (Kunze) Maire; *Crataegus oxyacantha* var. *discolor* H.L.v.; *Crataegus oxyacantha* var. *horrida* (K.Koch) Regel; *Crataegus oxyacantha* var. *incisa* (M,rat) H.L.v.; *Crataegus oxyacantha* var. *insegnae* (Tineo ex Guss.) Fiori; *Crataegus oxyacantha* var. *intermedia* (Fuss) Sanio; *Crataegus oxyacantha* var. *laciniata* (K.Koch) Regel; *Crataegus oxyacantha* var. *monogyna* (Jacq.) Regel; *Crataegus oxyacantha* var. *monogyna* (Jacq.) Wahlenb.; *Crataegus oxyacantha* var. *monostyla* DC.; *Crataegus oxyacantha* var. *praecox* Loudon; *Crataegus oxyacantha* var. *triloba* (Poir.) Regel; *Crataegus parvifolia* Lojac.; *Crataegus petiolulata* Gand.; *Crataegus praearmata* Klokov; *Crataegus pulchella* Gand.; *Crataegus septempartita* Pojark.; *Crataegus subborealis* Cinovskis; *Crataegus subintegriloba* Pojark.; *Crataegus sublucens* Gand.; *Crataegus thyrsoides* Gand.; *Crataegus transalpina* A.Kern. ex Hayek; *Crataegus xeromorpha* Pojark.; *Crataegus x borealoides* R.Doll; *Crataegus x curvisepaloides* R.Doll; *Crataegus x integerrima* R.Doll; *Crataegus x krima* Doll; *Mespilus brevispina* E.H.L.Krause; *Mespilus constantinopolitana* hort. ex Poir.; *Mespilus crataegus* Borckb., *Mespilus diversifolia* Poir.; *Mespilus elegans* Poir.; *Mespilus fissa* Poir.; *Mespilus heterophylla* Poir.; *Mespilus insegnae* Tineo ex Guss.; *Mespilus maroccana* Poir.; *Mespilus maura* Poir.; *Mespilus monogyna* (Jacq.) All.; *Mespilus monogyna* f. *horrida* K.Koch; *Mespilus monogyna* f. *laciniata* (K.Koch) K.Koch; *Mespilus monogyna* var. *azarella* (Griseb.) K.Koch; *Mespilus monogyna* var. *brevispina* (Kunze) Wenz.; *Mespilus monogyna* var. *cuneata* Wallr.; *Mespilus monogyna* var. *decussata* Wallr.; *Mespilus monogyna* var. *elegans* (Poir.) K.Koch; *Mespilus monogyna* var. *genuina* (Posp.) Asch. & Graebn.; *Mespilus monogyna* var. *glastonburiensis* Gray; *Mespilus monogyna* var. *granatensis* (Boiss.) Wenz.; *Mespilus monogyna* var. *maura* (L.f.) Wenz.; *Mespilus monogyna* var. *splendens* Wender. ex K.Koch; *Mespilus monogyna* var. *trifida* Wallr.; *Mespilus oliveriana* Poir.; *Mespilus oxyacantha* var. *incisa* M. Rat; *Mespilus oxyacantha* var. *triloba* (Poir.) Wenz.; *Mespilus polyacantha* Guss.; *Oxyacantha apiifolia* M.Roem.; *Oxyacantha azorella* M.Roem.; *Oxyacantha elegans* M.Roem.; *Oxyacantha monogyna* M.Roem.; *Oxyacantha monogyna* var. *cuneata* (Wallr.) M.Roem.; *Oxyacantha monogyna* var. *trifida* (Wallr.) M.Roem.

**Original name (Gmelin 1817):** *Crataegus monogyna*. Jacq. Flor. Austr. tab. 292. fig. 1. - Gmel. Flor. Badens. II. p. 373. 374.

**German names and French names (Gmelin 1817):** Einweibiger Weißdorn, Einweibiger Hagedorn; Alisier monogyne, Epine blanche monogyne

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 225989** (Fig. 29); **225990** (Fig. 30)



Figure 29. *Crataegus monogyna* Jacq. - KR 225989

**Botany and Ecology:** Shrub or small tree; shoots glabrous or scattered-hairy when young, cherry-colored; branches brownish gray; simple spines ca. 1 cm long, few, often absent; leafy spines very few; leaves lustrous, dark, olive-green above, light green below, with more or less dense waxy bloom, initially slightly appressed-hairy, especially along veins, later the pubescence persisting only in angles of veins, sometimes with hairy margins; lower leaves on fruiting shoots obovate to oblong-ovate, trifid or coarsely dentate at the apex, the upper to 4 (4.5) cm long and broad, 3- or 5-partite, their lobes often very asymmetrically arranged, mostly subobtusate with short cartilaginous mucro, entire or with few teeth on outer side near the apex (rarely from the middle), oval, the lower lobes usually narrow; notches mostly narrow (hence lobes closely approximate), the lower at middle of blade or slightly lower, in 5-lobed leaves frequently at level of lower third, cutting the blade to leaves on sterile shoots larger, deeply 5 - 8- partite or even nearly dissected, mostly with remote lobes unequally dentate, frequently incised-dentate, the lower lobes frequently horizontally spreading; inflorescences not exceeding leaves, to 5 cm in diameter, ca. 4 cm long, composed of 3 - 5 branches with 10 -18 flowers; flowers 1.5 cm in diameter, with glabrous or slightly hairy pedicels and hypanthium; sepals covering not more than half the hypanthium, oblong-triangular-oval or

broadly oval, narrowing to a subobtusate tip; fruits light brownish red, broadly ovoid or broadly ellipsoid. Flowering June, fruiting September. Slopes of riverbanks, terraces, and gullies, among shrubs, deciduous forest edges; solitary. (Yuzepchuk 1939).



Figure 30. *Crataegus monogyna* Jacq. - KR 225990

**Contemporary uses:** Iran: Shoots of *C. monogyna* mixed with pulverized and crushed flowering shoots of *C. germanica* (L.) Kuntze is applied to the heartbeat and blood pressure regulation. The flowers serve to treat fever, diabetes, cardiotoxic, heartbeat, and blood pressure regulation. A decoction of leaf and fruit as well as juice is used for diseases of the cardiovascular system, ischemia, and antifebrile, as an antiarrhythmic agent, has a positive influence on heartbeat and pressure regulating properties. The leaf, bark, and fruit are used as medicine and collected once the vegetation season starts. The flowers are applied as cardiotoxic, lower blood pressure, and have antiepileptic effects. The product made of flowers is sedative and calmative, against vertigo and lower anxiety. The root is used for diarrhea. The infusion of wood serves as a gargle for angina and against fever. In addition, 2gr of wood powder with boiling water is used to produce a cream type for oily skin. Algeria: Stomachache, digestive; insomnia, hypotension, cardiac insufficiency; inflammation, hypertension, hypercholesterolemia,

blood purification, renal disorders. Morocco: Against heart and respiratory problems, promotes the circulation of blood. Balkans: tea for sore throat, heart, hypertension, diuretic, improve blood circulation, anti-hypertensive, neurorelaxant, antidiabetic, anticholesterolemic, respiratory disorders, insomnia, flu, lungs, respiratory complaints. Ukraine: heart, blood vessels, blood pressure, hearing, lowering cholesterol. Romania: cicatrizing, analgesic; cardiac nervous disorders, sole wounds, pains; cough. Bulgaria: heart. Cyprus: fruits are used for the preparation of jams and marmalades. Hungary: leaves as raw snack, fruits. for jam, dried flour as substitute in famine. Croatia: raw, tea. Spain: famine food. Poland: formerly eaten by poor people, now wine, jams or eaten as a children's snack. Ukraine: fruits as tea, raw. Bulgaria: raw, ground to flour to give it a sweet taste. Czech Republic: fruits eaten raw/processed as marmalade, liqueur, recreational tea. Albania: Eaten as snack, but not in large amounts. Bulgaria: Traditional forecasting: Many wild apples and hawthorns - bad winter. Bulgaria / Romania / Serbia: wood for wood turnery: handles of tools. Iran: The ripe fruits are very popular. The fruits are collected by local people and sold in local markets. (Batsatsashvili et al. 2017c; Bencheikh et al. 2024; Bussmann et al. 2020f; Khojimatov & Bussmann 2023b; Paniagua-Zambrana et al. 2025k; Zeraatkar et al. 2025).

**Uses 1817 (Gmelin 1817):** The ripe berries and the remaining parts can be used as in the preceding species. Here and there, in the Rhine forests, one finds very strong and handsome trees of this species. Very beautiful variations, with flesh-colored, rose-red, and bright red blossoms, occur especially in southern France, Spain, and Italy, which are a wonderful ornament to English gardens, and which I have never seen more beautiful than in the royal gardens at St. Ildefons in Castile.

**Description and Ecology (Gmelin 1817):** For a long time, it was considered one and the same species as the preceding one (*Crataegus oxyacantha*), and differs from it in its more vigorous growth, its smoother, glossy leaves divided into deeper, more pointed, and narrower lobes, its somewhat larger corollas, and especially its dusting path, and its somewhat larger berries. Like the preceding one, it occurs in abundance in hedges, fences, and woodlands, and even more frequently in forests often exposed to flooding in the Rhine, Neckar, and Main regions. It blooms and ripens its fruits at the same time as the preceding one.

**Original German text Gmelin (Gmelin 1817):** Er wurde lange Zeit für ein und dieselbe Art, mit der vorhergehenden gehalten, und unterscheidet sich von ihr, durch den stärkern Wuchs, mehr glatte auf der Oberfläche glänzende Blätter, welche in tiefere spitzigere und schmälere Lappen zertheilt sind, durch die etwas größere Blumenkronen, und vorzüglich durch einen Staubweg, und etwas größere Beeren. Kommt mit dem vorhergehenden, in Hecken, Zäunen, und Waldungen in Menge, und in den Ueberschwemmungen oft ausgesetzten Waldungen in den Rhein-, Neckar- und Maingegenden, noch häufiger vor. Blühet und reifet seine Früchte zu derselben Zeit, wie der vorige. Die reifen Beeren, und die übrigen Theile können wie die vorhergehende Art benutzt werden. Hie und da finden sich, in den Rheinwaldungen, sehr starke und ansehnliche Bäume dieser Art. Sehr schöne Abänderungen, mit fleichfarbigen, rosenrothen, und hochrothen Blüten, kommen vorzüglich im südlichen Frankreich, in Spanien und in Italien vor, welche den englischen Gärten zur vorzüglichen Zierde gereichen, und die ich nirgends schöner, als in den Königlichen Anlagen zu St. Ildefons in Castilien sahe.

### ***Cydonia oblonga* Mill.**

*Synonyms:* *Cydonia communis* Loisel.; *Cydonia cydonia* Pers.; *Cydonia europaea* Savi; *Cydonia lusitanica* Mill.; *Cydonia maliformis* Beck; *Cydonia maliformis* Mill.; *Cydonia sumboshia* Buch.-Ham. ex D. Don; *Cydonia vulgaris* Pers.; *Cydonia vulgaris* var. *oblonga* (Mill.) DC.; *Pyrus cydonia* L.; *Pyrus-Cydonia cydonia* Weston; *Sorbus cydonia* Crantz (WFO, 2023)

**Original name (Gmelin 1817):** *Pyrus Cydonia*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p.389. 390.

**German names and French names (Gmelin 1817):** Quittenbaum, Küttenbaum, Quitten-Apfelbaum, Quittenbirnbaum; Coignier male, Coignier Femelle, Coignassier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but very rare in the region

### **KR 225810**

**Botany and Ecology:** Small tree or shrub 1.5-5 m high, with thin, scaling bark; shoots lanate-tomentose when young, later glabrous; leaves ovate or oval, less often orbicular, entire, acute or obtuse, mucronulate, rounded at base or slightly cordate, the young leaves arachnoid -tomentose, glabrous when fully developed, and dark green above, grayish tomentose below, to 10 (12) cm long, 7.5 cm broad; stipules glandular-dentate; flowers pale pink, to 5 mm in diameter, short -pediceled; pedicels, receptacle, and outside of sepals tomentose -pubescent; receptacle ovate; sepals oval, glandular -serrate; stamens densely lanate at base and tightly constricted by projections of perigynous disk; fruits initially tomentose, glabrous at maturity, lemon

-colored or dark yellow, sometimes reddening laterally, mostly somewhat ribbed, globose (f. *maliformis* Kirchn.) or pyriform (f. *pyriformis* Kirchn.), in wild quince 2.5-3.5 cm long and weighing up to 60-100 g; flesh with numerous grit cells, not very succulent, astringent, but very aromatic. Flowering May, fruiting September. Caucasus and Middle Asia, in forests, shrublands, along the shores of overgrown lakes, in the lower and mid-mountain belts. Widely cultivated. (Yuzepchuk 1939).

**Contemporary uses:** *In the Caucasus a leaf infusion is used for gastric diseases. The flowers serve to treat malignant tumors. In Middle Asia a fruit tincture is used for its restorative function, for diseases of the heart, respiratory tract, and gastrointestinal tract, as well as tuberculosis and asthma. In Iran the flowers serve as a diuretic, antiulcer, for diseases of the lungs and stomach. The seeds are used to treat eye diseases. In Middle Asia they serve for throat diseases and colic in children, and in Iran to relieve coughs and dysentery. Quince seeds contain mucus and are used medicinally. The fruits and leaves are used to treat diabetes, to stop bleeding, and to increase hemoglobin. Especially the leaves and seeds are sold in medicinal plant markets, seeds used to treat cough. Azerbaijan: Fruits and their decoctions are used for bleeding and diarrhea; fruit tea is used as a diuretic. Fruit juice - choleric and diuretic, with palpitations and tuberculosis (to stop hemoptysis). Condensed juice (rub) - as a seasoning for anemia. Water infusion of quince seeds is used for hoarseness and cough. A decoction of the leaves is used for diarrhea as a fixing agent. It is reported that *C. oblonga* is one of medicinal plants with a broad range of therapeutical benefits in the traditional medicine system. Widely used in the traditional medicine. The holy Quran indicates "Eat quince because it purifies the heart; it is perfect for lungs and cleans them." Leaves also used as astringent and antiseptic. The decoction of the leaves has been used for fever, stomach cramps, cough, cold, diarrhea, insomnia and other disorders. The flowers are used fresh or dried were effective for inflamed eyes, as antiseptic and astringent. Fruit used for the treatment of dysentery, diarrhea, hepatic disorders, inflammations and uterine hemorrhages. Seeds used traditionally for alleviating some dysfunctions like constipation, intestinal colic, dysentery, diarrhea, cough, bronchitis, and sore throat. In Morocco, the plant is used to treat renal, circulation and otolaryngology problems, it is also used for diabetes and skin problems; Algeria, the infusion of aerial parts is used for digestive and respiratory diseases; Syria, the fruit juice of this plant is used to cure digestive and renal pathology, and for infection problems; Lebanon, the people eat fruits to treat digestive problems; In Jordan, the leaves, and fruits of *C. oblonga* Mill are used to treat respiratory diseases. In Israel, the leaves and fruits are boiled and used to treat pulmonary inflammation. Leaves extract clinically evaluated for its soothing and anti-inflammatory properties for skin comfort. Romania: Astringent; diarrhea, antiseptic, hepatoprotective, cicatrizing, anti-inflammatory; diarrhea, dysentery, hepatic disorders, leucorrhea, haemoptysis, uterine hemorrhages, wounds, for heart failure and diarrhea. Albania: stomachache. eye inflammations. Bulgaria / Balkans: to improve voice and remedy throat pain. Hungary: used medicinally (unspecified). Georgia: The fruits are edible, boiled, and baked and used to make jam, the extract can be used for drinks. The species has been cultivated from ancient times in Asia and in the Mediterranean area. The seeds are prepared with raw method and are eating in Palestine. The fruits are edible boiled and baked, and used to make jam, compotes and confectionery. The extract can be used for drinks. The flowers and fruits are eaten, the fruits especially as compote. Common quince fruits are used for food; jam, marmalade, etc. are made from it. The fruit contains vitamin A and C. Romania / Bulgaria: Widely used for compote, jam, liqueur. Albania: Jam, lightly boiled, and then used as a main ingredient in sarma. Azerbaijan: The fruits are consumed both fresh and processed - compotes, jams, bekmez and pickles are prepared from them, stuffed with nuts are baked. The fruits are added as a seasoning or garnish to meat, game, pilaf, cabbage dolma (kelem dolmasi), piti, etc. Georgia: The wood is used in carpentry. The wood is used to make household utensils, ornamental. Azerbaijan: From the bark, wood and leaves, a coloring solution is made to obtain green, yellow, tobacco, chestnut and pink. The solution is used for dyeing woolen yarn, as well as products from it. Honey plant. (Bussmann et al. 2019b; Elachouri et al. 2024a; Mehdiyeva et al. 2025c; Paniagua-Zambrana et al. 2020c; 2025l).*

**Uses 1817 (Gmelin 1817):** Ripe quinces picked from the tree have a sour, astringent, and spicy flavor. They can be used to make good brandy and vinegar. Quince tarts, quince jam, quince bread, quince jam, quince wine, and quince liqueur are very popular. Cut and dried quinces, mixed with fresh and dried fruit, especially apples, pears, and plums, and cooked with them, impart a very pleasant flavor. Because of its diverse uses, it deserves to be cultivated and propagated, especially in the suitable areas of the Rhine, Neckar, Main, and Danube rivers, around towns and villages, along streams and ditches, in damp spots in gardens, and on farms, around stables. It is propagated primarily by seed, by root suckers, by grafting and budding, or even by cuttings. Many towns whose kitchen gardens and grass gardens are located in damp areas and frequently subject to flooding, as is the case in the lower-lying Rhine and other river regions, can be beautified and brought to abundant yields by planting and propagating quinces.

**Description and Ecology (Gmelin 1817):** This shrub or tree, which was transplanted from Cydon, a town on the island of Crete, to Italy and later to the rest of Europe, grows almost wild here and there around towns and villages in the Rhine, Main, and Neckar regions, and is also planted in gardens. It blooms in May and June and ripens its fruit in October.

**Original German text Gmelin (Gmelin 1817):** Dieser auf Cydon einer Stadt auf der Insel Creta nach Italien, und nachher in das übrige Europa verpflanzte Strauch, oder Baum, wächst in den Rhein-, Main- und Neckargegenden hin und wieder um Städte und Dörfer gleichsam wild, und wird auch in Gärten angepflanzt. Blühet im May, Juni, und reifet seine Früchten im October. Die reifen vom Baume genommenen Quitten schmecken säuerlich, zusammenziehend und gewürzhaft. Aus ihnen kann ein guter Brandtwein und Essig bereitet werden. Sehr beliebt sind die Quittentorten, das Quittenmuß, Quittenbrod, die Quittenmarmoladen, der Quittenwein und der Quittenliqueur. Die Quitten zerschnitten und gedörft, dem frischen und gedörften Obste, vorzüglich den Aepfeln, Birnen und Zwetschen beigemischt, und damit gekocht, geben denselben einen sehr angenehmen Geschmack. Er verdient wegen dem mannigfaltigen Nutzen, vorzüglich in den dazu geeigneten Rhein-, Neckar-, Main- und Donau-Gegenden, um die Städte und Dörfer, an Bächen und Abzugsgräben, feuchten Stellen in den Hausgärten, und an den Bauernhöfen, um die Stallungen, veredelt und vermehrt zu werden. Seine Fortpflanzung geschieht vorzüglich durch den Samen, oder durch die Wurzeläusläufer, oder durch das Pfropfen und Okulieren, auch durch abgeschnittene Zweige. Manche Ortschaften, deren Küchen- und Grasgärten, feucht gelegen, und öftern Ueberschwemmungen ausgesetzt sind, wie das der Fall in den etwas niedergelegenen Rhein- und andern Flußgegenden ist, können durch die Quittenpflanzung und Vermehrung verschönert, und zu einem reichlichen Ertrag gebracht werden.

### **Cyperus esculentus L.**

*Synonyms:* *Chlorocyperus aureus* Palla ex Kneuck.; *Cyperus aureus* Ten.; *Cyperus aureus* subsp. *esculentus* (L.) Nyman; *Cyperus bahiensis* Steud.; *Cyperus buchananii* Boeckeler; *Cyperus bulamensis* Steud.; *Cyperus chrysostachys* Boeckeler; *Cyperus damiettensis* A.Dietr.; *Cyperus esculentus* f. *angustispicatus* (Britton) Fernald; *Cyperus esculentus* f. *esculentus*; *Cyperus esculentus* f. *evolutus* C.B.Clarke; *Cyperus esculentus* f. *macrostachyus* (Boeckeler) Fernald; *Cyperus esculentus* f. *princeps* C.B.Clarke; *Cyperus esculentus* prol. *aureus* (K.Richt.) P.Fourn.; *Cyperus esculentus* prol. *sativus* (Boeckeler) P.Fourn.; *Cyperus esculentus* subsp. *aureus* K.Richt.; *Cyperus esculentus* var. *angustispicatus* Britton; *Cyperus esculentus* var. *cycolepis* Boeckeler ex Kük.; *Cyperus esculentus* var. *esculentus*; *Cyperus esculentus* var. *heermannii* (Buckley) Britton; *Cyperus esculentus* var. *helodes* (Schrad. ex Nees) C.B.Clarke; *Cyperus esculentus* var. *hermannii* Britton; *Cyperus esculentus* var. *leptostachyus* Boeckeler; *Cyperus esculentus* var. *lutescens* (Torr. & Hook.) Kük.; *Cyperus esculentus* var. *lutescens* (Torr. & Hook.) Kük. ex Osten; *Cyperus esculentus* var. *macrostachyus* Boeckeler; *Cyperus esculentus* var. *phymatodes* (Muhl.) Kük.; *Cyperus esculentus* var. *sativus* Boeckeler; *Cyperus esculentus* var. *sprucei* C.B.Clarke; *Cyperus fulvescens* Liebm.; *Cyperus gracilescens* Roem. & Schult.; *Cyperus gracilescens* Schult.; *Cyperus gracilis* Link; *Cyperus heermannii* Buckley; *Cyperus helodes* Schrad. ex Nees; *Cyperus hydra* Kunth; *Cyperus lutescens* Torr. & Hook.; *Cyperus melanorhizus* Delile; *Cyperus nervosus* Bertol.; *Cyperus officinalis* T.Nees; *Cyperus pallidus* Savi; *Cyperus phymatodes* Muhl.; *Cyperus phymatodes* var. *heermannii* (Buckley) S.Watson; *Cyperus repens* Elliott; *Cyperus ruficomus* Buckley; *Cyperus sieberianus* Link; *Cyperus tenoreanus* Schult. & Schult.f.; *Cyperus tenorei* C.Presl; *Cyperus tenorianus* Schult.; *Cyperus tuberosus* Pursh; *Cyperus variabilis* Salzm. ex Steud.; *Pterocyperus esculentus* (L.) Opiz; *Pycreus esculentus* (L.) Hayek

**Original name (Gmelin 1817):** *Cyperus esculentus*. Linn.

**German names and French names (Gmelin 1817):** Grasmandel, Erdmandel, Thrasl; Souchet

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, not native, expanding

**KR 46283** (Fig. 31)

**Botany and Ecology:** Perennial, 30-80 cm. Base of stem slightly swollen, with stolons to c. 20 cm, tuber up to 15 mm diam., round or elongate, rooting, covered by greyish-brown scales. Stem 2-3 mm diam., trigonous, smooth. Leaves shorter than stem; sheaths 50(-100) mm, yellowish or greyish brown, sometimes with reddish tint, mouth margin nearly straight or lingulate; blades to 30(-60) cm, to 5 mm wide, yellow-green, keeled, margin slightly revolute, smooth or towards apex scabrous, apex acute, trigonous, scabrous. Inflorescence an anthelodium, primary rays to more than 10, to 80 mm; lowest 2-3 bracts leaf-like, up to 30 cm, 5 mm wide, sheathless; primary branches end with often more than 20 spreading spikes in irregular spiral, but small secondary anthelodia frequent. Spikes up to 15 x c. 1.5 mm, elongating after flowering, with 5-12 flowers; glume-like bract c. 2 mm, glume-like prophyll two-veined, c. 1.5 mm, base swollen; rachis compressed, slightly zigzagging, internodes c. 1 mm, winged; glumes 2-2.5 mm, cymbiform, blunt, yellow-brown, with 5-9 conspicuous veins, mid-vein strong, with short mucro below glume apex, margins scarious. Nut c. 1.5 mm, ovoid or obovoid, obtusely trigonous, yellow-brown or dark-brown, surface reticulate-papillose. (Ali & Qaiser 1995-2020)

**Contemporary uses:** Roots used for horchata and as replacement for flour in glutenfree diets.



Figure 31. *Cyperus esculentus* L. - KR 46283

**Uses 1817 (Gmelin 1817):** These tubers, now known to many of our countrymen as grass almonds, have a pleasant, sweet flavor and can be used both raw and cooked as a nourishing, tasty, and healthy food. They produce a delicious, excellent oil that can be added to olive oil. Because of the diverse uses of its tubers in agriculture and medicine, this plant deserves to be cultivated on a larger scale in suitable, sandy, somewhat moist, warmer areas, especially where the Italian corn (*Zea mays*. Linn.) thrives. The warm, sunny regions of the Kaiserstuhl in Breisgau, the area around Altbreysach, the Eckardsberg, Burgen, Rothweil, Bückensohl, Sponeck, Sasbach, the Lützelberg, and Hohen-Limburg are particularly suitable and located for this purpose. In these regions, the anise (*Pimpinella anisum* Linn.) thrives, and the castor oil plant (*Ricinus communis*) produces fully ripe seeds, from which the well-known oil is pressed.

**Description and Ecology (Gmelin 1817):** Several grass-like, upright, somewhat stiff leaves emerge from the root. On the fibrous root are many egg-shaped tubers, the size of a small nutmeg, which are brownish on the outside and white on the inside. This grass grows wild in the Orient, in the southern part of Italy, Spain, and France, and was first cultivated here in 1790 in the Botanical and Court Kitchen Garden, from where it spread to many other gardens.

**Original German text Gmelin (Gmelin 1817):** Dieses Gras wächst in den Morgenländern, in dem südlichen Theile Italiens, Spaniens, und Frankreichs wild, und wurde im Jahr 1790 dahier in dem Botanischen- und Hofküchengarten zuerst angebaut, von wo aus es, in so manche andere Gärten verbreitet wurde. Aus der Wurzel kommen mehrere grasartige aufrechtstehende etwas steife Blätter. An der faserigen Wurzel, sind viele eyförmige Knollen von der Größe einer kleinen Mußkatennuß, welche äusserlich bräunlich, und innwendig weis sind. Diese Knollen sind unter dem Namen Grasmandeln, Erdmandeln nun bereits vielen unserer Landleute bekannt, haben einen angenehmen süßen Geschmack, und können sowohl roh als gekocht als eine nährende schmackhafte und gesunde Speiße, bestens benutzt werden. Sie geben ein wohlschmeckendes treffliches Oehl, welches dem Olivenöhle an die Seite gesetzt werden kann. Diese Pflanze verdient, wegen dem mannigfaltigen Gebrauche ihrer Knollen, den man in der Landwirthschaft und in der Arzneykunde davon machen kann, an geeigneten sandigen etwas feuchten wärmern Gegenden, vorzüglich da, wo das Welschkorn, das Türkische Korn (*Zea Mays*. Linn.) gedeiet, mehr, als bisher geschehen ist, im Großen angebaut zu werden. Vorzüglich dazu geeignet und gelegen, sind die warmen und sonnenreichen Gegenden des Kaiserstuhls im Breisgau, die Gegend um Altbreysach, der Eckardsberg, Burgen, Rothweil, Bückensohl, Sponeck, Sasbach, der Lützelberg, und Hohen-Limburg, in welchen Gegenden der Anis (*Pimpinella Anisum* Linn.) trefflich gedeiet, und der Wunderbaum (*Ricinus*) vollkommen reife Samen macht, aus denen das bekannte Oehl gepreßt wird.

### ***Dactylorhiza maculata* (L.) Soó**

*Synonyms:* *Dactylorchis maculata* (L.) Verm.; *Dactylorchis maculata* subsp. *elodes* Verm.; *Dactylorhiza fuchsii* subsp. *transsilvanica* Frohner; *Dactylorhiza maculata* subsp. *arduennensis* Zadoks; *Orchis angustifolia* var. *schurii* Klinge; *Orchis basilica* L. ex Klinge; *Orchis basilica* subsp. *maculata* (L.) Klinge; *Orchis ericetorum* (E.F.Linton) E.S.Marshall; *Orchis maculata* L.; *Orchis maculata* subsp. *transsilvanica* Domin; *Orchis nemorosa* Friche-Joset & Montandon

**Original name (Gmelin 1817):** *Orchis mascula*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 534. 535. - Curtis. Flor. Londin. tab. 121.

**German names and French names (Gmelin 1817):** Männliches Knabenkraut, Salep, Männliche Ragwurz, Güler; *Orchis male*, *Covillon de chien*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

**Botany and Ecology:** Perennial; stem firm, 25-50cm long and at base 3.5-8 mm thick; leaves (2) 5-6 (8) spotted, spreading or arched-recurved, nearly flat or slightly conduplicate, subobtusate or acuminate; lowest leaf 5-10 cm long and 0.8-3 cm broad, oblong-lanceolate to lanceolate, obtuse or subobtusate; next 2 leaves oblong-lanceolate, acuminate, 6-15 cm long and commonly 1-2 cm broad; uppermost leaves linear or subulate-linear, often slightly flexuous, acuminate, 2-9 mm long and 2-5 mm broad, not reaching the spike base; spike ovoid-cylindric, densely many-flowered, 3-9 cm long and 2.9-3.9 cm in diameter; bracts narrowly linear, lanceolate, acuminate, shorter than or the lowest sometimes slightly exceeding the flower, 2-2.5 cm long, the upper commonly 4-7 mm long; flowers pale rose-lilac; lip with small violet speckles, these arranged in bulging longitudinal discontinuous rows or partially confluent into short lines; sepals lanceolate or broadly lanceolate, about as long as the median sepal, lanceolate, inequilateral; lip obreniform or rounded-obreniform, (7) 8-10 mm long and (9) 10-12 (14) mm broad, shortly 3-lobed at apex; median lobe much smaller and narrower than the lateral, dentiform, broadly triangular, obtusish, 2-2.5 mm long and at base 2.5-3 mm broad, shorter than the lateral lobes or scarcely noticeable beside them; lateral lobes rounded and crenulate-denticulate at the outer margin; spur cylindric, straight, obtuse, slightly shorter than to about the length of ovary, 6-8 (9.5) mm long and 1-1.5 mm thick. July. Swampy woods and their margins. (Komarov 1935).

**Contemporary uses:** *Not used presently.*

**Uses 1817 (Gmelin 1817):** The roots of this and some other *Orchis* species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** It has many similarities to the preceding species, from which it differs in its larger tubers, taller stems, broader leaves, and larger, more frequent flowers. Grows frequently in meadows here and there. Blooms in May and July and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch größere Knollen, einen höheren Stengel, breitere Blätter, und größere häufigere Blüten unterscheidet. Wächst hie und da häufig auf Wiesen. Blühet im May, Juli, und gehört zu den ausdauernden Pflanzen. Gebrauch und Nutzen sind dieselben, wie bei der vorhergehenden Art. Ferner können noch von folgenden bei uns vorkommenden Orchisarten die Wurzeln benutzt werden: *Orchis militaris*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 539. 540. - *Orchis furca*. Gmel. I. c. p. 640. 541. Jacqu. Flor. Austr. tab. 307. *Orchis moravica*. Jacqu. - Gmel. I. c. p. 341. 342. *Orchis latifolia*. Linn. Sp. pl. Gmel. I. c. p. 653. 544. - *Orchis maculata*. Linn. Sp. pl. - Gmel. I. c. p. 544. 545. - *Orchis Conopsea*. Linn. Sp. pl. - Gmel. I. c. p. 546. 547.

***Dactylorhiza majalis* (Rchb.) P.F.Hunt & Summerh.**

**Synonyms:** *Dactylorhiza majalis* (Rchb.) Verm.; *Dactylorhiza majalis* var. *immaculata* (Harz) Verm.; *Dactylorhiza comosa* subsp. *majalis* (Rchb.) P.D.Sell; *Dactylorhiza latifolia* (L.) H.Baumann & Künkele; *Orchis latifolia* subsp. *majalis* (Rchb.) Klinge; *Orchis latifolia* var. *immaculata* Harz; *Orchis latifolia* var. *majalis* (Rchb.) Kitt.; *Orchis latifolia* var. *majalis* (Rchb.) Nyman; *Orchis majalis* Rchb.; *Orchis majalis* f. *brevicalcarata* Harz ex Schltldl., Langeth. & Schenk; *Orchis majalis* f. *immaculata* Harz ex Schltldl., Langeth. & Schenk; *Orchis majalis* f. *laxa* Harz ex Schltldl., Langeth. & Schenk; *Orchis majalis* f. *linguata* Harz ex Schltldl., Langeth. & Schenk; *Orchis majalis* f. *magnicalcarata* Harz ex Schltldl., Langeth. & Schenk

**Original name (Gmelin 1817):** *Orchis mascula*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 534. 535. - Curtis. Flor. Londin. tab. 121.

**German names and French names (Gmelin 1817):** Männliches Knabenkraut, Salep, Männliche Ragwurz, Güler; *Orchis male*, *Covillon de chien*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

**KR 168820**

**Botany and Ecology:** Up to 45 cm tall. Stems hollow, thin-walled, more than 3 mm thick below the inflorescence, with only 3-6 leaves, the uppermost reaching the inflorescence. Leaves with or without spots on the upper side, at least

**Contemporary uses:** *Not used presently.*

**Uses 1817 (Gmelin 1817):** The roots of this and some other *Orchis* species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** It has many similarities to the preceding species, from which it differs in its larger tubers, taller stems, broader leaves, and larger, more frequent flowers. Grows frequently in meadows here and there. Blooms in May and July and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch größere Knollen, einen höheren Stengel, breitere Blätter, und größere häufigere Blüten unterscheidet. Wächst hie und da häufig auf Wiesen. Blühet im May, Juli, und gehört zu den ausdauernden Pflanzen. Gebrauch und Nutzen sind dieselben, wie bei der vorhergehenden Art. Ferner können noch von folgenden bei uns vorkommenden Orchisarten die Wurzeln benutzt werden: *Orchis militaris*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 539. 540. - *Orchis furca*. Gmel. I. c. p. 640. 541. Jacqu. Flor. Austr. tab. 307. *Orchis moravica*. Jacqu. - Gmel. I. c. p. 341. 342. *Orchis latifolia*. Linn. Sp. pl. Gmel. I. c. p. 653. 544. - *Orchis maculata*. Linn. Sp. pl. - Gmel. I. c. p. 544. 545. - *Orchis Conopsea*. Linn. Sp. pl. - Gmel. I. c. p. 546. 547.

***Daucus carota* L.**

*Synonyms:* *Carota sylvestris* Rupr.; *Caucalis carnosa* Roth; *Caucalis carota* Crantz; *Caucalis daucus* Crantz; *Daucus agrestis* Raf.; *Daucus alatus* Poir.; *Daucus allioni* Link; *Daucus australis* Kotov; *Daucus blanchei* Reut.; *Daucus brevicaulis* Raf.; *Daucus carota* f. *carota*, *Daucus carota* f. *epurpurata* Farw.; *Daucus carota* f. *fischeri* Moldenke; *Daucus carota* f. *goodmanii* Moldenke; *Daucus carota* f. *rosea* Millsp.; *Daucus carota* f. *roseus* Farw.; *Daucus carota* subsp. *dentatus* (Bertol.) Fiori; *Daucus carota* subsp. *hispidus* Masclef; *Daucus carota* var. *brachycaulos* Reduron; *Daucus carota* var. *brachycentrus* Maire; *Daucus carota* var. *carota*, *Daucus carota* var. *excelsus* Maire; *Daucus carota* var. *linearis* Reduron; *Daucus carota* var. *pseudocarota* (Rouy & E.G.Camus) Reduron; *Daucus communis* Rouy & E.G.Camus; *Daucus communis* var. *pseudocarota* Rouy & E.G.Camus; *Daucus dentatus* Bertol.; *Daucus esculentus* Salisb.; *Daucus exiguus* Steud.; *Daucus glaber* Opiz ex Čelak.; *Daucus heterophyllus* Raf.; *Daucus kotovii* M.Hiroe; *Daucus levis* Raf.; *Daucus littoralis* var. *forsskalii* Boiss.; *Daucus littoralis* var. *glabra* (Forssk.) Hosni; *Daucus littoralis* var. *negevensis* Plitmann; *Daucus marcidus* Timb.-Lagr.; *Daucus maritimus* With.; *Daucus montanus* Schmidt ex Nyman; *Daucus neglectus* Lowe; *Daucus nudicaulis* Raf.; *Daucus officinalis* Gueldenst. ex Ledeb.; *Daucus polygamus* Jacq. ex Nyman; *Daucus scariosus* Raf.; *Daucus sciadophyllus* Raf.; *Daucus strigosus* Raf.; *Daucus sylvestris* Mill.; *Daucus vulgaris* Garsault; *Daucus vulgaris* Neck.; *Platyspermum alatum* Schult.; *Tiricta daucoides* Raf.

**Original name (Gmelin 1817):** *Daucus Carota*. Linn. Sp. pl. - Gmel. Flor. Bad, l. p. 627. 628.

**German names and French names (Gmelin 1817):** Wilde Möhre, Wilde gelbe Rübe, Vogelnest; Carôte sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 111063** (Fig. 32); **111059** (Fig. 33)

**Botany and Ecology:** Umbels 4-10 cm across, 50-rayed, rays scabrous-hairy, flowering umbels flat or convex, compact in fruit; involucre of many 3-partite or pinnate leaflets with narrow scarious margins in lower part, nearly as long as umbels; umbellets 1-2 cm across, many-flowered, leaflets of involucre many, linear-subulate or oblong or narrowly ovate, inner entire, nearly wholly membranous, outer nearly wholly herbaceous, with narrow scarious margins, often 3-partite or 3-toothed, rarely pinnate, all with more or less ciliate margin; flowers in part bisexual, otherwise staminate (particularly in lateral umbellets); middle umbellet, in center of umbel is reduced to a dark red (often cleistogamous) flower; calyx-teeth small but visible, triangular-ovate; petals white or yellow (sulfur-yellow when dry), rarely pink or purple, obcordate, villous inside, smooth or with remote hairs outside, notched, with inward curved lobule; peripheral petals enlarged, to 2-3 mm long, 2-lobed to middle; fruit 3-4 mm long, 1.5-2 mm wide. Flowering May-July. Ural, Caucasus, along roads, in orchards, gardens. Widely cultivated. (Shishkin 1951).

**Contemporary uses:** *Georgia:* The roots are eaten, and the leaves used as spice. The roots are eaten. The seeds are put into vinegars, and seeds and leaves are used as spice used for various dishes. Especially wild carrot is used for phkhali. This species is used as a vegetable. Widely used as food and sold everywhere. Very widespread food thanks to their content of vitamins and mineral salts, it is used fresh or in the form of a juice. Widely used as food and sold everywhere. *Georgia:* Yellow dye is obtained from the stem and leaves. *Albania / Macedonia:* Tea to treat gastric ulcers and dysentery. *Romania:* digestive tract, respiratory system, rheumatic diseases, neurosis and other neurogenic complaints; wounds, chilblain, burns, eczema, aphthous stomatitis, ulcerations, cracks, breast fissure, furuncle, abscess, impetigo, tinea, inflammations, wrinkles, senile keratosis, astringent, vulnerary, anti-inflammatory, maturative, analgesic, depurative antiaging, tissue regenerative, beautifying. *Ukraine:* to improve vision, lung problems, digestive problems, earaches, indigestion, stomachache, diabetes, male sterility, menstrual control; sap for stomach cramps, in grated form for jaundice and enteritis, vermifuge for children, together with tuber of *Solanum tuberosum* and mlk for burns. *Ukraine:* diarrhea, constipation. *Morocco:* the juice of the roots and fruits is used to treat several skin problems such as burns, eczema, and skin infections; For kidney diseases, a decoction and infusion of the rhizome is used and for pyelonephritis, kidney pain, and as a diuretic; Also, the juice of the rhizome is used for stomachache, diarrhea, hypoglycemia, as emmenagogue and depurative. *Algeria:* effective for pinworm in children; The Leaves and the seeds of this plant are useful for improve the vision, improve the action of the liver, diuretic, and stimulate the urinary production, elimination through kidney; The carrot seed or powder infusion/decoction are used for thyroid diseases. For irregular menstruation and constipation, the seed juice is used; The wild carrot is used also for inflammations of the digestive tract and the respiratory system and against tonsillitis to children. *Palestine:* The wild carrot roots are used raw by patients suffering from cancer; Carrot fresh juice is used for treatments of diarrhea, jaundice, urinary system problems and anemia. *Syria:* The juice of roots is used as diuretic, for intestinal infections, and stomach ulcers, the leaves decoction is used as antiseptic for skin, the seeds decoction is used as diuretic, an infusion of the leaves, roots and seeds is used for acne, skin infections, and for eczema. *Jordan:* *Daucus carota* L. is used as aphrodisiac and for kidney disorders. *Lebanon:* The fruit of

plant is used for arthritis. In Colombia carrot is used as an anti-inflammatory, anthelmintic and as a protector of the nerves and liver, in addition to being widely used to treat diseases of the eyes. The root is used in cases of vitamin deficiency, for scurvy and in infantile diarrhea, also as a cardiac tonic, to avoid or remove pimples from the skin of the face and skin pimples. Roots and carrot fruits are used as a diuretic. Stems, leaves and flowers are used against intestinal gas, as a reliever of digestive colics and as diuretics. Ecuador: The whole fresh plant used to treat stomachache and gas. Peru: Fresh leaves and stems are used to treat used sunspots. In Ecuador used to treat stomachache and gas. In Peru the extract is used to treat sunspots. Hungary: added to soups and vegetables. Croatia: in pazija, leaves boiled, roots eaten raw. Bosnia: as mixed vegetable. Poland / Slovakia / Romania: food Czech Republic: raw as a snack. Bulgaria, Estonia, Poland: pickled. (Aissa et al. 2024a; Bussmann et al. 2019c; 2020g; 2025l; Paniagua-Zambrana et al. 2020d; 2025m).



Figure 32. *Daucus carota* L. - KR 111063



Figure 33. *Daucus carota* L. - KR 111059

**Uses 1817 (Gmelin 1817):** As cursed as the wild carrot is in vineyards and meadows, it becomes equally pleasant during food shortages and can be used in the first year, before it sprouts stalks and produces flowers, as a nourishing, tasty, and healthy food, like the grafted or garden yellow beet (*Daucus Carota sativa*). It is the source of our garden-grown yellow carrots or domestic carrots. It grows in its natural and semi-grafted state in pastures, fields, meadows, along paths, hedges, and occasionally in our vineyards. It blooms in July and August, ripens its seeds in September and October, and is classified as a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie wächst in ihrem natürlichen und halb veredelten Zustand auf Weiden, Aeckern, Wiesen, an Wegen, Hecken, und hie und da in unsern Weinbergen häufig, blühet im Juli, August, reifet ihre Samen im September, October, und gehöret unter die zweyjährigen Gewächse. So verwünscht die Wilde-Möhre in den Weinbergen, und auf den Wiesen ist, so angenehm wird sie bei Mangel an Nahrungsmitteln, und kann im ersten Jahre, bevor sie Stengel treibt und Blüthen bringt, als nährende schmackhafte und gesunde Nahrung wie die veredelte oder Garten-Gelbe-Rübe (*Daucus Carota sativa*) benutzt werden.

***Deschampsia caespitosa* (L.) P.Beauv.**

*Synonyms:* *Agrostis caespitosa* (L.) Salisb.; *Agrostis vivipara* Steud.; *Aira caespitosa* f. *compacta* Waisb.; *Aira caespitosa* f. *reptans* Borbás; *Aira caespitosa* f. *stolonifera* (Hausm.) Asch. & Graebn.; *Aira caespitosa* subsp. *hartmaniana* Nyman; *Aira caespitosa* subsp. *rhenana* (Gremli) Nyman; *Aira caespitosa* var. *altissima* (Lam.) Peterm.; *Aira caespitosa* var. *arctica* (Spreng.) Thurb.; *Aira caespitosa* L.; *Aira major* Syme; *Aira major* subsp. *caespitosa* (L.) Syme; *Avena caespitosa* Kuntze; *Avena caespitosa* (L.) Kuntze; *Avena paludosa* (Roth) Heynh.; *Campella caespitosa* (L.) Link; *Deschampsia alpina* var. *alpina*; *Deschampsia andraei* Aursw.; *Deschampsia bottnica* f. *subtriflora* Holmb.; *Deschampsia caespitosa* f. *triflora* Holmb.; *Deschampsia caespitosa* subsp. *hispanica* (Vivant) Cebolla, J.A.López & Rivas Ponce; *Deschampsia caespitosa* subsp. *littoralis* (Gaudich.) K.Richt.; *Deschampsia caespitosa* var. *bottnica* (Wahlenb.) Vasey ex Beal; *Deschampsia caespitosa* var. *caespitosa*; *Deschampsia sukatschewii* subsp. *submutica* (Trautv.) Tzvelev; *Deschampsia turczaninowii* Litv.; *Podionapus caespitosus* (L.) Dulac

**Original name (Gmelin 1817):** *Aira caespitosa*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 161. 162

**German names and French names (Gmelin 1817):** Rasenartige Schmiele, Rasenschmielen-Gras; Foin élevé.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 168820**

**Botany and Ecology:** Perennial, densely tufted. Culms erect, slender to stout, 30-150 cm tall, 1-3 mm in diam., 1-3-noded. Leaf sheaths loose, glabrous; leaf blades linear, flat or folded, up to 30 cm, 1-5 mm wide, abaxial surface smooth, adaxial surface with coarse sharp ridges, densely scabrid; ligule obtuse to acuminate, 2-7(-12) mm. Panicle usually open, often nodding, infrequently loosely contracted, ovate to narrowly oblong in outline, up to 30 cm or more, greenish or purplish sometimes with golden sheen; branches slender, bearing spikelets on distal part. Spikelets 2.5-7 mm, florets (1-)2(-3), rachilla internode ca. 1 mm; glumes slightly longer to slightly shorter than florets, lower glume slightly shorter than or equaling upper glume, 1-veined, upper glume 3-veined, apex acute; callus hairs ca. 1/3 lemma length; lemmas 2.5-3.5 mm, awned from near base to near middle, rarely awnless, apex broad, toothed or erose; awn straight or slightly bent, slightly shorter to longer than lemma. Anthers 1.2-2 mm. Fl. and fr. Jul-Sep. (Wu *et al.* 1994-2013)

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** It can be mown two or three times, grows very densely, and provides cattle and horses with tasty, pleasant, and healthy fodder. Since it is common in both flat and mountain forests where it is not used, it should be used in forests when there is a shortage, especially for cattle.

**Description and Ecology (Gmelin 1817):** The stalks are 3-4 feet tall, upright, striped, and smooth. The flat leaves are evenly broad and pointed. The flower spikes are 1/2-1 foot long and spreading, brownish-silver in color. The corollas are hairy at the base, the outermost with a straight awn the length of the calyx. This productive grass grows frequently in wet meadows and moist woodlands. It blooms in June and July, and its seeds ripen in August and September. It is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die flachen Blätter gleichbreit und zugespitzt. Die Blütenrispe, ½ - 1 Fuß lang, und ausgebreitet, bräunlich silberfarben. Die Kronspelzen am Grunde haarig, die äussere mit einer geraden Granne von der Länge des Kelches. Dieses ergiebige Gras, wächst häufig auf nassen Wiesen, und in feuchten Waldungen, blühet im Juni, Juli, reifet seine Samen im August, September, und gehört unter die ausdauernden Gewächse. Es kann zwey bis dreymal abgemähet werden, wächst sehr dichte, und giebt dem Rindvieh und den Pferden, ein schmackhaftes, angenehmes und gesundes Futter. Da es sowohl in ebenen als in Bergwaldungen häufig vorkommt, wo es nicht benutzt wird, sollte dasselbe bey Mangel allerdings in den Waldungen, vorzüglich für das Rindvieh bestens benutzt werden.

***Eleocharis palustris* (L.) Roem. & Schult.**

*Synonyms:* *Bulbostylis palustris* (L.) Steven; *Chlorocharis palustris* (L.) Rikli; *Clavula palustris* (L.) Dumort.; *Cyperus palustris* (L.) Sessé & Moc.; *Eleocharis crassa* C.A.Mey. ex Boeckeler; *Eleocharis limosa* Drege; *Eleocharis palustris* var. *glaucescens* (Willd.) A.Gray; *Eleocharis palustris* var. *palustris*; *Megadenus palustris* (L.) Raf.; *Schoenus palustris* (L.) Bernh.; *Scirpus lanceaeglumis* C.B.Clarke; *Scirpus palustris* L.; *Scirpus palustris* var. *major* Schrad.; *Scirpus palustris* var. *uniglumis* Junge; *Trichophyllum palustre* (L.) House

**Original name (Gmelin 1817):** *Scirpus palustris*. Linn. Sp. pl. - Gmel. Fl. Bad. I. p. 93. 94.

**German names and French names (Gmelin 1817):** Sumpfbinsengras, Weiherbinse, Sumpfsensen; Scirpe des Marais

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennials. Rhizomes creeping. Culms a few tufted, 10-100 cm tall, 2-3 mm thick, few ribbed and longitudinally sulcate, obscurely tuberculate. Leaf sheaths 1 or 2, basally blood-red purple, tubular, 3-7 cm, mouth slightly obliquely truncate. Spikelet oblong, narrowly oblong, or ellipsoid, 0.6-2.5 cm × 3-5 mm, many flowered, apex obtuse-rounded. Basal 2 glumes empty; basalmost glume amplexicaul for 1/2 or more of spikelet base; fertile glumes with a narrow green band medially and dark blood-red on sides, ovate to ovate-lanceolate, 3-4 × 1-1.5 mm, membranous, margin broadly hyaline, apex obtuse. Perianth bristles 4-6, shorter to slightly longer than nutlet, slightly curved, spreading outward, densely retrorsely spinulose. Stigmas 2. Nutlet at first yellowish then becoming brownish, obovoid, broadly obovoid, or globose-ovoid, 1.2-1.4 × 0.8-1 mm, unequally biconvex, smooth or rarely slightly prominently reticulate; persistent style base ovoid-oblong to oblong-conic, much longer than wide, 1/2-3/5 as long and ca. 1/2 as wide as nutlet, spongy, apex obtuse to rounded. Flowering and fruiting June-July. (Wu *et al.* 1994-2013)

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** When fed fresh, it provides horses and cattle with a very pleasant and healthy fodder and has therefore been highly recommended by some insightful farmers.

**Description and Ecology (Gmelin 1817):** The stalks are 1.5 to 2 feet tall, upright, round, and naked, with egg-shaped scales at the base. The root leaves are shorter than the stalks. The flowers are borne in a somewhat oval, multi-flowered spike. The round, blunt-triangular seed is surrounded by 3 to 4 bristles at the base. This grass is found in ponds, stagnant water, swamps, and ditches in the Rhine, Main, Danube, Neckar, and other regions, especially in wet seasons and during floods. It blooms in May and June, ripens its seeds in July and August, and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Halme sind 1½ - 2 Fuß hoch, aufrecht, rund, nackt, am Grunde mit eyförmigen Schuppen versehen. Die Wurzelblätter sind kürzer als die Halme. Die Blüten stehen in einer ausgehenden etwas eyrunden vielblüthigen Aehre. Der rundliche, stumpf-dreieckige Same, ist am Grunde mit 3 - 4 Borsten umgeben. Dieses Gras kommt in Teichen, stehenden Wassern, Sümpfen, und Wassergräben, in den Rhein-, Main, Donau-, Neckar- und andern Gegenden, vorzüglich in nassen Jahrgängen und bey Ueberschwemmungen häufig vor, blühet im May, Juni, reifet seine Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Es giebt den Pferden und dem Rindvieh, frisch gereicht, ein sehr angenehmes und gesundes Futter, und wurde deswegen, von einigen einsichtsvollen Landwirthen, bestens empfohlen.

### ***Elymus repens* (L.) Gould**

**Synonyms:** *Agropyron altissimum* (Schur) Schur ex P.Candargy; *Agropyron bromiforme* Schur; *Agropyron caesium* subsp. *koeleri* (Rouy) Rouy; *Agropyron elatum* Opiz; *Agropyron intermedium* var. *arenosum* (Spenn.) Thell.; *Agropyron junceum* var. *repens* (L.) T.Marsson; *Agropyron loliiforme* Schur; *Agropyron maeoticum* Prokudin ex Desjat.-Shost.; *Agropyron maritimum* (Koch & Ziz) Jansen & Wachter; *Agropyron multiflorum* P.Beauv.; *Agropyron nicaeense* Goir.; *Agropyron repens* P.Beauv.; *Agropyron repens* f. *subulatiforme* Soó; *Agropyron repens* f. *trichorrhachis* Rohlena; *Agropyron repens* f. *viride* (T.Marsson) Soó; *Agropyron repens* subsp. *pseudocaesium* (Pacz.) Lavrenko; *Agropyron repens* var. *altissimum* Schur; *Agropyron repens* var. *arenosum* (Spenn.) Fiori; *Agropyron repens* var. *bispiculata* Roshev.; *Agropyron repens* var. *bispiculatum* Roshev.; *Agropyron repens* var. *bromiforme* Schur; *Agropyron repens* var. *caesium* Arechav.; *Agropyron repens* var. *capillare* (Pers. ex Peterm.) Roem. & Schult.; *Agropyron repens* var. *collinum* (Opiz) Podp.; *Agropyron repens* var. *dumetorum* Roem. & Schult.; *Agropyron repens* var. *firmum* (J.Presl & C.Presl) Rchb.; *Agropyron repens* var. *imbricatum* (Lam.) Roem. & Schult.; *Agropyron repens* var. *leersianum* (Wulfen) Roem. & Schult.; *Agropyron repens* var. *maritimum* Hack.; *Agropyron repens* var. *nemorale* (Andersson) Farw.; *Agropyron repens* var. *pseudocaesium* Pacz.; *Agropyron repens* var. *pubescens* (Doell.) Tzvelev; *Agropyron repens* var. *recurvum* Grossh.; *Agropyron repens* var. *vaillantianum* (Wulfen & Schreb.) Roem. & Schult.; *Agropyron repens* var. *vulgare* (Döll) Kneuck.; *Agropyron repens* var. *vulgare* Döl.; *Agropyron rifeum* Sennen & Mauricio; *Agropyron subulatum* (Schreb. ex Schweigg. & Körte) Herter; *Braconotia officinarum* Godr.; *Elymus arenosus* (Spenn.) Conert; *Elymus caninus* Roth; *Elytrigia arenosa* (Spenn.) H.Scholz; *Elytrigia campestris* subsp. *maritima* (Tzvelev) H.Scholz; *Elytrigia quercetorum* Prokudin; *Elytrigia repens* (L.) Nevski *Elytrigia repens* f. *aristatum* (Schum.) Beetle; *Elytrigia repens* subsp. *longiaristata* N.R.Cui; *Elytrigia*

*repens* var. *aristata* (Döll) P.D.Sell; *Elytrigia repens* var. *caesia* (J.Presl) Prokudin; *Elytrigia repens* var. *leersianum* (Roem. & Schult.) Prokudin; *Elytrigia repens* var. *maritima* (Koch & Ziz) Hyl.; *Elytrigia repens* var. *pubescens* (Döll) Prokudin; *Elytrigia repens* var. *vaillantiana* (Wulfen & Schreb.) Prokudin; *Elytrigia repens* var. *vulgare* (Döll) Prokudin, *Elytrigia* × *dominii* V.Jirásek; *Fruentum repens* E.H.L.Krause; *Michelaria villosa* Dumort. ex Thielens; *Triticum caesium* Harz, *Triticum dumetorum* Schreb.; *Triticum glaucum* Host; *Triticum infestum* Salisb; *Triticum intermedium* Hegetschw.; *Triticum multiflorum* Steud.; *Triticum ramosum* Beck ex Nyman; *Triticum repens* L.; *Triticum repens* f. *capillare* Pers. ex Peterm.; *Triticum repens* f. *multiflorum* Peterm.; *Triticum repens* f. *pectinatum* R. & O.Schulz; *Triticum repens* f. *pubescens* Döll; *Triticum repens* f. *viride* Marss.; *Triticum repens* f. *viride* T.Marsson; *Triticum repens* subsp. *arenosum* Spenn.; *Triticum repens* var. *arenosum* Spenn.; *Triticum repens* var. *aristatum* Schumach.; *Triticum repens* var. *caesium* (J.Presl) Schur; *Triticum repens* var. *caesium* Döll; *Triticum repens* var. *capillare* Pers.; *Triticum repens* var. *glaucum* Döll; *Triticum repens* var. *multiflorum* Pers.; *Triticum repens* var. *nemorale* Fr.; *Triticum repens* var. *pectinatum* F.W.Schultz; *Triticum repens* var. *pubescens* Döll, *Triticum repens* var. *sepium* Borbás; *Triticum* var. *stenophyllum* Asch. & Graebn.; *Triticum repens* var. *subulatum* (Roem. & Schult.) Nees; *Triticum repens* var. *vulgare* Hook.; *Triticum sepium* Thuill.; *Triticum stenophyllum* Asch. & Graebn.; *Triticum subulatum* Schreb. ex Schweigg. & Körte; *Zeia repens* Lunell

**Original name (Gmelin 1817):** *Triticum repens*. Linn. Sp. pl. - Gmel. Fl. Bad. I. p. 294 - 298. Schreb. Gräs. 2. p. 24. tab. 26.

**German names and French names (Gmelin 1817):** Quecken, Queck, Queckgras, Graspurzel, Kriechende Wiesen-Quecke, Hundsgras; Chien dent

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, expanding

#### KR 190979

**Botany and Ecology:** Tufted perennial with extensive, wiry rhizomes; culms 30-120 cm high, erect or geniculately ascending. Leaf-blades usually flat, 6-30 cm long, 3-10 mm wide, glabrous or loosely hairy above. Spike lax or dense, 5-15(-20) cm long, erect and straight; rachis joints scabrid along the margins. Spikelets 5-7-flowered, 8-17 mm long; glumes subequal, lanceolate to lanceolate-oblong, 5-15 mm long, acute, mucronate or shortly awned, scabrid on the nerves above; lemma lanceolate-oblong, 6-11(-13) mm long, glabrous and smooth, acute, awnless or with a subulate tip, palea nearly as long as the lemma, anthers 3.5-6 mm long. (Ali & Qaiser 1995-2020).

**Contemporary uses:** *Romania:* Diuretic, depurative, anti-lithiasis, emollient, antimicrobial, anti-inflammatory, urinary problems, digestive ailments respiratory disorders. *Albania:* diuretic; anti-rheumatic, anti-anemic, stomach problems, hepatic disorders, lithotriptic; anti hemorrhoidal. *Turkey:* Diuretic, kidney stones, antimicrobial, antilithiatic, depurative, diabetes, digestive, diuretic, emollient, respiratory disorders. *Ladakh / Kashmir:* Reduces irritable condition of bladder and promotes urination; promotes urination, gynecological disorders. *Poland:* Dried ground rhizome used as famine food, cooked as gruel and to make beer. *In veterinary medicine for skin problems, wounds, gastrointestinal problems. Caucasus:* Used as fodder. (Bussmann *et al.* 2025m; Paniagua-Zambrana *et al.* 2025n).

**Uses 1817 (Gmelin 1817):** Both the grass and the roots provide healthy and pleasant fodder, especially for cattle and horses. The roots can be collected, cleaned, and dried as early as the first spring, since they are so easily identifiable from all others. They provide excellent fodder for cattle, especially cows, when they are rinsed clean in water, dried, chopped into small pieces on the feed trough, and scalded with warm water, which causes them to swell slightly, or fed with fungus, chaff, and bran. Since ancient times, people have sought to prepare food from it for humans. They were washed, dried, chopped, ground, and, with the addition of flour, baked into bread. This was also done during a brief grain shortage in 1762 in some regions of Saxony, but even more so during the high prices that prevailed for several years at the beginning of the 1770s. Furthermore, the cleaned, finely chopped, and pounded couch grass roots can be used to great effect with good brandy.

**Description and Ecology (Gmelin 1817):** The root creeps horizontally underground, is segmented, branchy, thread-like, very long, striped, smooth, white, graduating to pale yellow, and about the thickness of a straw. This cursed grass, often all too common among farmers in fields, gardens, and vineyards, and which is diminished in every conceivable way, deserves our full attention in every respect due to shortages and poor growth.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ist wagerecht unter der Erde kriechend, gegliedert, ästig, fadenförmig, sehr lang, gestreift, glatt, weis ins blaßgelbe gehend, von der Dicke eines Strohhalms. Dieses den Landwirthen auf Aeckern, Feldern, in den Gärten und Weinbergen oft allzuhäufig vorkommende und verwünschte Gras, welches auf alle erdenkliche Arten vermindert wird, verdient bey Mangel und Miswachs in jeder Hinsicht alle unsere Aufmerksamkeit. Sowohl das Gras als die Wurzeln geben ein gesundes und angenehmes Futter, vorzüglich für Rindvieh und Pferde. Die Wurzeln

können schon im ersten Frühjahr, da sie vor allen übrigen so leicht zu erkennen sind, eingesammelt, gereinigt und getrocknet werden, sie geben dem Rindviehe, vorzüglich den Kühen eine treffliche Fütterung, wenn sie im Wasser rein abgespielt, getrocknet, auf der Futterbank klein geschnitten, und mit warmem Wasser, wodurch sie wieder etwas aufquellen, angebrühet, auch mit Heckerling, Spreu und Kleyen verfüttert werden. Von den ältesten Zeiten her, hat man auch für Menschen, eine Speiße daraus zu bereiten gesucht. Sie sind gewaschen, getrocknet, geschnitten, gemahlen, und, nebst einem Zusatz von Mehl Brod davon gebacken worden. Dieses geschahe auch bey einem kurzen Getraide-Mangel im Jahre 1762 in einigen Gegenden Sachsens, noch mehr aber, in der Theuerung, welche einige Jahre hindurch zu Anfang der 1770 Jahre herrschte. Ueberdieß können die gereinigten, klein geschnittenen und gestoßenen Queckenwurzeln auf guten Brandtwein bestens benutzt werden.

### ***Epilobium angustifolium* L.**

*Synonyms: Chamaenerion angustifolium* (L.) Scop.; *Chamaenerion angustifolium* f. *leiostylum* Berlin; *Chamaenerion angustifolium* f. *pubescens* (Hauskn.) Kitag.; *Chamaenerion angustifolium* var. *abbreviatum* Lunell; *Chamaenerion angustifolium* var. *album* Yue Zhang & J.Y.Ma; *Chamaenerion angustifolium* var. *karsianum* Tzvelev; *Chamaenerion angustifolium* var. *pubescens* (Hauskn.) Tzvelev; *Chamaenerion angustifolium* var. *spectabile* Simmons; *Chamaenerion denticulatum* Schur; *Chamaenerion spicatum* Gray; *Chamaenerion spicatum* f. *alba* Cockerell; *Chamerion angustifolium* (L.) Holub, *Chamerion angustifolium* f. *pleniflorum* (Nakai) Yonek.; *Epilobium angustifolium* f. *albiflorum* E.L.Rand & Redfield; *Epilobium angustifolium* f. *angustifolium*, *Epilobium angustifolium* f. *spectabile* (Simmons) Fernald; *Epilobium angustifolium* subsp. *albiflorum* Dumort.; *Epilobium angustifolium* subsp. *angustifolium*, *Epilobium angustifolium* var. *abbreviatum* (Lunell) Munz; *Epilobium angustifolium* var. *angustifolium*, *Epilobium angustifolium* var. *macrophyllum* (Hauskn.) Fernald; *Epilobium antonianum* Auct. ex Pers.; *Epilobium brachycarpum* Leight.; *Epilobium difforme* Gilib.; *Epilobium elatum* Munro ex Hauskn.; *Epilobium gesneri* Vill.; *Epilobium gracile* Brügger; *Epilobium latifolium* F.W.Schmidt; *Epilobium latifolium* Matt.; *Epilobium leiostylon* Peterm.; *Epilobium macrocarpum* Steph.; *Epilobium montanum* Hacq.; *Epilobium neriifolium* H.Lév.; *Epilobium persicifolium* Vill.; *Epilobium rubrum* Luce; *Epilobium salicifolium* Bojer; *Epilobium salicifolium* Stokes; *Epilobium spicatum* Lam.; *Epilobium spicatum* f. *albiflorum* Britton; *Epilobium variabile* Luce; *Epilobium verticillatum* Ten.; *Pyrogennema angustifolium* (L.) Lunell

**Original name (Gmelin 1817):** *Epilobium angustifolium*. Linn. Sp. pl. - Gmel. Flor. Badens. II.p. 135. 136. - Schkuhr. Bot. Handb. tab. 106.

**German names and French names (Gmelin 1817):** Schmalblättriger Weiderich, Schmalblättriges Unholdenkraut, Wollenweidenröslein, Weidenröslein, St. Antonskraut, Feuerkraut; Herbe de St. Antonie, Neriette, Antoinette

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Stout erect perennial, forming large colonies by vigorous growth from a thick rootstock or by sprouting from spreading horizontal roots; stems simple, 30-250 cm, glabrous throughout or densely strigillose above. Leaves narrowly lanceolate or lanceolate, 2.5-20 x 0.4-3.5 cm, glabrous or sometimes with strigillose hairs on the abaxial midvein, obscurely denticulate, spirally arranged, subsessile or attenuate to short petiolate. Inflorescence a simple elongate lax raceme. Flowers drooping. in bud; ovaries densely white canescent, 10-18 mm, on pedicels 7-12 mm long. Sepals 9-13 x 1.6-2 mm, acute, canescent. Petals 12-15 x 7-8 mm, entire, deep pink or magenta or rarely white. Styles 10-20 mm long, initially sharply deflexed, becoming erect after anthers dehiscence and reflex, longer than stamens. Stigma deeply 4-lobed and recurved, exerted beyond anthers. Capsules 4-7 cm long, on pedicels 0.7-1.5 cm long. Seeds 1-1.3 x 0.32-0.4 mm, surface irregularly foveolate, the chalazal collar short and inconspicuous; coma 9-12 mm long, white, not markedly deciduous. This exceedingly widespread and variable species is common in the flora region. The pattern of variation in the Himalayan region is not so clearly defined, either geographically or morphologically, and there is no significant number of chromosome counts. It seems best, therefore, to treat this species in the Himalayan region without subspecific rank, at least until more critical studies have been carried out. Flowering July-September, fruiting August-September; Distribution: Circumboreal, in North America south along the Cordillera to Mexico, throughout Europe to North Africa; and in Asia to Turkey, Iran, Pakistan and throughout the Himalayas to southern China. (Ali & Qaiser 1995-2020).

**Contemporary uses:** Armenia: Medicinal: anti hemorrhoidal tea. Georgia: The roots are sweet, edible. The dried leaves are used as a tea substitute and contain vitamin C. Leaves also eaten in Khachapuri. Georgia: The roots contain tannage. It is a good honey plant. Romania: Depurative, choloretic cholagogue, astringent, anti-inflammatory, haemostatic, antimicrobial,

*cytostatic, regenerative; prostatitis, prostate adenoma, hepatitis, ulcer, enteritis, cirrhosis, urinary disorders. Used as tea. Ukraine: Headache, blood coagulation. Belarus: Recreational tea, for vitamins, sauna, headache, hypertension, kidney problems. For headache, hypertension and kidney disease. Used for abdominal pain, intestinal complaints, renal complaints, astringent, hepatic diseases, intestinal diseases, renal diseases, stomachache. The plant is locally used for skin diseases, in cattle for milk production, and tonic. Other species are used for similar applications. In Estonia as salad and tea. In Ukraine and other parts of Eastern Europe as tea. Used as famine food in Tibet. (Fayvush et al. 2025a; Jan et al. 2021b; Paniagua-Zambrana et al. 2025o)*

**Uses 1817 (Gmelin 1817):** Although this beautiful and beneficial plant is currently missing from our kitchen gardens, its tender root shoots, which it produces in abundance, can nevertheless be harvested in the spring as a tasty, nourishing, and healthy food and put to good use. They can be prepared like asparagus, beans, and spinach, or eaten as a salad. The young leaves provide good fodder for cattle and goats. This plant is greatly improved by cultivation in slightly moist gardens; the root shoots become fleshier, more tender, and stronger, and are little inferior to asparagus in quality. It is certainly one of the most beautiful and beneficial plants that has not yet been utilized in our country, and which, in times of food shortages, will especially protect forest and valley dwellers from hunger.

**Description and Ecology (Gmelin 1817):** The root is fibrous and shoot-forming. The root shoots are one to two feet long, a little finger thick, fleshy, and white. The stem is 4-5-7 feet tall, erect, round, stiff, smooth, branched above, often reddish. The leaves are alternate, sessile, narrow-lanceolate, pointed, pale green beneath, marked with prominent transverse veins, entire at the margins or sometimes with barely noticeable small teeth. The flowers terminate in the stem and branches and are borne in a graceful pyramidal raceme. The calyxes are single-leaved, four-divided, purple, and hairy. The corolla is irregular, beautiful, purple-red graduating to violet, rarely flesh-colored or white. The filaments and stamens are depressed. The seed capsule is long, cylindrical, striped, four-lobed, and has four valves. It has many seeds, covered with a silky, white, glossy crown of hairs. This plant, which is one of our most beautiful ornamental plants, grows in large numbers in plains and mountainous regions, in forest clearings, open woodlands, along forest ditches, in mountain forests in the Black Forest, in Baden, Fürstenberg, Württemberg, Hesse, the Odenwald, Alsace, and elsewhere, especially around old charcoal kilns, which it often completely covers. It blooms in July, August, and September. Its seeds ripen in September and October, and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig, sprossentreibend. Die Wurzelsprossen ein bis zwey Fuß lang, eines kleinen Fingers dick, fleischig, weiß. Der Stengel 4 - 5 - 7 Fuß hoch, aufrecht, rund, steif, glatt, oben ästig, öfters röthlich. Die Blätter abwechselnd, aufsitzend, schmallanzettförmig, zugespitzt, unterhalb fahlgrün, mit hervorragenden querliegenden Nerven bezeichnet, am Rande ganz, oder zu Zeiten mit kaum merkbaren kleinen Zähnen versehen. Die Blüten endigen den Stengel und die Aeste, und stehen in einer zierlichen pyramidenförmigen Traube. Die Blütenkelche sind einblättrig, viermal getheilt, purpurfarben, kleinhaarig. Die Blumenkrone ungleich, schön, purpurroth ins violette gehend, seltener fleischfarben oder weiß. Die Staubfäden und der Staubweg niedergebogen. Die Samen-Capsel lang, walzenförmig, gestreift, vierfächerig, vierklappig. Samen viele, mit einer seidenartigen, weissen, glänzenden Haarkrone versehen. Diese Pflanze, welche unter unsere schönsten Zierpflanzen gehört, wächst in den ebenen und Gebirgsgegenden, in Waldschlägen, lichten Waldungen, an Waldgräben, in Bergwaldungen im Schwarzwald, im Badischen, Fürstenbergischen, Württembergischen, Hessischen im Odenwalde, Elsaß u.a. G. in großer Menge, auch vorzüglich um die alten Kohlen-Meiler, die sie nicht selten ganz bedeckt. Sie blühet im Juli, August, September. Reifet ihre Samen im September, October, und gehört unter die ausdauernden Gewächse. Obgleich diese schöne und wohltätige Pflanze, noch zur Zeit in unsern Küchengärten vermißt wird, können dennoch ihre zarten Wurzelsprossen, die sie in Menge treibt, im Frühjahr als schmackhafte, nährende und gesunde Speiße abgenommen, und bestens benutzt werden. Sie können wie Spargel, Bohnen und Spinat zubereitet, auch als Salat verspeist werden. Die jungen Blätter geben dem Rindvieh und den Ziegen ein gutes Futter. Diese Pflanze wird durch den Anbau, in etwas feuchten Gärten, sehr veredelt, die Wurzelsprossen werden fleischiger, zarter und stärker, und geben den Spargeln an Güte wenig nach. Sie gehört allerdings unter die schönsten und wohlthätigsten Erscheinungen, von der bisher bei uns, kein Gebrauch gemacht wurde, und die bei Mangel an Nahrungsmitteln, vorzüglich die Wald- und Thalbewohner gegen Hunger schützen wird.

### ***Eryngium campestre* L.**

*Synonyms: Eryngium campestre* f. *angustiinvolucratum* Micheletti; *Eryngium campestre* f. *contractum* Micheletti; *Eryngium campestre* f. *elegans* Micheletti; *Eryngium campestre* f. *latiinvolucratum* Micheletti; *Eryngium campestre* subsp. *contractum* (Micheletti) Degen; *Eryngium campestre* var. *algeriense* Chabert, *Eryngium campestre* var. *axicum* Griseb.; *Eryngium*

*campestre* var. *tenuibracteatum* Sennen; *Eryngium dichotomum* var. *ramosissimum* Loscos & J.Pardo; *Eryngium duriberum* Sennen & Pau; *Eryngium latifolium* Hoffmanns. & Link ex Willk. & Lange; *Eryngium officinale* Garsault; *Eryngium vulgare* Lam.

**Original name (Gmelin 1817):** *Eryngium campestre*. Linn. - Gmel. Flor. Badens. I. p. 601. 602.

**German names and French names (Gmelin 1817):** Chardon Roland, Chardon à cent têtes

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Vulnerable, decline

**Botany and Ecology:** Perennial with long, cylindrical root; stems 30-70 cm high; entire plant grayish-green, stiffly spiny; stems thick, leafy, branching, strongly branched above, especially in inflorescence, with numerous heads; leaves stiffly coriaceous, the radical long-petioled, broadly ovate-triangular, 15-30 cm long and as wide, deeply twice 3-partite, the lobes decurrent along axis, spinose-dentate (primary leaves broadly lanceolate, subentire), cauline leaves much smaller, short-petioled, amplexicaul. Inflorescence loose, umbelliform, with numerous ovate-globular ca. 15 mm long heads, leaflets of involucre 6-7, linear-lanceolate, mucronate, to 4 cm long, 5 mm wide, sometimes with 2-4 basal spines; bracts subulate, to 10mm long exceeding flowers; calyx-teeth lanceolate, with long mucro; fruit compressed-obovoid, to 5 mm long, lateral scales longer than dorsal. Flowering June-September. Steppe zone, steppe lowlands, weedy places, roadsides, in mountain regions on steppe and herbaceous slopes, not on high mountains. (Shishkin 1950).

**Contemporary uses:** *Romania:* Detoxifying, diuretic, cicatrizing, eupeptic, carminative, sedative, abdominal distention, urinary lithiasis, anorexia, gastric ulcer, convulsive cough, wounds. *Croatia:* Root formerly boiled and eaten. *Hungary:* root cooked in soup, young leaves eaten as salad. (Bussmann et al. 2020h; Mehdiyeva et al. 2025d; Paniagua-Zambrana et al. 2025p).

**Uses 1817 (Gmelin 1817):** The roots are fleshy, have a sweet, pleasant, and spicy flavor, and can be used as a healthy and nutritious food in an emergency. The young, tender shoots also make a good salad.

**Description and Ecology (Gmelin 1817):** The root is cylindrical, very long, segmented, brown on the outside, white on the inside, about the thickness of a finger. The stem is 1.5 to 2 feet tall, erect, round, smooth, striated, and branched. The root leaves are long-stalked, large, and bipinnate. The leaflets are feather-like, toothed, and spiny, descending into a white rib. The lower stem leaves are short-stalked, pinnate, and encircle the stem at the base. The upper leaves are stalkless, encompassing, simply pinnate, and the leaflets are toothed and spiny. The umbel is simple and multiflorous. The general involucre is multi-leaved and stiff. The flowers are capitate and white. The common receptacle is conical and covered with stamens. The seeds are oblong and round. This plant grows abundantly here and there in rough, dry, undeveloped places, on limestone hills in Baden, Württemberg, and elsewhere, and especially on sunny, sandy, barren pastures in the Rhine region. It blooms in August and September, ripens its seeds in October, and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, sehr lang, gegliedert, aussen braun, innen weiß, von der Dicke eines Fingers. Der Stengel 1½ - 2 Fuß hoch, aufrecht, rund, glatt, gestreift, ästig. Die Wurzelblätter lang gestielt, groß, doppelt gefiedert. Die Blättchen federartig getheilt, gezahnt, stachelig, in eine weisse Rippe herablaufend. Die untern Stengelblätter kurz gestielt, gefiedert, den Stengel am Grunde umgebend. Die obern stiellos, umfassend, einfach gefiedert, die Blättchen gezahnt, stachelig. Die Dolde einfach, vielblüthig. Die allgemeine Hülle vielblättrig, steif. Die Blüten kopfförmig, weiß. Der gemeinschaftliche Fruchtboden kegelförmig und mit Spreublättchen bedeckt. Die Samen länglich-rund. Diese Pflanze kommt hie und da an rauhen ungebauten trockenen Orten, auf Kalkhügeln im Badischen, Württembergischen, u. a. O. und vorzüglich auf sonnenreichen sandigen unfruchtbaren Weiden in den Rheingegenden in Menge vor, blühet im August, September, reifet ihre Samen im October, und gehört unter die ausdauernden Gewächse. Die Wurzeln sind fleischig, haben einen süßlichen angenehmen und gewürzhaften Geschmack, und können als eine gesunde und nahrhafte Speiße, im Nothfall bestens benutzt werden. Auch geben die jungen zarten Sprößlinge einen guten Salat.

### ***Fagopyrum tataricum* (L.) Gaertn.**

**Synonyms:** *Fagopyrum cereale* Raf.; *Fagopyrum dryandrii* Fenzl; *Fagopyrum emarginatum* (Roth) Meisn.; *Fagopyrum emarginatum* Moench; *Fagopyrum emarginatum* var. *kunawarensense* Meisn.; *Fagopyrum esculentum* subsp. *ancestralis* Ohnishi; *Fagopyrum fagopyrum* H.Karst.; *Fagopyrum polygonum* Macloskie; *Fagopyrum sagittatum* Gilib.; *Fagopyrum sarracenicum* Dumort.; *Fagopyrum vulgare* Hill; *Fagopyrum vulgare* T.Nees; *Helxine fagopyrum* Kuntze; *Polygonum emarginatum* Roth; *Polygonum fagopyrum* L.

**Original name (Gmelin 1817):** *Polygonum tartaricum*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 182.

**German names and French names (Gmelin 1817):** Tartarischer Buchweizen, Gezähnter Buchweizen; Bled noir de Tartarie

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, not native, rare in the region

**KR 221061** (Fig. 34)



Figure 34. *Fagopyrum tartaricum* (L.) Gaertn. - KR 221061

**Botany and Ecology:** Annual; stem 30-80cm long, erect, branching, commonly green, glabrous, smooth; leaves sagittate - cordate, attenuate to a point, with acute basal lobes, 3-8 cm long and broad, light green, the lower long-petioled, the upper short-petioled, glabrous; inflorescence as in the preceding; flowers smaller; perianth 5 -parted, the greenish oblong-ovate

obtuse segments 1.3-1.7mm long and 0.5-1 mm broad; stamens 8, alternating with round glands; styles 3, about half as long as the 3-angled ovary; achene 3-4 times as long as perianth, blackish-brown, trigonous, the angles sharp in upper part, blunt wrinkled and apparently crenate below, the oblong -ovate faces narrowed upward, wrinkled and dull. Flowering June-July, fruiting August. Ural, Caucasus, Altai, Middle Asia, in fields as a weed, along roads. Formerly planted. (Bobrov and Komarov 1936).

**Contemporary uses:** *The seeds are used to make flour, and for porridge.* (Bussmann *et al.* 2019d; 2025n; Paniagua-Zambrana *et al.* 2025q).

**Uses 1817 (Gmelin 1817):** It is an annual plant It deserves to be introduced and cultivated especially in the Black Forest and Odenwald regions, where common heather does not thrive due to cold, and has great advantages over the former in that it tolerates cold well, produces more and larger seeds, and produces larger, juicier stems and leaves, which, fresh or dried, provide excellent food for cattle and pigs. The young leaves can be prepared and eaten like spinach. The ripe seeds are very mealy and can be used as tasty groats or, ground into flour, to make tasty, nutritious bread. I have often recommended the cultivation of this plant, in full conviction, especially in the higher, sandy regions of the Black Forest, where it would thrive, as it would not only provide excellent and productive animal fodder, which has been sorely lacking in these regions, but would also provide an excellent food source from its seeds. Along the Rhine, there are still many dry, sterile, sunny stretches of sand that were once covered with conifers. These should either be converted back into pine forests or planted with heather grain and buckwheat (*Polygonum fagopyrum*), which would improve the soil in a few years and greatly benefit livestock farming.

**Description and Ecology (Gmelin 1817):** The root is fibrous. The stems are 2-3 feet tall, erect, and segmented. The leaves are heart-shaped and arrow-shaped. The flowers are white, often slightly reddish. The seeds are triangular, with bluntly toothed edges. This plant originates from Tartary and has been cultivated for some time in Sweden and, for several years now, also, albeit rarely, in Germany, like the common heather, buckwheat, heath, or black bilberry (*Polygonum fagopyrum*, Linn.). It blooms in July and August, and its seeds ripen in September and October.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig. Die Stengel 2 - 3 Fuß hoch, aufrecht, gegliedert. Die Blätter herz-pfeilförmig. Die Blumen weiß, öfters ein wenig ins röthliche gehend. Die Samen dreyeckig, die Ecken stumpf gezähnt. Diese Pflanze stammt aus der Tartarey, wird seit geraumer Zeit, in Schweden und seit etlichen Jahren auch, jedoch selten, hie und da in Teutschland, so wie das gewöhnliche Heidekorn, der Buchweizen, Heidel, Bled noir. *Polygonum Fagopyrum*. Linn. angebaut, blühet im Juli, August, reifet seine Samen im September, October, und gehört zu den einjährigen Gewächsen. Sie verdient vorzüglich in denen Gegenden des Schwarzwaldes und des Odenwaldes, wo das Gewöhnliche Heidekorn, wegen Kälte nicht gedeihet, eingeführt und angebaut zu werden, und hat daselbst große Vorzüge vor ersterm, indem sie die Kälte gut verträgt, mehr und größere Samen liefert, und größere saftigere Stengel und Blätter treibt, welche frisch und getrocknet, dem Rindvieh und den Schweinen, eine treffliche Fütterung geben. Die jungen Blätter, können wie Spinat zubereitet und verspeist werden. Die reifen Samen sind sehr mehlig und können als schmackhafte Grütze und zu Mehl gemahlen, auf schmackhaftes nährendes Brod verwendet werden. Den Anbau dieser Pflanze, habe ich schon öfters, in der vollen Ueberzeugung, vorzüglich in den höhern sandigen Gegenden des Schwarzwaldes, wo sie trefflich gedeien würde, empfohlen, da dadurch nicht nur ein ganz vorzügliches und ergiebiges Viehfutter, woran es bisdaher diesen Gegenden gar sehr gebricht, sondern zugleich an deren Samen ein treffliches Nahrungsmittel gewonnen würde. Längst dem Rheinstrome hin, befinden sich hie und da, noch sehr viele, trocken gelegene, sterile sonnenreiche Sandstrecken, welche einst mit Nadelholz besetzt waren. Sie sollten entweder wieder in Föhrenwaldungen umgeschafft, oder mit Heidekorn, Buchweizen, (*Polygonum Fagopyrum*) bepflanzt werden, wodurch der Boden in wenigen Jahren verbessert, und die Viehzucht gar sehr gewinnen würde.

### ***Fagus sylvatica* L.**

*Synonyms: Castanea fagus* Scop.; *Fagus aenea* Dum.Cours.; *Fagus asplenifolia* Dum.Cours.; *Fagus cochleata* hort. ex Domin; *Fagus comptoniifolia* Desf.; *Fagus crispa* hort. ex Dippel; *Fagus cristata* Dum.Cours.; *Fagus cucullata* hort. ex Dippel; *Fagus cuprea* Hurt. ex A.DC.; *Fagus echinata* Gilib.; *Fagus incisa* hort. ex Dippel; *Fagus laciniata* Hort ex A.DC.; *Fagus pendula* Dum.Cours.; *Fagus purpurea* Dum.Cours.; *Fagus purpurea* var. *roseomarginata* Cripps; *Fagus quercirdes* Pers. ex Dippel; *Fagus salicifolia* hort. ex A.DC.; *Fagus sylvatica* f. *aureovariegata* C.K.Schneid.; *Fagus sylvatica* f. *bornyensis* Simon-Louis ex Beissn.; *Fagus sylvatica* f. *cochleata* Dippel; *Fagus sylvatica* f. *cristata* (Loudon) Dippel; *Fagus sylvatica* f. *fastigiata* Simon-Louis ex K.Koch; *Fagus sylvatica* f. *grandidentata* Dippel; *Fagus sylvatica* f. *heterophylla* (Loudon) Dippel; *Fagus sylvatica* f. *laciniata* (Perr.) Domin; *Fagus sylvatica* f. *pendula* (Lodd.) Dippel; *Fagus sylvatica* f. *purpurea* (Aiton) Dippel; *Fagus sylvatica*

f. *pyramidalis* Dippel; *Fagus sylvatica* f. *quercifolia* C.K.Schneid.; *Fagus sylvatica* f. *quercoides* Pers.; *Fagus sylvatica* f. *roseomarginata* (Cripps) Domin; *Fagus sylvatica* f. *tortuosa* Dippel; *Fagus sylvatica* f. *variegata* Dippel; *Fagus sylvatica* f. *zlatia* (Späth ex E.Goeze) Geerinck; *Fagus sylvatica* var. *albovariegata* Weston; *Fagus sylvatica* var. *atropunicea* Weston; *Fagus sylvatica* var. *colorata* A.DC.; *Fagus sylvatica* var. *coriacea* Wallr.; *Fagus sylvatica* var. *cristata* Loudon; *Fagus sylvatica* var. *heterophylla* Loudon; *Fagus sylvatica* var. *luteovariegata* Weston; *Fagus sylvatica* var. *pendula* (Lodd.) Loudon; *Fagus sylvatica* var. *pendula* Lodd.; *Fagus sylvatica* var. *purpurea* Aiton; *Fagus sylvatica* var. *quercifolia* (C.K.Schneid.) Geerinck; *Fagus sylvatica* var. *tortuosa* Dippel; *Fagus sylvatica* var. *vulgaris* Aiton; *Fagus sylvatica* var. *zlatia* Späth ex E.Goeze; *Fagus sylvestrus* Gaertn.; *Fagus tortuosa* hort. ex Domin; *Fagus variegata* hort. ex A.DC.

**Original name (Gmelin 1817):** *Fagus sylvatica*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 703.

**German names and French names (Gmelin 1817):** Buche, Gemeine Buche, Mastbuche, Rothbuche; Hêtre

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 203687; 203688** (Fig. 35)

**Botany and Ecology:** Tree to 30 - 50 m, with smooth light gray bark; leaves alternate, distichous, mostly ovate, rounded at base, mostly broad-acuminate at apex, entire, slightly undulate and remotely denticulate, sometimes lobed, 4 - 10 (- 15) cm long, 2.5-7 (10) cm broad, with 5-8 lateral veins, the margin and the veins beneath appressed-pubescent; petiole 0.8 - 1.3 (1.8) cm long; perianth of staminate flowers infundibulate -campanulate, deeply cut, the elongate -linear or linear -lanceolate lobes 1.5 -2.5 mm long, commonly longer than the tube, this 1-2.25 mm long, usually with white hairs on the margin; stamens 4 - 15, 3 -7 mm long; anthers 1-1.5 mm long; appendages of involucre alike, subulate, the upper and the lower ones of equal length and hence terminating at different levels; stalk of involucre 0.8 - 1.3 (1.8) cm long, appressed-pubescent; nut triquetrous, 1-1.6 cm long, equaling or shorter than the involucre. Flowering May. (Boborov & Komarov 1936).

**Contemporary uses:** *Slovakia: unspecified medicinal use. Romania: astringent, antiseptic, anti-inflammatory, febrifuge; diarrhea, dysentery, fever, rheumatism, renal and urinary lithiasis. Hungary: fruits raw and roasted for snack; for confectionery as a walnut substitute; coffee substitute oil; from seeds; famine food: ground seeds mixed with flour, leaves eaten raw by children in the spring, sometimes with sugar; drunk by children. Slovakia: raw or dried, pressed into oil, wood shavings added to food during famine. Ukraine: fruits and leaves as children's snack. Poland: fruits raw, as children's snack, roasted, ground as addition to bread, roasted to make a drink (pomorskie). Czech Republic: fruits eaten raw, processed into oil, young leaf buds and leaves eaten raw, nectar used as snack, flowers added to dishes, fruits raw or in preserves, pressed into oil. Azerbaijan: leaves in brine. Eastern Europe: ground bark as leaven. Bosnia and Herzegovina, Czech Republic, Romania: sap drunk. Serbia / Bulgaria: Furniture, casks, home goods, wood articles. Ukraine: wood for smoking (meat). Bulgaria / Serbia: wood for home goods, engravings.* (Batsatsashvili et al. 2017d; Bussmann et al. 2025o; Paniagua-Zambrana et al. 2025r)

**Uses 1817 (Gmelin 1817):** The seeds are known as beechnuts or beech acorns and are known to be good for fattening pigs. A good fuel oil is extracted from them, which, when thoroughly purified, is also added to meat as a tasty oil. Eating beechnuts causes dizziness and stupor. They lose this property when placed in hot water and freed from their epidermis, or when roasted like chestnuts, and can then be eaten without harm. The flour made from them should be used in times of scarcity or during times of high prices, especially since the pith left over after pressing the oil can be used for this purpose if it is thoroughly dried, ground, and mixed with half of the grain flour. However, they can also be used for this purpose without depriving them of their oil by proper cooking and drying (see Zückert Speis aus dem Pflanzenreich, p. 82). The oil cakes left over after pressing provide an excellent fattening feed for pigs, cattle, and poultry.

**Description and Ecology (Gmelin 1817):** This well-known tree, which forms large forests here and there in our mountainous regions, blooms in April and May. Its seeds ripen in October.

**Original German text Gmelin (Gmelin 1817):** Dieser bekannte Baum, welcher in unseren Gebirgsgegenden hie und da große Waldungen bildet, blühet im April und May. Reifet seine Samen im October. Die Samen sind unter dem Namen Bucheckern oder Bucheicheln bekannt, und geben eine bekannte gute Schweinmast. Aus ihnen wird ein gutes Brennöl geschlagen, welches hinlänglich gereinigt, auch als schmackhaftes Oehl an die Speißen genommen wird. Von dem Genuße der Bucheckern entstehen Schwindel und Betäubung. Sie verlieren diese Eigenschaft, wenn sie in heißes Wasser gelegt, und von ihrer Oberhaut befreyet, oder wie die Kastanien gebraten werden, und können alsdann ohne Nachtheil verspeist werden. Das aus denselben bereitete Mehl, sollte bei Mangel, oder in theuern Zeiten benutzt werden, besonders, da das nach dem Auspressen des Oels übergebliebene Mark hiezu benutzt werden kann, wenn solches gut getrocknet, gerieben, und mit der

Hälfte Getreidemehl vermischt wird. Indessen kann man sie ohne ihres Oels zu berauben, durch das gehörige Kochen und Trocknen, gleichfalls zu diesem Behuf anwenden, (s. Zückert Speißen aus dem Pflanzenreiche. S. 82.) Die nach dem Auspressen übrig gebliebenen Oelkuchen, geben den Schweinen, dem Rindvieh, und dem Geflügel ein vorzügliches Mastfutter.



Figure 35. *Fagus sylvatica* L. - KR 203688

***Fallopia convolvulus* (L.) Á.Löve**

*Synonyms:* *Bilderdykia convolvulus* (L.) Dumort.; *Fagopyrum carinatum* Moench; *Fagopyrum convolvulus* Gross; *Fagopyrum volubile* Gilib.; *Fallopia convolvulus* var. *subalatum* (Lej. & Court.) D.H.Kent; *Helxine convolvulus* Raf.; *Polygonum convolvulus* L.; *Reynoutria convolvulus* (L.) Shinnars; *Tiniaria convolvulus* Webb & Moq.

**Original name (Gmelin 1817):** *Polygonum Convolvulus*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 182. 183.

**German names and French names (Gmelin 1817):** Heckenbuchwinde; Renovée des Buissons.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs, annual. Stems twining, to 1-1.5 m, striate, papillate, branched at base. Petiole 1.5-5 cm; leaf blade small papillose abaxially, base cordate, margin entire, apex acuminate; ocrea short, membranous, oblique, not ciliate. Inflorescence axillary, racemose, interrupted; bracts narrowly ovate, apex acute, each 2-4-flowered. Pedicels longer than bracts, slender, margin white; tepals narrowly elliptic, unequal in size, outer 3 larger and keeled or narrowly winged on abaxial surface, slightly accrescent in fruit. Stamens 8. Styles 3, very short, stipitate. Achenes included in persistent perianth, black, opaque, ellipsoid, trigonous, 3-4 mm, finely granular. Flowering May-August, fruiting June-September (Wu *et al.* 1994-2013).

**Contemporary uses:** *Azerbaijan: Crushed aerial parts are used as a wound healing agent for cuts. The seeds are used as feed for poultry, honey plant.* (Mehdiyeva *et al.* 2025e).

**Uses 1817 (Gmelin 1817):** This plant deserves optimal use when cereals are scarce. The mealy seeds are easy to collect, produce a tasty, nutritious porridge, and can also be turned into flour. The freshly gathered herb provides healthy and pleasant food for cattle and pigs. In the absence of Tartar buckwheat, this plant, which tolerates cold very well, deserves to be planted and cultivated in the lean, higher-lying sandy regions of the Black Forest and Odenwald. This makes the herb larger, more tender, and tastier, and the seeds also stronger and richer in flour.

**Description and Ecology (Gmelin 1817):** The root is fibrous and white. The stem is 1-2 feet tall, twining, weak, angular, striped, somewhat rough, and branchy. The branches are alternate and twining. The leaves are stalked, alternate, heart-shaped, pointed, completely smooth, with reddish veins underneath. The leaf bases are truncated and entire. The flowers are borne in the leaf axils in grape-shaped clusters. The calyx is five-divided, triangular, and white-green. The seeds are triangular, black-brown, and covered with the calyx. It grows very frequently in fields, fallow land, and vineyards, preferring poor sandy soils, blooming in July and August, and ripening its seeds in September. It is an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig, weiß. Der Stengel 1 - 2 Fuß hoch, windend, schwach, eckig, gestreift, etwas rauh, ästig. Die Aeste abwechselnd, windend. Die Blätter gestielt, abwechselnd, herz-pfeilförmig, zugespitzt, ganz glatt, unterhalb rötlich geädert. Die Blattansätze abgestutzt und ganz. Die Blüten stehen in den Blattachsen, in traubenförmigen Büscheln. Der Blumenkelch fünfmal getheilt, dreyeckig, weißgrün. Der Same dreyeckig, schwarzbraun, mit dem Kelch bedeckt. Sie wächst sehr häufig auf Aeckern, Brachfeldern und in den Weinbergen, liebt die magern Sandfelder, blühet im Juli, August, reifet ihre Samen im September, und gehört zu den einjährigen Gewächsen. Diese Pflanze verdient bei Mangel an Cerealien bestens benutzt zu werden. Die mehligten Samen lassen sich sehr gut einsammeln, geben eine schmackhafte nährnde Grütze, und können auch in Mehl umgeschaffen werden. Dem Rindvieh und den Schweinen giebt das frisch gesammelte Kraut, eine gesunde und angenehme Nahrung. Diese Pflanze verdient, in Ermangelung des Tartarischen Buchweizens, indem sie die Kälte sehr gut verträgt, auf den magern höher liegenden Sandgegenden des Schwarzwaldes und Odenwaldes, angepflanzt und veredelt zu werden, wodurch das Kraut größer, zarter und schmackhafter, und die Samen ebenfalls stärker und mehreicher werden.

### ***Fallopia dumetorum* (L.) Holub**

**Synonyms:** *Bilderdykia dumetorum* Dumort.; *Bilderdykia pauciflora* Nakai; *Fagopyrum dumetorum* Schreb.; *Fagopyrum membranaceum* Moench; *Fagopyrum pauciflorum* (Maxim.) H.Gross; *Fallopia dumetorum* var. *dumetorum*; *Fallopia dumetorum* var. *pauciflora* (Maxim.) A.J.Li; *Fallopia pauciflora* (Maxim.) Kitag.; *Helxine dumetorum* Raf.; *Polygonum convolvulus* var. *pauciflorum* (Maxim.) Vorosch.; *Polygonum dumetorum* L.; *Polygonum pauciflorum* Maxim.; *Polygonum scandens* var. *dumetorum* (L.) Gleason; *Reynoutria scandens* var. *dumetorum* (L.) Shinnars; *Tiniaria dumetora* (L.) Nakai; *Tiniaria dumetorum* Opiz; *Tiniaria pauciflora* Nakai;

**Original name (Gmelin 1817):** *Polygonum dumetorum*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p. 183. 184.

**German names and French names (Gmelin 1817):** Buchwinde, Schwarzwinde, Heidelwinde, Wilder Buchweizen, Wildes Heidekorn; Renovée Liseronné

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

## KR 18837

**Botany and Ecology:** Herbs annual. Stems twining, 70-150 cm, striate, papillate, glabrous, much branched. Petiole 1-3 cm, papillate; leaf blade ovate-cordate, 3-6 × 1.5-4 cm, both surfaces glabrous, along veins minutely papillate, base cordate or sagittate, margin entire, apex acuminate; ocrea short, 2-3 mm, membranous, oblique, apex acute, not ciliate. Inflorescence usually axillary, racemose, lax, few or many flowered; bracts 1.5-2 mm, membranous, each 1-6-flowered. Pedicel 3-4 mm, slender, articulate, elongate in fruit. Perianth greenish, 5-parted; tepals elliptic, 2-3 mm, unequal in size, outer 3 larger and winged in fruit; wings entire, slightly decurrent along pedicels. Perianth (including wings) in fruit orbicular, 4-4.5 mm in diam. Stamens 8, included. Styles very short; stigmas capitate. Achenes included in persistent perianth, black, shiny, ellipsoid, trigonous, 3-3.5 mm, smooth. Fl. Jun-Aug, fr. Jul-Sep. (Wu *et al.* 1994-2013)

**Contemporary uses:** Sometimes used as forage. (Mehdiyeva *et al.* 2025e).

**Uses 1817 (Gmelin 1817):** The seeds and the herb, like the preceding species, can be used for human and livestock purposes in times of scarcity.

**Description and Ecology (Gmelin 1817):** The root is fibrous and white. The stem winds over hedges and bushes, weak, very long, striated, smooth, and branched. The branches are long, alternate, and twining. The leaves are alternate, stalked, heart-shaped, entire, and smooth. The leaf bases are membranous and small. The flowers are stalked in the leaf axils and arranged in clusters. The calyx is five-divided, whitish-green, with a membranous, translucent dorsal sharpness. The seed is ovoid-pointed, triangular, and yellow-brown. It grows frequently on fences, hedges, and bushes, on the edges of woodlands, around towns and villages, and in abundance in the Rhine, Neckar, and Main regions, where it often completely covers and wraps hedges along roads. It blooms in July and August, ripens its seeds in September and October, and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig, weiß. Der Stengel sich über Hecken und Gesträuche windend, schwach, sehr lang, gestreift, glatt, ästig. Die Aeste lang, abwechselnd, windend. Die Blätter abwechselnd, gestielt, herz-pfeilförmig, ganz, glatt. Die Blattansätze, hautartig, klein. Die Blüten in den Achseln der Blätter, gestielt, in Traubenbüscheln stehend. Der Blütenkelch fünfmal geteilt, weißlichgrün, mit einer häutigen durchscheinenden Rückenschärfe. Der Same eyförmig-zugespitzt, dreyeckig, gelbbraun. Sie wächst sehr häufig an Zäunen, Hecken und Gebüsch, am Rande der Waldungen, um Städte und Dörfer, und in Menge in den Rhein-, Neckar- und Main-Gegenden, wo sie die Hecken längst den Wegen hin, oft ganz überzieht und einwickelt, blühet im Juli, August, reifet ihre Samen im September, October, und gehört unter die einjährigen Gewächse. Die Samen, und das Kraut, können wie die vorhergehende Art, bei Mangel, bestens für Menschen und Vieh benutzt werden.

***Filipendula vulgaris* Moench**

**Synonyms:** *Filipendula denudata* (J.Presl & C.Presl) Fritsch; *Filipendula glauca* (Schultz) Asch. & Graebn. ex Dalla Torre & Sarnth.; *Filipendula megalocarpa* Juz.; *Filipendula subdenudata* Fritsch; *Filipendula ulmaria* f. *megalocarpa* (Juz.) T.Shimizu; *Filipendula ulmaria* subsp. *denudata* (J.Presl & C.Presl) Hayek; *Filipendula ulmaria* subsp. *megalocarpa* (Juz.) Shantser; *Filipendula ulmaria* subsp. *nivea* (Wallr.) Hayek; *Filipendula ulmaria* subsp. *pentapetala* Gilib. ex Dost I; *Filipendula ulmaria* subsp. *quinqueloba* (Baumg.) Podp.; *Filipendula ulmaria* subsp. *ulmaria*, *Filipendula ulmaria* var. *denudata* (J.Presl & C.Presl) Maxim.; *Filipendula ulmaria* var. *glaberrima* (Beck) Beck; *Filipendula ulmaria* var. *glauca* (Schultz) Asch. & Graebn.; *Filipendula ulmaria* var. *nivea* (Wallr.) Schinz & R.Keller; *Filipendula ulmaria* var. *subdenudata* (Fritsch) Schanzer; *Filipendula ulmaria* var. *tomentosa* (Cambess.) Maxim.; *Spiraea contorta* Stokes; *Spiraea denudata* J.Presl & C.Presl; *Spiraea filipendula* var. *tomentosa* Cambess.; *Spiraea glauca* Schultz; *Spiraea odorata* Gray; *Spiraea palustris* Salisb.; *Spiraea quinqueloba* Baumg.; *Spiraea ulmaria* L.; *Spiraea ulmaria* subsp. *denudata* (J.Presl & C.Presl) Schübler & G.Martens; *Spiraea ulmaria* subsp. *discolor* (W.D.J.Koch) Arcang.; *Spiraea ulmaria* var. *concolor* Neill.; *Spiraea ulmaria* var. *denudata* (J.Presl & C.Presl) Hayne; *Spiraea ulmaria* var. *discolor* Dumort.; *Spiraea ulmaria* var. *discolor* W.D.J.Koch; *Spiraea ulmaria* var. *glaberrima* (Beck) Rouy & E.G.Camus; *Spiraea ulmaria* var. *glabrescens* Rouy & E.G.Camus; *Spiraea ulmaria* var. *glauca* (Schultz) Wallr.; *Spiraea ulmaria* var. *incana* Desv.; *Spiraea ulmaria* var. *nivea* Wallr.; *Spiraea ulmaria* var. *tomentosa* Gaudin; *Spiraea ulmaria* var. *unicolor* Rouy & E.G.Camus; *Spiraea ulmaria* var. *viridis* Desv.; *Spiraea ulmaria* var. *viridis* Wallr.; *Spiraea unguiculata* Dulac; *Thecanisia discolor* (Pursh) Raf.; *Thecanisia ulmaria* (L.) Raf.; *Thecanisia ulmaria* (L.) Raf. ex B.D.Jacks.; *Ulmaria denudata* Opiz; *Ulmaria glauca* Fourr.; *Ulmaria obtusiloba* Opiz; *Ulmaria palustris* Moench; *Ulmaria palustris* var. *denudata* (J.Presl & C.Presl) Focke; *Ulmaria palustris* var. *glauca* (Schultz) Opiz; *Ulmaria pentapetala* Gilib.; *Ulmaria pentapetala* var. *denudata*

(J.Presl & C.Presl) Asch.; *Ulmaria pentapetala* var. *discolor* (W.D.J.Koch) Schinz & R.Keller; *Ulmaria pentapetala* var. *glauca* (Schultz) Asch.; *Ulmaria quinqueloba* Baumg.; *Ulmaria spiraea-ulmaria* Hill; *Ulmaria ulmaria* Barnhart; *Ulmaria vulgaris* Hill

**Original name (Gmelin 1817):** *Spiraea Filipendula*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 398. - 400.

**German names and French names (Gmelin 1817):** Rother Steinbrech, Haarstrang, Tropfwurzel, Filipendelwurz, Wildgarbe, Erdeicheln; Filipendule

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Threatened, decline

KR 251987 (Fig. 36)



Figure 36. *Filipendula vulgaris* Moench - KR 251987

**Botany and Ecology:** Perennial. The rootstock creeping, the stems are tall, 1-2 m high, simple or branching, indurate, ribbed, glabrous, densely leafy. The leaves are interruptedly pinnate, thick, glabrous, dark green above, thinly white-tomentose beneath. The large lateral leaflets 2-5 pairs, broadly ovate to ovate-lanceolate, acute, entire or slightly lobate, incised-serrate like the palmately 3-5-sect terminal leaflet. The intercalary leaflets are several pairs below the lateral, acutely toothed. The stipules are large, broadly cordate, dentate. The flowers are in dense panicle inflorescences up to 20 cm long, branches slightly covered with soft, wooly hairs. The flowers are numerous, small, 6-8 mm in diameter, aromatic. The petals are 5 or 6, obovate, long-clawed, and yellowish white. The stamens are twice as long as the petals. The 6-10 carpels are sessile and contorted. The fruitlets are about 3-4 mm long, spirally contorted, glabrous. The plant can be found in grassy bogs, boggy meadows, banks of the rivers, lakes, streams and ditches, damp meadows, and shrubby formations, forest edges, and fresh cut forest area. Caucasus, Europe. Flowering in June, fruiting in July. Distributed in the regions of Guba in the Greater Caucasus, mountainous part of Nakhchivan and mountainous part of Lankaran. Grows in wet meadows in the middle mountain belt. Flowering in June, fruiting in July. Distributed in the Greater and Lesser Caucasus of Georgia, mostly in premontane to subalpine humid to et pastures and at the border of wetlands. (Flora of Azerbaijan, 1950-1961).

**Contemporary uses:** *Romania: skin eruptions, wounds, erysipelas, psoriasis, astringent, anti-inflammatory, diaphoretic. Azerbaijan: Leaves, flowers and rhizome are prepared as water infusion and used in diarrhea and dysentery as astringent. Also used as anthelmintic. Leaves, flowers and rhizome are prepared as water infusion and the decoction is used in uterine, pneumonic, and intestinal hemorrhage, and for hemorrhoids. The water decoction of leaves and flower powder are used to treat colds, and as sudorific. The water decoction of leaves and root serves as diuretic. Georgia: The whole plant is used as tea to cure colds. Azerbaijan: Young shoots are used as salad. The rhizome is also edible. A tea is made from flowers. Azerbaijan: A dye solution is prepared from aboveground parts to obtain green and snuff colors. The solution is used for dyeing wool yarn as well as products made of wool. The roots are rich in tanning material and can be used for skin curing. Beautiful nectariferous plant, producing much nectar.* (Bussmann et al. 2025p; Paniagua-Zambrana et al. 2025s).

**Uses 1817 (Gmelin 1817):** The tuberous roots, freshly dug up in the fall, have a pleasant, spicy scent and a sweet, slightly bitter taste. Dug up or dried in the summer, their scent is less strong and pleasant. If thoroughly dried and ground into flour, they can be baked into a nutritious, tasty bread, often used in times of scarcity or real scarcity. Starch flour and a good brandy can be made from them. They provide good and pleasant food for pigs. This plant is occasionally grown in our gardens, both single and double, as an ornamental plant. Its flowers provide bees with plenty of wax.

**Description and Ecology (Gmelin 1817):** The root consists of many acorn-shaped, unequal, fleshy tubers, white on the inside and brownish on the outside, connected by long, thin filaments. The stem is 1-2 feet tall, erect, simple, angularly furrowed, and smooth. The root leaves are stalked. The stem leaves are alternately sessile, pinnately compound. The leaflets are somewhat alternate, sessile, lanceolate, and deeply toothed. The flowers end in an umbel. The calyx is six to eight times divided and reflexed. The corolla is white, slightly reddish on the outside, has six to eight petals, and is longer than the calyx. The seed capsules are oblong, pointed, compressed, bivalve, and single-seeded. Grows here and there, especially in dry and moist meadows, pastures, and among juniper bushes. It blooms in June and July. Its seeds ripen in August and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel bestehet aus vielen eichelförmigen, ungleichen, innen weißen, fleischigen, aussen bräunlichen Knollen, welche durch lange, dünne Fäden mit einander verbunden sind. Der Stengel 1 - 2 Fuß hoch, aufrecht, einfach, eckig-gefurcht, glatt. Die Wurzelblätter gestielt. Die Stengelblätter abwechselnd aufsitzend, unterbrochen gefiedert. Die Blättchen etwas abwechselnd, aufsitzend, lanzettförmig, unterbrochen tief gezähnt. Die Blüten in eine Afterdolde endigend. Der Blütenkelch sechs bis achtmal getheilt, zurückgeschlagen. Die Blumenkrone weiß, ausserhalb etwas röthlich, sechs bis achtblättrig, länger als der Kelch. Die Samenkapseln länglich, zugespitzt, zusammengedrückt, zweyschaalig, einsamig. Wächst hie und da vorzüglich häufig auf trockenen und feuchten Wiesen, Weiden, und zwischen den Wacholderstauden. Blühet im Juni, Juli. Reifet seine Samen im August, und gehört unter die ausdauernden Gewächse. Die im Herbste frisch ausgegrabenen knolligen Wurzeln, haben einen angenehmen gewürzhaften Geruch und einen süßlichen etwas bitterlichen Geschmack. Im Sommer ausgegraben, oder getrocknet, ist ihr Geruch weniger stark und angenehm. Sie können, wenn man sie gut trocknet und zu Mehl macht, zu einem nährenden schmackhaften Brode gebacken werden, dessen man sich in theuern Zeiten, oder bei wirklichen Mangel, öfters bedient hat. Es läßt sich Stärkemehl und ein guter Brandtwein aus ihr bereiten. Sie geben den Schweinen eine gute und angenehme Nahrung. Diese Pflanze wird hie und da in unsern Gärten, einfach und gefüllt, als Zierpflanze gezogen. Ihre Blüten geben den Bienen viel Wachs.

***Fraxinus excelsior* L.**

*Synonyms: Fraxinus appendiculata* Pers., *Fraxinus atra* hort. ex Dum.Cours., *Fraxinus bumelia* Bedevian, *Fraxinus excelsior* f. *antonii* Nyár., *Fraxinus excelsior* f. *argentea* (Dum.Cours.) Dippel, *Fraxinus excelsior* f. *argenteovariegata* (Weston) Schelle, *Fraxinus excelsior* f. *asplenifolia* (G.Kirchn.) Rehder, *Fraxinus excelsior* f. *aurea* (Willd.) Schelle, *Fraxinus excelsior* f. *aurea-pendula* (Dum.Cours.) Rehder, *Fraxinus excelsior* f. *aurea-punctata* Dippel, *Fraxinus excelsior* f. *aureopunctata* Beissner, *Fraxinus excelsior* f. *aureovariegata* (Weston) Rehder.

**Original name (Gmelin 1817):** *Fraxinus excelsior*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 793. 794.

**German names and French names (Gmelin 1817):** Hohe Esche, Gemeine Esche, Aschbaum, Asche, Aeschbaum, Eschern, Steineschern, Edelesche; Frêne élevé

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not rare but in strong decline due to introduced *Hymenoscyphus fraxineus*

**KR 184535** (Fig. 37); **184536** (Fig. 38)

**Botany and Ecology:** Tree, up to 30 m tall, the trunk up to 1 or rarely 2 m in diameter, the light gray bark with slender cracks; branchlets stout, the dark yellow bark verrucose-punctate; buds black, glabrous, rough; leaves imparipinnate, with 3-5 pairs of leaflets, the rachis dark red, paler toward the end; leaflets oblong-ovate, ovate-lanceolate, broadly lanceolate, or rarely lanceolate, 5-20 cm long, serrulate, long-mucronate, cuneate or rarely somewhat rounded at base, sessile or borne on very short petioles, not anastomosing, the primary veins covered with long straight whitish or rufescent hairs, the base of leaflet with a tuft or sometimes a complete ring of tangled tomentum; young leaflets thin, becoming coriaceous in age, green above, pale green to glaucescent beneath; flowers polygamous; stigma 2-lobed; samara 28-35 mm long, up to 9 mm broad, narrowly obovate, truncate or round-tipped or slightly emarginate, the body half the total length. Flowering April; fruiting September. Ural, Caucasus, Middle Asia, in *Quercus* and broadleaves *Picea* forests, up to 2000 m. (Shishkin and Boborov 1952).

**Contemporary uses:** *Azerbaijan: In Traditional medicine of medieval Azerbaijan, fruits and leaves were used as a wound healing, general tonic, and also for palpitations. The leaves were also applied to ulcers as an antiseptic. The bark of the tree was applied for traumatic injuries of soft tissues, and was also used as an anti-febrile, antihelminthic and laxative. Georgia: The leaves are sometimes pickled., the fruits are also pickled. Leaves used in phkhali. Azerbaijan: The seeds were eaten as a general tonic. Azerbaijan: A coloring solution is made from the leaves and bark to produce yellow and brown. The solution is used for dyeing woolen yarn, as well as products from it. Decorative. Georgia: Wood is used as a building material, as well as in the production of furniture. The bark contains a tannin, blue, black and brown dyes are obtained from it. The leaves contain vitamin. It is very decorative. Used in landscaping. Wood strong, elastic, heavy, flexible, easy to polish, for shipbuilding, construction, interior decoration, wagons, musical instruments, caskets, household utensils. Fodder for sheep, goats, cattle, horses, pigs (fruits). Planted as ornamental. Black and brown dyes can be obtained from the bark. Also used for firewood and to make utensils and tools. Macedonia / Albania: diuretic. Romania: acne, eczema, wounds, burns, leucorrhea, gynecological diseases, vulnerary, circulatory stimulant; madness and toothache. Serbia: bad breath, teeth cleaning; diuretic, depurative, antiseptic, antilithiasis, urinary disorders (cystitis). Morocco: The leaves, infused or decocted and used anticancer, anti-inflammatory, neuroprotective, antioxidant, anticytotoxic, antiaging, antimicrobial, antihypertensive and also for renal pathologies. in Lebanon: The leaves infused are used for rheumatism and for arthritis. In the Ural and Northern Caucasus, the leaf decoction is used for wound healing, diarrhea, as diuretic, laxative, rheumatism, kidney disease, arthritis and gout. In Middle Asia used as an astringent. Europe: sap drunk. Bulgaria: ritual use (power to prevent evil or bad luck, thunder and natural disasters) Bulgaria / Serbia: wooden home goods, engravings. Balkans: Dye for fibers. Ukraine: decoration of yards and homes for Pentecost. (Benaicha et al. 202; Bussmann et al. 2019e; 2025q; Paniagua-Zambrana et al. 2025t; Sher et al. 2021).*

**Uses 1817 (Gmelin 1817):** Its properties and uses are similar to those of the previous one. The dried leaves provide good winter fodder for cattle and sheep. The young, tender leaves can be eaten as a salad. This tree should be best planted and propagated in the valleys of mountainous regions, where it thrives in clay soil mixed with sand, which would greatly benefit the important beekeeping industry. Several North American maple species, such as *Acer dasycarpon* Ehrh. and *Acer rubrum* Linn., thrive in the Rhine, Neckar, and Main regions; they grow rapidly and should be planted there on a larger scale.

**Description and Ecology (Gmelin 1817):** This tree differs from the previous one (*Acer Platanoides*) in that it has larger, smooth, five-lobed leaves on both sides, the lobes of which are serrated and pointed. The larger, yellowish-green flowers

stand upright in umbels. The seeds have outwardly curved wings. Grows here and there in wooded mountainous regions and is frequently planted in pleasure gardens. It blooms in April and May. Its seeds ripen in August and September.



Figure 37. *Fraxinus excelsior* L. - KR 184535

**Original German text Gmelin (Gmelin 1817):** Dieser bekannte Baum hat ungleichpaarige gefiederte Blätter, deren Blättchen kurzgestielt, ey- lanzettförmig, am Rande gesägt, glatt und dunkelgrün sind. Die Blüthen sind ohne Kelch und Krone, beisammen gehäuft, und kommen aus den schwarzen Seitenknospen, ehe die Blätter ausschlagen, zum Vorschein. Die Samen sind lanzettförmig, geflügelt, aschgrau. Wächst in feuchten niedern und höheren Gegenden in Waldungen. Blühet im April, May. Reifet seine Samen im Juli, August, September. Die frischen und getrockneten Blätter, geben dem Rindvieh, den Schaafen und Ziegen, ein ergiebiges angenehmes Futter. Er verdient vorzüglich in feuchten öftern Ueberschwemmungen ausgesetzten Gegenden, so wie in den Thälern, an Bächen und Sümpfen bestens angepflanzt und vermehrt zu werden. Erreicht ein hohes Alter und eine ansehnliche Größe. Das Holz ist zum Bauen in feuchtem Boden dauerhaft, und von den

Wagnern, Schreibern, Drechslern und Faßbindern, vorzüglich gesucht, auch gibt es treffliche Weinpfähle, welche sehr dauerhaft sind. Die Anpflanzung geschieht durch Samen und Wurzelsprossen.



Figure 38. *Fraxinus excelsior* L. - KR 184536

#### ***Galeopsis tetrahit* L.**

*Synonyms: Galeopsis alpicola* Nyman; *Galeopsis beckii* (K.Malý) Dalla Torre & Sarnth.; *Galeopsis crenatifolia* Sennen; *Galeopsis gacognei* Nyman; *Galeopsis glaucocerata* P.Fourn.; *Galeopsis grandiflora* Suter; *Galeopsis ionantha* Borbás; *Galeopsis lactiflora* Borbás; *Galeopsis laramberguei* Martin-Donos; *Galeopsis leucantha* Jord.; *Galeopsis micheliana* Turra; *Galeopsis neglecta* Schult.; *Galeopsis nodosa* var. *praecox* (Jord.) St.-Lag.; *Galeopsis nodosa* var. *regularis* Gray; *Galeopsis nodosum* (Moench) Gray; *Galeopsis persetos* Borbás; *Galeopsis praecox* Jord.; *Galeopsis pseudotetrahit* P.Fourn.; *Galeopsis reichenbachii* Reut.; *Galeopsis silvestris* Borbás; *Galeopsis subatrensis* Borbás; *Galeopsis tetrahit* f. *alba* Farw.; *Galeopsis*

*tetrahit* f. *albiflora* House; *Galeopsis tetrahit* subsp. *glaucocerata* P.Fourn.; *Galeopsis tetrahit* subsp. *glaucoserata* P.Fourn.; *Galeopsis tetrahit* subsp. *parviflora* Ehrh.; *Galeopsis tetrahit* subsp. *praecox* (Jord.) Nyman; *Galeopsis tetrahit* subsp. *praecox* (Jord.) Rapin; *Galeopsis tetrahit* subsp. *reichenbachii* (Reut.) Nyman; *Galeopsis tetrahit* subsp. *verlotii* (Jord.) Nyman; *Galeopsis tetrahit* var. *arvensis* Schltldl.; *Galeopsis tetrahit* var. *beckii* K.Malý; *Galeopsis tetrahit* var. *idiotropa* Briq.; *Galeopsis tetrahit* var. *lazistanica* Briq.; *Galeopsis tetrahit* var. *minor* H.Post; *Galeopsis tetrahit* var. *pallens* Fr.; *Galeopsis tetrahit* var. *pallens* Wahlenb.; *Galeopsis tetrahit* var. *praecox* (Jord.) Gren.; *Galeopsis tetrahit* var. *reichenbachii* (Reut.) Rapin; *Galeopsis tetrahit* var. *sylvestris* Schltldl.; *Galeopsis tetrahit* var. *verlotii* (Jord.) Briq.; *Galeopsis tetrahit* var. *versicolor* Wahlenb.; *Galeopsis tetrahit* var. *vulgaris* Gren.; *Galeopsis urticifolia* Salisb.; *Galeopsis verlotii* Jord.; *Ladanum tetrahit* (L.) Kuntze; *Lamium tetrahit* (L.) Crantz; *Tetrahit grandiflorum* Gilib.; *Tetrahit leucanthum* Fourn.; *Tetrahit navieri* Fourn.; *Tetrahit nodosum* Moench; *Tetrahit praecox* (Jord.) Fourn.; *Tetrahit purpurascens* Gilib.; *Tetrahit reichenbachii* (Reut.) Fourn.;

**Original name (Gmelin 1817):** *Galeopsis Tetrahit*. Linn. Sp. pl. - Gmel. Fl. Bad. II. p. 621. - 623.

**German names and French names (Gmelin 1817):** Nesselhanf, Wald- und Ackerwuth, Große Hanfnessel, Breitblättrichter Holzzahn; Galeope pourpré

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 182332; 182333** (Fig. 39)

**Botany and Ecology:** Annual; stem (5) 10—40, sometimes more than 50 cm long, erect, mostly branched, sturdy, inflated under nodes and covered on the swellings with retrorse bristles, these often interspersed with glandular hairs (these with large red or almost black heads), the internodes mostly with scattered bristles or subglabrous; leaves 3-8 cm long, 1.5-5 cm broad, on petiole 1 to 4 cm long, ovate lanceolate or ovate, mostly rounded at base, acuminate, with 4 to 12 fairly long teeth at each side, hairy, mostly without sessile glands beneath; bracts lanceolate, subulate-pointed; calyx 10- 12 mm long, mostly setiferous, prominently nerved; calyx teeth rigid, subulate, about as long as the tube; corolla ca. 1.5 cm long, hairy outside, the tube slightly longer than calyx teeth, mainly purple, more rarely white; upper lip oval, unevenly toothed at apex; middle lobe of lower lip quadrangular or oblong, obtuse at apex (not emarginate), 2 mm broad, flat, with a bright yellow spot at throat and markings in the shape of fine-mesh purplish-brown network, covering only the basal part (not more than two-thirds of length and width of the surface); nutlets obovoid, 2.74-3 mm long, 2-2.25 mm broad and 1.25 mm thick, somewhat flattened, rounded outside, 2-faced on the inside, with a rounded oblique areola, finely tuberculate, dark gray, black-marbled, with more numerous spots than in other species of *Galeopsis* except *G. bifida* Boenn. July-August. Woods and coppices, felling areas, rubbish heaps and vacant lots, roadsides, vegetable gardens, orchards, waste land, field boundaries, fallows, and arable land (especially summer crops). (Flora of Azerbaijan, 1950-1961).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** The ripe seeds of this plant are used in Thuringia and some other places to make a mild oil, which is wine-yellow and is especially used for distilling. One pound of seeds yields approximately half a pint of oil. Since this plant grows so abundantly here and in neighboring countries, it deserves to be used as an excellent oil material, especially in our Rhine and Neckar regions, in the Black Forest, in Fürstenberg, and on Lake Constance. Last year, I saw it in incredible quantities on the light forest slopes in the Danube Valley, near Möskirch, and at the new royal court on Lake Constance.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 1.5-3 feet tall, erect, quadrangular, hairy, with thickened segments, branched. The branches are opposite. The leaves are opposite, stalked, ovate, pointed, coarsely serrate, and hairy. The flowers are whorled. The upper whorls are close together. The calyx is single-leaved, tubular, bulbous, short, and five-toothed. The teeth are long and bristle-like. The corolla is purple, sometimes white, finely hairy, twice as large as the calyx, and lip-shaped. The throat is wide, with two raised, blunt horns at the base of the lower lip, hollow below. The upper lip is arched and slightly notched. The lower lip is triangular, its lateral sections rounded, the middle one larger, rimmed, and notched. Four triangular seeds are located at the base of the calyx. Grows in the Rhine, Main, and Neckar regions, in low-lying and higher mountain forests, in forest clearings, on the cleared, light slopes of valleys, especially in the Black Forest and Odenwald, and in the Hardwald forest where dark forests have been introduced, and in similar light forests, also along paths, hedges, and fences, consistently in large numbers. It blooms in July and August. Its seeds ripen in September and October, and is classified as an annual.



Figure 39. *Galeopsis tetrahit* L. - KR 182333

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel  $1\frac{1}{2}$  - 3 Fuß hoch, aufrecht, viereckigt, rauhaarig, mit verdickten Gliedern, ästig. Die Aeste gegenüberstehend. Die Blätter gegenüberstehend, gestielt, eyrund, zugespitzt, grob gesägt, rauhaarig. Die Blüten quirlförmig. Die oberen Quirl nahe beisammen stehend. Der Blütenkelch einblättrig, röhrenförmig, bauchig, kurz, fünfgezahnt. Die Zähne lang, borstenförmig. Die Blumenkrone purpurfarben, zu Zeiten weiß, feinhaarig, noch einmal so groß als der Kelch, lippenförmig. Der Schlund weit, am Grunde der Unterlippe mit zwey erhabenen unten hohlen stumpfen Hörnchen versehen. Die Oberlippe gewölbt, etwas gekerbt. Die Unterlippe dreispaltig, ihre Seitenabschnitte rundlich, der mittlere größer, ausgerandet, und gekerbt. Samen 4 dreyeckige, welche im Grunde des Kelchs stehen. Wächst in den Rhein, Main- und Neckargegenden, in nieder- und höherliegenden Bergwäldungen, in Waldschlägen, an den abgeholzten lichten Abhängen der Thäler, vorzüglich im Schwarzwalde, und Odenwalde, und im Hardwald wo die Dunkelhiebe eingeführt sind, und in ähnlichen lichten Wäldungen, ferner an den Wegen, Hecken, Zäunen, durchgängig in großer Menge. Blühet im Juli, August. Reifet ihre Samen im September, October, und gehört unter die einjährigen Gewächse. Die reifen Samen dieser Pflanze, werden in Thüringen und an einigen andern Orten, auf ein mildes

Oehl benutzt, welches weingelb ist, und vorzüglich zum Brennen gebraucht wird. Ein Pfund Same giebt ohngefähr einen halben Schoppen Oehl. Da diese Pflanze so häufig bei uns, und in den angrenzenden Ländern wächst verdient sie, als ein vorzügliches Oehlmaterial, und das besonders in unsern Rhein- und Neckargegenden, im Schwarzwalde, im Fürstenbergischen und am Bodensee, benutzt zu werden. In unglaublicher Menge, sahe ich sie im vorigen Jahre, an den lichten Wald-Abhängen im Donauthal, ohnweit Möskirch, und an dem neuen Königshof, am Bodensee.

***Glyceria fluitans* (L.) R.Br.**

*Synonyms: Desvauxia fluitans* P.Beauv. ex Kunth; *Festuca fluitans* L.; *Festucaria heisteri* Fabr. ex Steud.; *Glyceria acuminata* Schur; *Glyceria denticulata* Dumort.; *Glyceria fluitans* var. *acutiflora* Döll; *Glyceria fluitans* var. *ascendens* Wahlenb.; *Glyceria fluitans* var. *denticulata* Dumort.; *Glyceria fluitans* var. *festucea* Fr.; *Glyceria fluitans* var. *inflata* H.Post; *Glyceria fluitans* var. *integra* Dumort.; *Glyceria fluitans* var. *islandica* Á.Löve; *Glyceria fluitans* var. *maritima* Gray; *Glyceria fluitans* var. *terrestris* Gray; *Glyceria fluitans* var. *triticea* (Fr.) Andersson; *Glyceria fluitans* var. *vivipara* Gray; *Glyceria integra* Dumort.; *Hydrochloa fluitans* (L.) Hartm.; *Melica fluitans* (L.) Raspail; *Molinia fluitans* (L.) Hartm.; *Molinia plicata* Hartm.; *Panicularia brachyphylla* Nash; *Panicularia fluitans* (L.) Kuntze; *Poa barrelieri* Biv.; *Poa fluitans* (L.) Scop.

**Original name (Gmelin 1817):** *Festuca fluitans*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 151. 152. 153. - Schreb. Gräs. I. tab. 3.

**German names and French names (Gmelin 1817):** Manna-Gras, Schwimmender Schwingel, Manna-Schwingel, Schwaden, Schwadengras; Fétuque flottante

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial. Rhizomes creeping; culms geniculate-ascending, to 1 m tall and 1-4mm thick, more rarely 10-15cm tall (var. *pumila* Wimm. et Gr.); leaves scaberulous on the margin and on the underside, fairly thick, 6-13 cm long and 2-7 mm broad (9mm on the thickened culm in var. *latifolia* Beck.); leaf sheaths almost entirely covering the nodes; ligules 5-7 mm long, cleft at the end. Panicle narrow, 10-35 cm long; panicle branches secund, appressed to main axis before and after anthesis, more rarely inflorescence subracemiform (var. *loliacea* Asch. u. Gr.), spikelets appressed, linear-cylindrical, 7-11-flowered, 10-20 mm long and at most to 3 mm broad; glumes white, membranaceous, ovate, acute; lemmas 4-6 mm long, oval-linear or oblong-ovate, short-acuminate, prominently 7-nerved; anthers purple; caryopsis brown, 3 mm long and 0.75 mm broad. May-June and later. Flood meadows, borders of ponds and lakes, streams and peat trenches, canals, ect., often in considerable quantity. (Flora of Azerbaijan, 1950-1961)

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This grass is leafy, sweet, nutritious, and despite its strong stalks, soft, and an excellent and pleasant fodder for horses, cattle, and pigs, which eat it eagerly. It can be cultivated with the greatest profit in meadows that do not dry out, where it multiplies very vigorously in a short time, both through the seeds that fall during the summer and through the roots and runners. It is mown underwater, as far as the scythe can reach, and as far as the grass is free of mud and debris, the water is allowed to run off clean, and the grass is fed when it is dry. It can be mown two or three times from April to September and is of considerable yield. The seed has a very thin, brown shell that is easily separated and encloses a firm, transparent, mealy substance. It has a sweet and pleasant taste, especially before it has reached full maturity. It is a pleasant food for ducks, geese and other waterfowl, and is also loved by fish, which thrive in the ponds, lakes and streams where this grass grows. It is a tasty and nutritious food not only for birds and fish, but also for humans, and as such has long been known, even on the tables of the rich and the wealthy, under the names manna porridge, manna swathes, Polish swathes, Prussian swathes, or Frankfurt swathes. Since the collection and use of these manna swathes is hitherto unknown and entirely neglected in the Rhineland region, it may be necessary to briefly outline the known and various methods of collection, storage, and use. The usual method of collecting and preparing manna swathes in Poland, Prussia, and the March is as follows: Early in the morning, at sunrise, the ripe seeds are beaten from the still-moist grass into a sieve made of horsehair, or the sieve is moved back and forth against the grass until the seeds fall into it. Once you have gathered a fair amount of seed, it is spread out on a white linen cloth and dried in the sun for 14 days. The well-dried seed is poured into a tamping trough, straw or reeds placed between them, and then gently pounded with a wooden stamp until the husks are removed. Afterward, it is winnowed and cleaned of all impurities. It is then placed in the same tamping trough again, where it is layered with dried marigolds, or apple and hazel leaves, and pounded until the black husk is removed and the groats acquire their shine. The marigolds are said to contribute somewhat to enhancing the color, but this is probably based on imagination. When the groats have acquired their shine, they are thoroughly cleaned by frequent winnowing and sweeping

and are then ready for sale. The archaeologist and knight Linnaeus described the method of collecting and preparing manna husks in Scania in his *Travels in Scania* as follows: When the seed has reached its proper ripeness, which it achieves after Midsummer and during the hay month, it is gathered using a sieve a foot wide, with holes so small that the grains cannot fall through. One grasps the sieve with both hands held close together, so that four fingers are inside the frame of the sieve and the thumb is outside. This sieve is passed through the ripe ears early in the morning, while the dew still lies on the grass, or immediately after rain, back and forth from one side to the other, where the seed and its husks fall off and into the sieve. In this way, a few people can collect a whole bushel in just a few hours in places where grass grows abundantly. After collection, the grains are spread out on a cloth in the sun and allowed to dry. The cleaning or separation of the husks and husk, which gives the husk a light, yellow color, takes place in a wooden mortar. This wooden mortar is a perpendicular, round or octagonal piece of oak trunk, 1.5 ells high, 2.5-quarters wide, with a round, elongated hollow that tapers towards the bottom, 2-quarters wide and 3-quarters deep. It comes with two beechwood clubs, which are slightly pointed at both ends but rounded, and so thick that one can barely grasp them with the two front fingers but are otherwise two ells long and are somewhat thinner in the middle, where they must be grasped with both hands. Now, when the seed is to be crushed, one sprinkles a handful of Heckerling mushrooms on the bottom of the mortar, then a handful of the dried seed, then another handful of Heckerling mushrooms. Two people then stand opposite each other and crush as quickly as they can, but the clubs must not be raised higher than halfway up the inner cavity, so that the grains do not burst out. This is continued until the husks are completely off, after which they are ridden and swung in a wing. When the seed has been made fairly clean in this way and the black grains have been obtained, one takes a handful of Heckerling mushrooms and puts them in the mortar, then a handful of black grains, then another handful of Heckerling mushrooms, and then a second handful of black grains, and finally another handful of Heckerling mushrooms on top. This is pounded together until the black husk falls off completely, after which the grains are thoroughly cleaned by grinding and rocking. If the grains do not immediately turn yellow all over, they are layered again with sorghum and pounded until completely yellow and then cleaned in the same way. When pounding, care must be taken to hit the center of the bottom, otherwise the grains will pop out at the side and be lost. This can be prevented by creating a small rim around the opening of the mortar. From a bushel of cleaned seeds contained in the husks, one generally obtains two cans of groats. Cooked with meat broth, milk, or wine, manna groats make a pleasant, very tasty, healthy, and nourishing dish, which surpasses the well-known sago in tastiness and, like the latter, swells considerably when cooked. It is usually taken uncrushed and unground, just as the grain comes out of the mill after its husk has been removed. Sometimes the flour is also used, which, except for rice flour, surpasses most other flours in flavor, but is more suitable for all kinds of nourishing and healthy, tasty, porridge-like foods and soups than for baked goods, because, like rice flour, it does not ferment well. For this purpose, the steam is either ground in a mill or pounded in a mortar and then sieved through a fine sieve.

**Description and Ecology (Gmelin 1817):** The root is segmented, deep-creeping, and fibrous. The stems are 2, 4, or 6 feet long, with the lower, smooth, white part sticking in the mud. The upper part is slightly bent back, shiny, light green, and overall somewhat compressed on both sides, smooth, and striped. The lower part produces many branches. The leaves below the water are very long; those that reach the surface float on it and follow the direction of the water. Those above the water are short, but all broad, with slightly serrated and pointed edges, smooth on both sides, dull green, grooved, and with a soft edge on the underside. The panicle is a bar and long above that; its branches arise on two opposite sides, single or double, of unequal length, each with a spikelet. The spikelets lie close together on the arm of the panicle, are almost cylindrical, slightly pointed at the top and bottom, and composed of 8-10 flowers. The two follicles are shorter than a single flower, lanceolate, smooth, with white edges; the lower one is much shorter, narrower, and more pointed than the upper one. The outer glume on each flower is lanceolate, somewhat bulbous, pointed, with a white edge and flat, raised ribs on the back, smooth, green or tinged with red. The inner one is shorter, narrower, bifid, membranous, with joined edges, and a green streak on each side that ends in a sharp point. The seed is elongated, slightly compressed, raised on one side, slightly scalloped in the middle on the other, smooth, dark brown, and enclosed in husks, which remain attached to it when it falls off. This grass grows in both still and flowing water, on river banks, in streams, ditches, and wet meadows, and is especially common in the Rhine, Danube, Neckar, and Main regions, which are frequently subject to flooding, as well as on other rivers, ponds, oxbow lakes, and on Lake Constance, in the Baar region in Fürstenberg, and many other places. The deeper the water in which it grows, the longer, more leafy, and more lush it is. It blooms throughout the summer, ripens its seeds in July, August, September, and October, and is considered a perennial grass.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel gegliedert, tiefkriechend, faserig. Die Halme 2 - 4 - 6 Fuß lang, mit dem untern weissen glatten Theile, im Schlamme steckend, der obere Theil derselben etwas zurückgebogen, glänzend, hellgrün, im ganzen von beiden Seiten etwas zusammengedrückt, glatt und gestreift. Das Untertheil derselben treibt viele Aeste. Die Blätter unter dem Wasser, sind sehr lang, diejenigen, welche die Oberfläche des Wassers erreichen, schwimmen auf derselben, und folgen der Richtung des Wassers; die ausser dem Wasser sind kurz, alle aber breit, am Rande etwas

ausgezackt, zugespitzt, auf beiden Seiten glatt, mattgrün, rinnenförmig, mit einer weichen Schneide auf der untern Seite. Die Rispe ist eine Spange und darüber lang, ihre Aeste stehen nach zwey entgegengesetzten Seiten, einzeln oder gedoppelt, von ungleicher Länge, jedes mit einem Aehrchen. Die Aehrchen liegen an dem Arm der Rispe dicht an, sind fast walzenförmig, unten und oben etwas zugespitzt, und aus 8 - 10 Blüten zusammengesetzt. Die zwey Bälglein sind kürzer, als eine einzelne Blüthe, lanzettförmig zugespitzt, glatt, mit weissen Rändern; das untere viel kürzer, schmaler und spitziger, als das obere. Die äussere Spelze an jeder Blüthe, ist lanzettförmig, etwas bauchig, zugespitzt, mit einem weissen Rande, und flach erhabenen Rippen, auf dem Rücken, glatt, grün oder ins röthliche gehend. Die innere ist kürzer, schmaler, zweispaltig, häutig, mit zusammen gelegten Rändern, und einem grünen Striche an jeder Seite, der sich in eine scharfe Spitze endigt. Der Same ist länglich, etwas zusammengedrückt, auf einer Seite erhaben, auf der andern in der Mitte etwas ausgekehlt, glatt, dunkelbraun, und in den Spelzen eingeschlossen, welche daran hängen bleiben, wenn er abfällt. Dieses Gras wächst in stillestehenden sowohl als in fließenden Wassern, an den Ufern der Flüsse, in Bächen, Wassergräben, auf nassen Wiesen, und vorzüglich häufig in den Rhein-, Donau-, Neckar-, und Main-Gegenden, die öfters Ueberschwemmungen ausgesetzt sind, so wie an andern Flüssen, auf Teichen, Altwassern, und am Bodensee, in der Baar im Fürstenbergischen und vielen andern Orten. Je tiefer das Wasser ist, worin es wächst, desto länger, blattreicher und üppiger ist es. Es blühet den ganzen Sommer hindurch, reifet seine Samen im Juli, August, September, Oktober, und gehört unter die ausdauernden Gräser. Dieses Gras ist blattreich, süß, nahrhaft, und ohnerachtet seiner starken Halme, weich, und ein vorzüglich gutes und angenehmes Futter für Pferde, Rindvieh und Schweine, welche es sehr gerne fressen. Es kann auf solchen Wiesen, die sich nicht austrocknen lassen, mit dem größten Nutzen angebauet werden, wo es sich in kurzer Zeit, sowohl durch den Samen, welcher den Sommer über ausfällt, als auch durch die Wurzeln und Ausläufer sehr stark vermehrt. Man mähet es unter dem Wasser, so weit die Sense reichen kann, und so weit das Gras vom Schlamme und Unrath rein ist, läßt das Wasser rein ablaufen, und verfüttert das Gras, wenn es trocken ist. Es läßt sich vom April bis in September zwey bis dreymal mähen, und ist von beträchtlichem Ertrage. Der Same hat eine braune sehr dünne Schale, die sich leicht absondern läßt, und eine feste durchsichtige mehlig Substanz einschließet. Er ist von einem süßen und angenehmen Geschmacke, besonders ehe er seine völlige Reife erlangt hat. Er dienet den Enten, Gänsen und andern Wasservögeln zu einer angenehmen Speise, auch lieben ihn Fische, welche in den Teichen, Seen und Bächen, wo dieses Gras wächst, trefflich gedeien. Er ist aber nicht nur für Vögel und Fische, sondern auch für die Menschen, eine wohlschmeckende und nahrhafte Kost, und als solche bereits seit langer Zeit, selbst auf den Tafeln der Reichen und Großen, unter dem Namen Mannagrütze, Mannaschwaden, Polnische Schwaden, Preussische oder Frankfurterische Schwaden bekannt. Da die Einsammlung und Benutzung dieser Mannaschwaden in den Rheinischen Gegenden bisher unbekannt ist, und gänzlich vernachlässigt wurde, dürfte es nöthig seyn, die bekannten und verschiedenen Arten der Einsammlung, Aufbewahrung und Benutzung hier in der Kürze anzugeben. Die in Pohlen, Preußen und der Mark gewöhnliche Art, die Mannaschwaden zu sammeln und zuzubereiten ist folgende: Man schlägt den reifen Samen früh bei aufgehender Sonne von dem noch feuchten Grase, in ein von Pferdehaaren gemachtes Sieb, oder rühret das Sieb hin und her dem Grase entgegen, daß der Same hineinfällt. Wenn man eine ziemliche Menge Samen beisammen hat, wird derselbe auf einem weissen leinenen Tuche ausgebreitet, und 14 Tage an der Sonne getrocknet. Der wohlgetrocknete Same, wird in einen Stampftrog geschüttet, Stroh oder Schilf dazwischen gelegt, und sodann mit einem hölzernen Stempel mäßig gestoßen, daß die Spelzen abgehen; worauf er geworfelt, und von aller Unreinigkeit gesäubert wird. Alsdann kommt er noch einmal in eben den Stampftrog, in welchen er schichtenweise mit getrockneten Ringelblumen, oder Aepfel- und Haselblättern eingelegt, und so lange gestampft wird, bis die schwarze Schale herunter ist, und die Grütze ihren Glanz bekommt. Die Ringelblumen sollen etwas zur Erhöhung der Farbe beytragen, welches aber wohl auf der Einbildung ruhet. Wenn die Grütze ihren Glanz erhalten hat, so wird sie durch oftmaliges Worfeln und Abkehren, völlig gereinigt, und ist sodann zum Verkaufe fertig. Die in Schonen gebräuchliche Art, die Mannaschwaden zu sammeln, und zuzubereiten, hat der Archiater und Ritter von Linné, in seiner schonischen Reise, auf folgende Art beschrieben: Wenn der Same seine gehörige Reife hat, welche er nach Johannis und im Heumonte erlangt, so wird er mittels eines Ellenweiten Siebes, welches so kleine Löcher hat, daß die Körner nicht durchfallen können, eingesammelt. Man fasset das Sieb mit beiden, dicht aneinander gehaltenen Händen, so daß vier Finger, in den Rahmen des Siebes innwendig, und der Daumen auswendig liegen. Dieses Sieb führt man des Morgens früh, wenn der Thau noch auf dem Grase lieget, oder gleich nach einem Regen, durch die reifen Aehren hin und wieder von einer Seite zur andern, da denn der Same mit seinen Spelzen ab, und in das Sieb fällt. Auf diese Art können ein paar Personen, an solchen Orten, wo das Gras häufig wächst, in Zeit vor ein paar Stunden, einen ganzen Scheffel sammeln. Nach der Einsammlung breitet man die Körner auf einem Tuche in der Sonne aus, und läßt sie trocken werden. Die Reinigung oder Absonderung der Spelzen und Schaale, wobey die Schwaden eine helle und gelbe Farbe bekommt, geschieht in einem hölzernen Mörser. Dieser hölzerne Mörser, ist ein perpendikulair ausgearbeitetes, rundes oder achteckiges Stück von einem Eichenstamme  $1\frac{1}{2}$  Elle hoch,  $2\frac{1}{2}$  Viertel breit, mit einer runden länglichen unten schmaler zulaufenden Höhlung, im Lichten 2 Viertel breit, und 3 Viertel tief. Hierzu gehören zwey Keulen von Buchenholz, die an beiden Enden etwas spitzig, doch abgerundet, und so dick sind, daß man sie kaum mit den zween vordersten Fingern umfassen kann, übrigens aber zwey Ellen lang, und in der Mitte, wo sie mit beiden Händen angefaßt werden müssen, etwas

dünner gearbeitet sind. Wenn nun der Same gestoßen werden soll, so streuet man eine Hand voll Heckerling auf den Boden des Mörsers, darauf eine Hand voll von dem getrockneten Samen, sodann wieder eine Hand voll Heckerling; da sich dann zwey Personen einander gegenüber stellen, und so hurtig, als sie können, stoßen, wobey aber die Keulen nicht höher als auf die Hälfte der innern Höhlung gehoben werden müssen, daß die Körner nicht ausspringen. Dieses wird so lange fortgesetzt, bis die Spelzen ganz herunter sind, darauf sie gereitert, und in einer Schwinge geschwungen werden. Wenn man den Samen auf diese Art ziemlich rein gemacht und die schwarzen Körner erhalten hat, so nimmt man eine Hand voll Heckerling, und thut sie in den Mörser, hierauf eine Hand voll schwarze Körner, sodann wieder eine Hand voll Heckerling, und darauf die zweite Hand voll schwarzer Körner, endlich oben darauf noch eine Hand voll Heckerling; dieses wird zusammen so lange gestoßen, bis die schwarze Schaale ganz herunter geht, da denn die Körner durch Reitern und Schwingen völlig gereinigt werden. Sollten die Körner nicht gleich überall gelb werden, so werden sie nochmals mit Heckerling schichtweise eingelegt und gestoßen, bis sie ganz gelb sind, und hernach auf vorhergehende Art gereinigt. Bei dem Stoßen ist in acht zu nehmen, daß man mitten auf den Boden stoßen muß, sonst springen die Körner auf der Seite heraus und gehen verlohren, welchem man zuvorkommen könnte, wenn man einen kleinen Rand um die Oeffnung des Mörsers machte. Von einem Scheffel gereinigten in den Spelzen befindlichen Samen, erhält man mehrentheils zwey Kannen Grütze. Die Mannagrütze giebt mit Fleischbrühe, Milch oder Wein gekocht, eine angenehme sehr wohlschmeckende, gesunde und nährende Speiße, welche den bekannten Sago an Schmackhaftigkeit übertrifft, und im Kochen wie dieser sehr aufquillt. Man nimmt sie gemeinlich ungestoßen und ungemahlen, so wie das Korn nach Absonderung seiner Haut aus der Stampfe kommt. Zuweilen wird auch das Mehl davon verbraucht, welches an Geschmacke ausser dem Reismehle, die meisten andern übertrifft, aber mehr zu allerley nährenden und gesunden schmackhaften breyartigen Speißen und Suppen, als zu Backwerke dienlich ist, weil es wie das Reismehl nicht wohl fermentiert. Die Schwaden werden zu dem Ende, entweder in einer Mühle gemahlen, oder in einem Mörser gestoßen, und hernach durch ein feines Sieb gesiebet.

***Glyceria maxima* (Hartm.) Holmb.**

*Synonyms:* *Catabrosa hydrophila* Link; *Exydra aquatica* (L.) Endl.; *Festuca aquatica* (L.) Mutel; *Glyceria altissima* Garcke; *Glyceria aquatica* (L.) Wahlb.; *Glyceria aquatica* subsp. *densiflora* Waisb.; *Glyceria aquatica* subsp. *umbrosa* (Junge) Waisb.; *Glyceria aquatica* var. *flavescens* Peterm.; *Glyceria aquatica* var. *laxa* Hegi; *Glyceria aquatica* var. *pallens* Klett & Richt.; *Glyceria aquatica* var. *scabra* Peterm.; *Glyceria maxima* f. *acuta* (Peterm.) Soó; *Glyceria maxima* f. *scabra* (Peterm.) Soó; *Glyceria maxima* subsp. *micrantha* H.Scholz; *Glyceria spectabilis* Mert. & W.D.J.Koch; *Glyceria spectabilis* f. *acuta* Peterm.; *Glyceria spectabilis* var. *acuta* Peterm.; *Glyceria spectabilis* var. *laevis* Peterm.; *Glyceria spectabilis* var. *scabra* (Peterm.) Peterm.; *Glyceria spectabilis* var. *vivipara* Mert. & W.D.J.Koch; *Heleochoa aquatica* (L.) Drejer; *Heleochoa aquatica* (L.) Fr.; *Hydrochloa aquatica* (L.) Hartm.; *Hydropoa spectabilis* (Mert. & W.D.J.Koch) Dumort.; *Melica aquatica* (L.) Weber ex P.Beauv.; *Melica aquatica* Weber. ex P.Beauv.; *Molinia maxima* Hartm.; *Panicularia aquatica* (L.) Kuntze; *Poa aquatica* L.; *Poa aquatica* var. *vivipara* Gray

**Original name (Gmelin 1817):** *Poa aquatica*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 177. 178.

**German names and French names (Gmelin 1817):** Wasserrispengras, Sumpfrispengras, Hohes Wasserviehgras, Großer Miliz; Paturin aquatique

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 51797**

**Botany and Ecology:** Perennial, rhizomatous; rhizomes long, thick. Culms stout, erect, 80-200 cm tall, up to 10 mm in diam. Leaf sheaths smooth or scabrid toward blade; leaf blades flat, light green, 25-50 cm × 8-16 mm, with transverse veinlets, abaxial surface scabrid, adaxial surface smooth or sparsely scabrid, apex acute; ligule 2-4 mm. Panicle ovate to oblong in outline, usually laxly contracted, 20-40 cm, exserted, spikelets many; branches 4-10 per node, obliquely ascending, relatively thick, scabrid. Spikelets narrowly oblong, 5-12 mm, florets 5-10, yellowish green or purple tinged; rachilla internodes smooth; glumes narrowly ovate, 1-veined, lower glume 2-3 mm, upper glume 3-4 mm, subacute; lemmas oblong, 3-4 mm, thinly herbaceous, 7-veined, veins scabrid, apex membranous, broadly obtuse; palea as long as lemma, keels wingless, scabrid. Stamens 3, anthers 1.2-1.8 mm. Fl. May-Jul.  $2n = 28, 56, 60$ . (Wu *et al.* 1994-2013 )

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** It deserves special attention in wet seasons, as it provides cattle, especially oxen, with a pleasant and healthy diet in the spring, both fresh and dried.

**Description and Ecology (Gmelin 1817):** The root is creeping. The stalk is 4-5-6 feet tall, erect, round, thick, striped, and leafy. The leaves are very broad, flat, and usually wavy toward the tip. The panicle is spreading and very large. The somewhat compressed, narrow spikelets have six to ten flowers. This handsome, strong grass grows frequently along rivers, streams, ditches, swamps, ponds, oxbows, and lakes, and in abundance in stretches subject to flooding, along the Rhine, Neckar, Main, Danube, and other rivers. It blooms in July and August, its seeds ripen in September and October and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend. Der Halm 4-5-6 Fuß hoch, aufrecht, rund, dick, gestreift, blätterig. Die Blätter sehr breit, flach, gegen die Spitze hin meistens wellenförmig. Die Rispe ausgebreitet, sehr groß. Die etwas zusammengedrückten schmalen Aehrchen sechs - zehnlüthig. Dieses ansehnliche starke Gras, wächst häufig an Flüssen, Bächen, Wassergräben, Sümpfen, Teichen, Altwassern, Seen, und im Ueberfluß auf Strecken, welche den Ueberschwemmungen ausgesetzt sind, am Rheine, Neckar, Main, der Donau, und andern Flüssen, blühet im Juli, August, reifet seine Samen im September, Oktober, und gehört unter die ausdauernden Gewächse. Dasselbe verdient in nassen Jahrgängen alle Aufmerksamkeit, indem es im Frühjahr, sowohl frisch als getrocknet verfüttert, dem Rindvieh, und vorzüglich den Ochsen, eine angenehme und gesunde Nahrung giebt.

### ***Grifola frondosa* (Dicks.) Gray,**

**Synonyms:** *Polyporus frondosus* (Dicks.) Fr.; *Caloporus frondosus* (Dicks.) Quéf.; *Polypilus frondosus* (Dicks.) P. Karst.; *Cladomeris frondosa* (Dicks.) Quéf.; *Merisma frondosum* (Dicks.) Gillet; *Cladodendron frondosus* (Dicks.) Lázaro; *Boletus ramosissimus* var. *cristatus* Schaeff.; *Agaricus frondosus* (Dicks.) Schrank; *Cladodendron frondosum* (Dicks.) Lázaro; *Grifola albicans* Imazeki; *Polyporus albicans* (Imazeki) Teng; *Polyporus intybaceus* Fr.; *Grifola intybacea* (Fr.) Imazeki; *Merisma intybaceum* (Fr.) Gillet; *Polypilus intybaceus* (Fr.) P. Karst.; *Polypilus frondosus* var. *intybaceus* (Fr.) Bondartsev; *Grifola frondosa* var. *intybacea* (Fr.) Cetto; *Grifola frondosa* f. *intybacea* (Fr.) Pilát; *Boletus cristatus* Gouan; *Polyporus barrelieri* Viv.; *Boletus intybaceus* Baumg.; *Cladomeris intybacea* (Baumgarten) Quélet; *Fungus squamatin-incumbens* Paulet

**Original name (Gmelin 1817):** *Boletus ramosissimus*. Schaeff. Fung. tab. 111. 127. 128. 129. und tab. 265. 266.

**German names and French names (Gmelin 1817):** Der Eichhaase, Der ästige Schneepilz, Der Feisker

**Contemporary uses:** *Edible when fresh.*

**Uses 1817 (Gmelin 1817):** It is one of the tasty, healthy edible mushrooms that are eaten with butter broth, salt, and pepper in Switzerland, the Rhine region, and several other places.

**Description and Ecology (Gmelin 1817):** Very large and branchy. The stem divides into many white, finely perforated, fleshy branches lying closely together and on top of one another, which merge into numerous raised or flattened, smooth, striped, earth-colored, ash-gray-blackish or brownish, fleshy, superimposed, scale-like caps or lobes, covered with fine, snow-white holes underneath. The flesh is firm, white, and tender. Grows on old oak trunks in September and October, often reaching several feet in circumference and a weight of 20-50 pounds, and is striking in appearance.

**Original German text Gmelin (Gmelin 1817):** Sehr groß und ästig. Der Strunck theilt sich in viele dicht neben und auf einander liegende weisse feinflöcherige fleischige Aeste, welche in eine Menge erhabener, oder verflächter, glatter, gestreifter, erdfarbiger, aschgrau-schwärzlicher oder bräunlicher, fleischiger, über einander liegender, schuppenartiger Hüte oder Lappen übergehen und unterhalb mit feinen schneeweissen Löchern versehen sind. Das Fleisch ist fest, weiß und zart. Wächst an alten Eichstämmen im September, October, erreicht im Umfange oft mehrere Fuß, und ein Gewicht von 20 - 50 Pfund, und hat dabey ein auffallendes Ansehen. Er gehört unter die schmackhaften, gesunden eßbaren Schwämme, welche in der Schweiz, in den Rheingegenden und an mehreren andern Orten, mit einer Butterbrühe, Salz und Pfeffer verspeist werden.

### ***Gymnadenia conopsea* (L.) R.Br.)**

**Synonyms:** *Dactyloдения comigera* (Rchb.) Aver.; *Dactylogymnadenia comigera* (Rchb.) Rauschert; *Dactylogymnadenia comigera* (Rchb.) Rauschert; *Gymnadenia alpina* (Turcz. ex Rchb.f.) Czerep.; *Gymnadenia angustifolia* Ilse; *Gymnadenia*

*anisoloba* Peterm.; *Gymnadenia comigera* Rchb.; *Gymnadenia conopsea* f. *albiflora* Moldenke; *Gymnadenia conopsea* f. *albiflora* Y.N.Lee; *Gymnadenia conopsea* f. *comigera* (Rchb.) Rchb.f.; *Gymnadenia conopsea* f. *crenulata* (Beck) Soó; *Gymnadenia conopsea* f. *elatior* Zapf.; *Gymnadenia conopsea* f. *gracilis* Zapf.; *Gymnadenia conopsea* f. *lapponica* J.E.Zetterst.; *Gymnadenia conopsea* f. *monticola* Schur; *Gymnadenia conopsea* f. *niphobia* Engenst.; *Gymnadenia conopsea* f. *ornithis* (Jacq.) Neuman; *Gymnadenia conopsea* f. *praecox* (Schönh.) Soó; *Gymnadenia conopsea* f. *schurii* Soó; *Gymnadenia conopsea* f. *serotina* (Schönh.) Soó; *Gymnadenia conopsea* f. *subdensiflora* C.G.Westerl.; *Gymnadenia conopsea* f. *sublobata* Zapf.; *Gymnadenia conopsea* f. *transsilvanica* Soó; *Gymnadenia conopsea* f. *trifida* (Zapf.) Soó; *Gymnadenia conopsea* f. *unicuspis* C.G.Westerl.; *Gymnadenia conopsea* f. *albiflora* (Zapf.) Zimm.; *Gymnadenia conopsea* f. *leucantha* (Schur) Soó; *Gymnadenia conopsea* prol. *alpina* (Turcz. ex Rchb.f.) Rouy; *Gymnadenia conopsea* prol. *pseudoconopsea* (P.E.Parm.) Rouy; *Gymnadenia conopsea* prol. *pyrenaica* (Philippe) Rouy; *Gymnadenia conopsea* subsp. *alpina* Janch. ex Soó; *Gymnadenia conopsea* subsp. *angustifolia* (Asch. & Graebn.) Zimm.; *Gymnadenia conopsea* subsp. *comigera* (Rchb.) K.Richt.; *Gymnadenia conopsea* subsp. *montana* Bisse; *Gymnadenia conopsea* subsp. *peloria* (Foucault ex Poir.) K.Richt.; *Gymnadenia conopsea* subsp. *pyrenaica* (Philippe) K.Richt.; *Gymnadenia conopsea* subsp. *serotina* (Schönh.) Dworschak; *Gymnadenia conopsea* var. *aestivalis* W.Foelsche; *Gymnadenia conopsea* var. *alba* Gray; *Gymnadenia conopsea* var. *albiflora* Zapf.; *Gymnadenia conopsea* var. *alpina* Turcz. ex Rchb.f.; *Gymnadenia conopsea* var. *angustifolia* Asch. & Graebn.; *Gymnadenia conopsea* var. *bieczensis* Zapf.; *Gymnadenia conopsea* var. *caucasica* Schltr.; *Gymnadenia conopsea* var. *clavata* Rchb.f.; *Gymnadenia conopsea* var. *comigera* (Rchb.) Rchb.f.; *Gymnadenia conopsea* var. *crenulata* Beck; *Gymnadenia conopsea* var. *ecalcarata* Rchb.f.; *Gymnadenia conopsea* var. *euroalpina* W.Foelsche; *Gymnadenia conopsea* var. *flavida* Kurt.Wagner; *Gymnadenia conopsea* var. *graminea* (Dworschak) Kreutz; *Gymnadenia conopsea* var. *inodora* Fr. ex Rchb.f.; *Gymnadenia conopsea* var. *lapponica* (J.E.Zetterst.) J.E.Zetterst.; *Gymnadenia conopsea* var. *latifolia* Schltr.; *Gymnadenia conopsea* var. *leucantha* Schur; *Gymnadenia conopsea* var. *montana* (Bisse) Soó; *Gymnadenia conopsea* var. *neglecta* Vöth; *Gymnadenia conopsea* var. *odorata* (Dworschak) Kreutz; *Gymnadenia conopsea* var. *ornithis* (Jacq.) Nyman; *Gymnadenia conopsea* var. *platyphylla* Rchb.f.; *Gymnadenia conopsea* var. *praecox* Schönh.; *Gymnadenia conopsea* var. *pyrenaica* (Philippe) Nyman; *Gymnadenia conopsea* var. *serotina* Schönh.; *Gymnadenia conopsea* var. *serotina* Schönh.; *Gymnadenia conopsea* var. *sibirica* (Turcz. ex Lindl.) Rchb.f.; *Gymnadenia conopsea* var. *trifida* Zapf.; *Gymnadenia conopsea* var. *ussuriensis* Regel; *Gymnadenia densiflora* var. *candida* G.Foelsche & W.Foelsche; *Gymnadenia graminea* Dworschak; *Gymnadenia ibukiensis* Makino; *Gymnadenia odoratissima* subsp. *longicalcarata* C.E.Hermos. & Sabando; *Gymnadenia odoratissima* var. *pyrenaica* (Philippe) P.Delforge; *Gymnadenia ornithis* (Jacq.) Rich.; *Gymnadenia pseudoconopsea* (P.E.Parm.) Rouy; *Gymnadenia pyrenaica* (Philippe) Giraudias; *Gymnadenia sibirica* Turcz. ex Lindl.; *Gymnadenia splendida* Dworschak; *Gymnadenia splendida* subsp. *odorata* Dworschak; *Gymnadenia splendida* var. *odorata* (Dworschak) W.Foelsche; *Gymnadenia transsilvanica* Schur; *Gymnadenia vernalis* Dworschak; *Gymnadenia wahlenbergii* Afzel. ex Rchb.f.; *Habenaria conopsea* (L.) Benth.; *Habenaria gymnadenia* Druce; *Orchigymnadenia comigera* (Rchb.) Asch. & Graebn.; *Orchis conopsea* Gras; *Orchis conopsea* var. *albiflora* Tinant; *Orchis conopsea* var. *major* Tinant; *Orchis conopsea* L.; *Orchis conopsea* var. *comigera* (Rchb.) Marcet; *Orchis cornopica* Mill.; *Orchis ornithis* Jacq.; *Orchis peloria* Foucault ex Poir.; *Orchis pseudo-conopsea* Gren.; *Orchis pseudoconopsea* Gren.; *Orchis pseudoconopsea* P.E.Parm.; *Orchis pyrenaica* Philippe; *Orchis setacea* Gilib.; *Orchis suaveolens* Salisb.; *Platanthera conopsea* (L.) Schltr. ex Matsum.; *Satyrium conopseum* (L.) Wahlenb.

**Original name (Gmelin 1817):** *Orchis mascula*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 534. 535. - Curtis. Flor. Londin. tab. 121.

**German names and French names (Gmelin 1817):** Männliches Knabenkraut, Salep, Männliche Ragwurz, Güler; *Orchis male*, *Covillon de chien*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

#### KR 165849

**Botany and Ecology:** Plants slender to robust, 20-60 cm tall. Tubers ovoid, 1-3.5 cm, with many short, slender lobes. Stem stout, with 2 or 3 tubular sheaths at base and 3-5 cauline leaves. Leaves widely spaced or clustered, linear-lanceolate, narrowly oblong, or lorate, 5.5-20 × 0.8-2(-2.5) cm, apex acuminate to subobtusate. Inflorescence 11-26 cm, slender; peduncle with 1 to a few scattered, lanceolate bracts 1.5-6 cm; rachis 4-12 cm, densely many flowered; floral bracts lanceolate, often longer than ovary and flower, apex long acuminate-caudate. Flowers fragrant, pink, rarely pinkish white; ovary 5-8 mm including pedicel. Dorsal sepal broadly elliptic to broadly ovate-elliptic, 3.5-5 × 3-4 mm, 3-veined, slightly concave, apex acute; lateral sepals reflexed, obliquely ovate, 4-5.5 × 3-4 mm, 3-veined, margin revolute, apex acute. Petals obliquely ovate-triangular, 3.5-5 × 3-4 mm, 3-veined, apex acute; lip spreading, broadly cuneate-obovate, 4-5 × 4-5 mm, 3-lobed at apex; lateral lobes elliptic to broadly ovate, 1.8-3 mm wide, apex obtuse or occasionally truncate; mid-lobe triangular, 1-2 mm

wide, usually smaller than lateral lobes, apex obtuse to acute; spur pendulous, curved forward, 10-14 mm, exceeding ovary, slender. Column 1-1.5 mm; viscidia linear-oblong. Flowering July-August. (Wu *et al.* 1994-2013)

**Contemporary uses:** *Not used presently.*

**Description and Ecology (Gmelin 1817):** The roots of this and some other Orchis species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** It has many similarities to the preceding species, from which it differs in its larger tubers, taller stems, broader leaves, and larger, more frequent flowers. Grows frequently in meadows here and there. Blooms in May and July and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch größere Knollen, einen höheren Stengel, breitere Blätter, und größere häufigere Blüten unterscheidet. Wächst hie und da häufig auf Wiesen. Blühet im May, Juli, und gehört zu den ausdauernden Pflanzen. Gebrauch und Nutzen sind dieselben, wie bei der vorhergehenden Art. Ferner können noch von folgenden bei uns vorkommenden Orchisarten die Wurzeln benutzt werden: Orchis militaris. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 539. 540. - Orchis furca. Gmel. I. c. p. 640. 541. Jacq. Flor. Austr. tab. 307. Orchis moravica. Jacq. - Gmel. I. c. p. 341. 342. Orchis latifolia. Linn. Sp. pl. Gmel. I. c. p. 653. 544. - Orchis maculata. Linn. Sp. pl. - Gmel. I. c. p. 544. 545. - Orchis Conopsea. Linn. Sp. pl. - Gmel. I. c. p. 546. 547.

#### ***Helvella mitra* L.**

**Synonyms:** *Octospora mitra* (L.) Timm; *Phallus brunneus* Batsch; *Elvela mitra* L.; *Phallus mitra* (L.) Baumg.

**Original name (Gmelin 1817):** *Helvella mitra*. Linn. Sp. pl. - Bulliard. tab. 190. und 466. - Schaeff. Fung. tab. 153.154. 162. 282. 326.

**German names and French names (Gmelin 1817):** Mützen-Faltenschwamm, Faltenmorchel, Stockmorchel, Stockmaurache; Helvelle en mitre

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Edible when fresh.

**Contemporary uses:** *edible.*

**Description and Ecology (Gmelin 1817):** It is edible and often sold under the name "stock morel," but should not be confused with the true morel, *Morille Phallus esculentus*. Linn.

**Description and Ecology (Gmelin 1817):** Solitary, sometimes close together. The stem is short, round, furrowed, depressed, thicker at the top, whitish, hollow, and fragile. The ring and bulge are missing. The cap is inflated, wrinkled, angular, more or less wrinkled, sometimes smooth, brownish-red, reddish-brown, blackish, whitish, or leaden. There are numerous variations, which Schaeffer, op. cit., has primarily listed under *Elvella nigricans*, *Elvella monacella*, *E. inflata*, *E. pallida*, and *pallescens*, and which Bulliard, op. cit., has listed under *Helvella mitra alba*, *fulva*, and *fusca*: the white, brownish-red, and brown cap-folded sponge. Grows in spring on the ground in sandy areas, in meadows, around ponds, on rotten wood, and in coniferous and deciduous forests, and often reappears in autumn.

**Original German text Gmelin (Gmelin 1817):** Einzeln, zu Zeiten nahe beisammen stehend. Der Strunck kurz, rund, gefurcht, vertieft, oben dicker, weißlich, hohl, zerbrechlich. Ring und Wulst fehlen. Der Hut aufgeblasen, faltenartig, eckig, mehr oder weniger runzlich, zu Zeiten glatt, braunroth, röthlichbraun, schwärzlich, weißlich, bleyfarbig. Davon giebt es mannichfaltige Abänderungen, welche vorzüglich Schaeffer a.a.O. unter *Elvella nigricans*, *Elvella monacella*, *E. inflata*, *E. pallida* und *pallescens* angegeben hat, und welche Bulliard a.a.O. unter *Helvella mitra alba*, *fulva* und *fusca*: Der weisse, braunrothe und braune Mützen-Faltenschwamm gebracht hat. Wächst im Frühjahr auf der Erde an sandigen Orten, auf Wiesen, um Teiche, auf faulem Holze, in Nadel- und Laubholzwaldungen, und kommt öfters im Herbste wieder zum Vorschein. Ist eßbar und kommt öfters unter dem Namen Stockmorchel zu Markte, muß jedoch nicht mit der wahren Morchel, *Morille Phallus esculentus*. Linn. verwechselt werden.

***Holcus lanatus* L.**

**Synonyms:** *Aira holcus-lanatus* Vill.; *Avena lanata* (L.) Cav.; *Avena lanata* (L.) Koeler; *Avena pallida* Salisb.; *Ginannia lanata* (L.) F.T.Hubb.; *Ginannia pubescens* Bubani; *Holcus aestivalis* Jord. & Fourr.; *Holcus argenteus* C.Agardh ex Roem. & Schult.; *Holcus glaucus* Willk.; *Holcus grunosus* Sennen; *Holcus intermedius* Krock.; *Holcus lanatus* f. *albovirens* (Junge) Beetle; *Holcus lanatus* f. *viviparus* Cheshm.; *Holcus lanatus* subsp. *argenteus* (C.Agardh ex Roem. & Schult.) K.Richt.; *Holcus lanatus* subsp. *glaucus* (Willk.) K.Richt.; *Holcus lanatus* subsp. *tuberosus* (Salzm. ex Trin.) M.Seq. & Castrov.; *Holcus lanatus* subsp. *vaginatus* (Willk. ex Pérez Lara) M.Seq. & Castrov.; *Holcus lanatus* unr. *albovariegatus* Jacob-Makoy; *Holcus lanatus* var. *albovirens* Junge; *Holcus lanatus* var. *altissimus* Coss. & Durieu; *Holcus lanatus* var. *biaristatus* J.T.Jansen & Wacht.; *Holcus lanatus* var. *ciliatus* Beck; *Holcus lanatus* var. *coloratus* Rchb.; *Holcus lanatus* var. *glabrescens* Zobel; *Holcus lanatus* var. *leucoglumis* Opiz; *Holcus lanatus* var. *purpurascens* Tinant; *Holcus lanatus* var. *scaber* Beck; *Holcus lanatus* var. *soboliferus* Duwensee; *Holcus lanatus* var. *spectabilis* Podp.; *Holcus lanatus* var. *triflorus* Mutel; *Holcus lanatus* var. *tuberosus* Salzm. ex Trin.; *Holcus lanatus* var. *vaginatus* Willk. ex Pérez Lara; *Holcus muticus* Kunze ex Willk.; *Holcus oriolis* Sennen & Gonzalo; *Holcus tuberosus* Salzm. ex Trin.; *Nothololcus lanatus* (L.) Nash; *Nothololcus lanatus* (L.) Nash ex Hitchc.

**Original name (Gmelin 1817):** *Holcus lanatus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 777. - 779. - Schreber. Gräss. tab. 20. fig. 1.

**German names and French names (Gmelin 1817):** Honiggras, Wolliges-Roßgras, Pferdegras; Houque laineuse

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial, softly hairy. Culms tufted, erect or geniculate at base, 30-80 cm tall, pubescent, 4-5-noded. Leaf sheaths loose, tomentose with reflexed hairs; leaf blades flat, 6-18 cm, 3-9 mm wide, soft, both surfaces pubescent, apex acute; ligule 2-3 mm, truncate or toothed. Panicle lanceolate to oblong or ovate in outline, rather loose to very dense, 3-12 cm; branches narrowly ascending, pubescent. Spikelets oblong or gaping, 3.5-6 mm, pale grayish green or purplish; glumes lanceolate, keel and veins hispidulous, surface scabrid or puberulent to villous, lower glume apex acute, upper glume wider and sometimes slightly longer than lower glume, apex mucronate; florets subequal, 2-2.5 mm; rachilla ca. 0.5 mm; lower lemma awnless, anthers 1.8-2 mm; upper lemma with hooked 1-2 mm awn, anthers ca. 1.5 mm. Flowering and fruiting May-October. (Wu *et al.* 1994-2013)

**Contemporary uses:** Forage.

**Uses 1817 (Gmelin 1817):** It is one of the excellent grasses, which, thanks to its soft, juicy stalks and leaves with a good, sweet flavor, provide abundant food for cattle, horses, and sheep, both fresh and dried. It deserves to be planted in all meadows and thrives even on dry soil, but grows more luxuriantly in moist meadows. Therefore, it should be cultivated and propagated especially well on pastures and grasslands that are moist, wet, and frequently subject to flooding, and that mostly support sour grasses. It also suppresses other poor grasses and the rampant moss. Propagation is most easily and quickly achieved by seeds sown in spring.

**Description and Ecology (Gmelin 1817):** The root is fibrous, whitish-grey, yellowish or brownish. Numerous stems, 1.5 to 2 to 3 feet tall, erect, segmented, round, and soft. The leaves are broad, soft, finely hairy, and even. The lower ones are longer than the upper ones. The leaf sheaths are long, flaccid, striped, and soft-hairy. The ligule is membranous, transversely cut, serrated, white, and fringed with hairs on the outside. The panicle is initially somewhat spike-shaped, flaccid, reddish, somewhat drooping, later erect, pyramidal, exfoliated, 3 to 6 inches long, reddish mixed with ash-grey. The spikelets are oblong-oval, compressed, acute, externally dusted and hairy, whitish or reddish, and biflorous. The follicles are unequal: the outer one is shorter and narrower, blunt, with a short bristle; the inner one is broader, longer, and has a very short awn. The whitish, elongated, shiny, pointed seeds lie in the husks of the lower flowers. It grows primarily in the frequently flooded areas of the Rhine, Danube, Main, Neckar, and other rivers, in low and high, moist, wet meadows and pastures, along ditches, ponds, and swamps. It blooms in May and June. Its seeds ripen in June and July, and it is a perennial grass.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig, weißgrau, gelblich oder bräunlich. Viele Halme, welche 1½ - 2 - 3 Fuß hoch, aufrecht, gegliedert, rund und weich sind. Die Blätter breit, weich, feinhaarig und eben. Die untern länger als die oberen. Die Blattscheiden lang, schlaff, gestreift, weichhaarig. Das Blatthäutchen hautartig, quer abgeschnitten, ausgezackt, weiß, aussen mit Haaren gefranzt. Die Rispe ist anfänglich etwas ährenförmig, schlaff, rötlich, etwas überhängend, nachher aufrecht, pyramidenförmig, ausgesperrt, 3 - 6 Zoll lang, rötlich mit Aschgrau gemischt. Die Aehrchen länglich-oval, zusammengedrückt, spitzig, auswendig bestäubt und haarig, weißlich oder rötlich, zweyblüthig. Die Bälglein ungleich : das äussere kürzer und schmaler, stumpf, mit einer kurzen Borste : das innere breiter, länger, mit einem sehr

kurzen Granne. Der weißliche längliche, glänzende spitzige Samen liegt in den Spelzen der untern Blüten. Wächst vorzüglich häufig in den öftern Ueberschwemmungen ausgesetzten Rhein-, Donau-, Main-, Neckar- und andern Flußgegenden, auf niederen und höheren feuchten, nassen Wiesen und Weiden, an Wassergräben, Teichen und Sümpfen. Blühet im May, Juni. Reifet seine Samen im Juni, Juli, und gehört unter die ausdauernden Gräser. Es gehört unter die vorzüglichen Gräser, die wegen den weichen saftigen Halmen und Blättern von gutem süßem Geschmacke sind, und dem Rindvieh, Pferden und Schaafen sowohl frisch als auch getrocknet, reichlich Nahrung geben. Es verdient auf allen Wiesen zu stehen, und gedeyet auch auf trockenem Boden, erreicht aber auf feuchten Wiesen einen üppigeren Wuchs, sollte daher vorzüglich auf den Weiden und Grasplätzen, welche feucht, naß, und öftern Ueberschwemmungen ausgesetzt sind, die meistens saure Gräser führen, bestens angebauet und vermehrt werden, auch unterdrückt es die übrigen schlechten Gräser und das überhand nehmende Moos. Die Vermehrung geschieht auf die leichteste und schnellste Art durch Samen, welche im Frühjahr ausgehäet werden.

#### ***Holcus mollis* L.**

*Synonyms:* *Aira holcus-mollis* Vill.; *Aira mollis* (L.) Schreb.; *Avena mollis* (L.) Koeler; *Avena sylvatica* Salisb.; *Ginannia mollis* Bubani; *Holcus densus* Peterm.; *Holcus longiaristatus* St.-Lag.; *Holcus mollis* subsp. *reuteri* (Boiss.) Tutin; *Holcus mollis* subsp. *triflorus* (Trab.) Trab.; *Holcus mollis* var. *biaristatus* Parn.; *Holcus mollis* var. *coloratus* Peterm.; *Holcus mollis* var. *densus* (Peterm.) Nyman; *Holcus mollis* var. *glaber* G.Mey.; *Holcus mollis* var. *glabrescens* Zapal.; *Holcus mollis* var. *gymnogonus* N.H.F.Desp.; *Holcus mollis* var. *hermaphroditus* N.H.F.Desp.; *Holcus mollis* var. *minutus* Druce; *Holcus mollis* var. *multiflorus* Peterm.; *Holcus mollis* var. *parviflorus* Parn.; *Holcus mollis* var. *pauciflorus* Pauquy; *Holcus mollis* var. *serpentini* Legendre; *Holcus mollis* var. *submuticus* Holmb.; *Holcus mollis* var. *triflorus* Trab.; *Holcus mollis* var. *villosus* Pauquy; *Holcus reuteri* Boiss.; *Holcus triflorus* (Trab.) Trab.; *Notholcus mollis* (L.) Hitchc.

**Original name (Gmelin 1817):** *Holcus mollis*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 779. - Schreber. Gräss. tab. 20. fig.2.

**German names and French names (Gmelin 1817):** Weiches Honiggras, Kriechendes Roßgras; Houque mollet

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 52029** (Fig. 40)

**Botany and Ecology:** Perennial. Rhizome creeping, branching. Culms 50-100 cm tall, glabrous, pubescent only at the nodes; leaves linear-lanceolate, to 5 mm broad, villous. Panicle 8-10cm long, narrowly oblong, not very dense; spikelets lanceolate, whitish or more or less colored, 5-6 mm long; glumes long-acuminate, ciliate only on the keel; awn of the staminate floret geniculate, exserted. June -August. Dry meadows and scrubs.

**Contemporary uses:** *Forage.*

**Uses 1817 (Gmelin 1817):** It is a pleasant and healthy fodder for cattle, horses, and especially sheep. Just as important and beneficial as the cultivation of the former grass is in moist and wet regions, the cultivation of creeping horsegrass in the above-mentioned and similar arid and steep sandy regions would be equally important. Furthermore, the drifting sand in these regions would be easily stabilized by the widely creeping roots, transforming it into the best sheep pastures.

**Description and Ecology (Gmelin 1817):** At first glance, it bears many resemblances to the preceding variety, but differs from it in its strongly creeping roots, producing individual stems from their runners. It has fewer stems, which lie on the ground at the lowest joints, narrower leaves, and a smaller, more constricted panicle. Grows on lean, dry sandy fields, dry pastures, and in open pine forests in the Rhine region, between Rastadt and Carlsruhe, Eckenstein, Linckenheim, Graben, Alt- and Neuloßheim, Philippsburg, Waghäusel, Schwezingen, Mannheim, Darmstadt, and similar sandy areas. It blooms in May, June, and July. Its seeds ripen in July and August, and it is considered a perennial grass.

**Original German text Gmelin (Gmelin 1817):** Es hat dem ersten Ansehen nach viele Aehnlichkeit mit dem vorhergehenden, unterscheidet sich aber von demselben, durch die stark umher kriechende, aus ihren Ausläufern, einzelne Halme treibende Wurzeln. Durch weniger Halme, welche an den untersten Gelencken zu Boden liegen, schmälere Blätter, und eine kleinere zusammengezogene Rispe. Wächst auf magern trockenen Sandäckern, trockenen Weiden, in lichten Fohren-Waldungen in den Rheingegenden, zwischen Rastadt und Carlsruhe, Eckenstein, Linckenheim, Graben, Alt- und Neuloß- heim, Philippsburg, Waghäusel, Schwezingen, Mannheim, Darmstadt und ähnlichen Sandgegenden. Blühet im May, Juni, Juli. Reifet seine Samen im Juli. August, und gehört unter die ausdauernden Gräser. Ist ein angenehmes und gesundes Futter für Rindvieh, Pferde,

und vorzüglich Schaafe. So wichtig und vorthailhaft der Anbau des vorigen Grases, in feuchten und nassen Gegenden ist, so wichtig dürfte der Anbau des kriechenden Roßgrases in obern angeführten und ähnlichen dürrn und steilen Sandgeden seyn. Auch würde der Flugsand in diesen Gegenden, durch die weit kriechenden Wurzeln, auf die leichteste Art befestigt, und zu den besten Schaafweiden umgeschaffen werden.



Figure 40. *Holcus mollis* L. - KR 52029

### ***Humulus lupulus* L.**

**Synonyms:** *Humulus lupulus* var. *cordifolius* (Miq.) Maxim. ex Franch. & Sav.; *Humulus lupulus* var. *lupulus*, *Humulus volubilis* Salisb.; *Humulus vulgaris* Gilib.; *Lupulus amarus* Gilib.; *Lupulus communis* Gaertn.; *Lupulus humulus* Mill.; *Lupulus scandens* Lam.

**Original name (Gmelin 1817):** *Humulus Lupulus*. Linn. Sp. pl. - Gmel. Fl. Bad. III. p. 756. 757.

**German names and French names (Gmelin 1817):** Hopfen, Wilder Hopfen, Strauch-Hopfen, Gemeiner Hopfen; Houblon

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial; rootstock long creeping; stems climbing, angled, rough-hairy; leaves entire or 3-5-lobed, deeply cordate, acuminate, coarsely serrate, with large lanceolate approximate stipules; perianth of pistillate flowers one-sidedly enlarging and becoming scaly, winglike, obtuse, investing the achene at base, covered with small glands and diffusely puberulous outside. Flowering June-July. Ural, Caucasus, along rivers, in ravines, in damp broad-leaved forests, hedges. (Boborov and Konarov 1935).

**Contemporary uses:** *Georgia: The roots are used as abortive. The flowers are used as sedative. The female flowers, leaves and shoots are used as sedative and calmative for nervous system problems. The flowers are employed to treat prostate problems. Azerbaijan: An alcoholic infusion of crushed cones is used for insomnia, a decoction for vein dilation, and a powder for jaundice. Georgia: The flowers are widely used as flavoring agent for beer. Young shoots are consumed raw before leafing as a salad or boiled as asparagus, sometimes walnut sauce, and eaten in soup. In Mingrelia they eat in the form of a mushy soup, also in phkhali. Plants used as mkhali. Azerbaijan: Young shoots are eaten in spring. The flowers are used as a sourdough starter (yogurt). Georgia: The fibers are used for ropes. Planted as ornamental. Fodder for cattle. Azerbaijan: A dyeing solution is made from the leaves to obtain a yellow color. The solution is used for dyeing woolen yarn, as well as products from it. Ropes and bags are made from hop stalks after processing. Decorative. Can be used for vertical gardening. Honey plant. Balkans: insomnia, neuro-relaxant, orexigenic, diuretic, prostate problems. Romania: anti-inflammatory, cicatrizing, antimicrobial, sole lesions, blennorrhagia, sedative, nervous system problems, digestive, sexual disorders. Russia / Ukraine: Cosmetic use (hair conditioner), hair loss, blood pressure, liver disease. Belarus: Insomnia. Czech Republic: digestive tea. Romania: jaundice, tuberculosis; acne, leukorrhoea, spermatorrhoea, vaginitis, scalp abscess, seborrhea, dandruff, impetigo, alopecia, wounds, ulcerations anti-infective, vulnerary, analgesic, hair tonic. Hungary: flowers put into bread and beer sourdough, shoots fried soup and vegetable like French bean. Eastern Europe / Ukraine / Romania / Bulgaria: very widely used as flavor for beer, food, bread ingredient. Belarus: beer, bread additive, flavor for alcohol. Czech Republic: shoots used in soups and egg dishes. Poland: inflorescences and fruits: as a spice for honey, beer and bread dough, unspecified areas, shoots as famine food. Europe: gastronomy. Romania: stem to make baskets. (Bussmann et al. 2020i; 2025r)*

**Uses 1817 (Gmelin 1817):** In spring, it produces numerous asparagus-like, thin, tender, leafless shoots, which, when prepared like asparagus or as a vegetable or salad, provide a tasty, nutritious, and healthy dish. Hops grown in our own hop gardens produce significantly more, thicker, tender shoots, which can be cut and used from time to time, like asparagus, without damaging the hops. This use deserves to be considered when there is a shortage of healthy and tasty culinary plants. In this respect, they deserve to be planted in our kitchen gardens.

**Description and Ecology (Gmelin 1817):** The root is cylindrical, segmented, fibrous, and white. The stems are ascending, twining, weak, angular, and rough-spined. The leaves are opposite, stalked, heart-shaped, 3-5 lobed, serrate, and rough. The male flowers have a five-petaled, greenish-yellow calyx, without a corolla. The female flowers are borne in an oval, greenish-yellow cone and have a generally four-lobed, pointed involucre. The particular involucre is four-petaled, oval, and eight-petaled. Each flower has a large, single-petaled calyx, without a corolla, and two pointed styles. The seed is round and surrounded by a somewhat wrinkled skin. Grows on hedges, bushes, fences, paths, hills, sunken lanes, on the edges of woodlands, along paths and vineyard terraces, and prefers sunny slopes on limestone marl soil. It blooms in June, July, and August. Its seeds ripen in October and November, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, gegliedert, faserig, weiß. Die Stengel aufsteigend, windend, schwach, eckig, rauhstachelig. Die Blätter gegenüberstehend, gestiehl, herzförmig, 3 - 5 lappig, gesägt, rauh. Die männlichen Blüthen haben einen fünfblättrigen grüngelben Kelch, ohne Krone. Die weiblichen Büthen stehen in einem eyrunden grüngelben Zapfen, haben einen allgemeinen viergetheilten spitzigen Umschlag. Der besondere Umschlag ist vierblättrig, eyrund, achtblüthig. Jede Blüthe hat einen einblättrigen, großen Kelch, ohne Krone, und zwey spitze Griffel. Der Same ist rundlich, und mit einer etwas runzelichen Haut umgeben. Wächst an Hecken, Gesträuche, Zäunen, an Wegen, Hügeln, Hohl-gassen, am Rande der Waldungen, an den Wegen und Terassen der Weinberge, und liebt sonnenreiche Abhänge auf Kalkmergelboden. Blühet im Juni, Juli, August. Reifet seine Samen im October, November, und gehört unter die ausdauernden Pflanzen. Er treibt im Frühjahr eine Menge spargelähnlicher, dünner zarter blätterloser Sprossen, welche wie Spargel oder als Gemüse und Salat zubereitet, eine schmackhafte, nährnde und gesunde Speiße geben. Die in eigenen Hopfengärten angebauten Hopfen, geben ungleich mehr, und dickere, zartere Sprossen, welche von Zeit zu Zeit, dem Hopfenbau unbeschadet, wie die Spargeln abgeschnitten, und benutzt werden können. Diese Benutzung verdient bei Mangel

an gesunden und schmackhaften Küchengewächsen beherzigt zu werden. Die verdienten in diesem Betrachte, in unsern Küchengärten angepflanzt zu werden.

### ***Hydnum repandum* L.**

**Synonyms:** *Hypothele repanda* (L.) Paulet; *Dentinum repandum* (L.) Gray; *Sarcodon repandus* (L.) Quél.; *Tyrodon repandus* (L.) P. Karst.; *Hydnum flavidum* Schaeff.; *Hydnum medium* Pers.; *Hydnum bicolor* Raddi; *Hydnum bulbosum* Raddi; *Hydnum roseum* Raddi; *Hydnum album* Pers.; *Hydnum diffractum* Berk.; *Hydnum aurantium* Raf.; *Hydnum aurantium* Raf.; *Hydnum portae* F. Brig.; *Hydnum rufescens* Schaeff.; *Fungus erinaceus* Vaill.; *Sarcodon abietinum* R. Heim

**Original name (Gmelin 1817):** *Hydnum repandum*. Bulliard. tab. 171. - Linn. Sp. pl. - *Hydnum rufescens*. Schaeff. Fung. tab. 141. - *H. flavidum*. ej. tab. 318.

**German names and French names (Gmelin 1817):** Der röthliche und gelbliche, und milchweisse Stachelschwamm, Stoppelpilz, Der Süßling; Eurchon, Rignoché, Hydne sinué

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025g).

**Uses 1817 (Gmelin 1817):** It is one of the most common edible sponges and is fried on the grill with fresh butter or olive oil, salt, pepper and parsley and eaten.

**Description and Ecology (Gmelin 1817):** Growing singly or often in groups. The stem is swollen at the base, thick, short, pale reddish, yellowish, or snow-white. The ring and bulge are absent. The cap is slightly raised, flat, smooth, often almost lobed or wavy at the edge, pale reddish, yellowish flesh-colored, or snow-white, and fragile. On the underside of the cap are short, reddish, yellowish, flesh-colored, or snow-white spines that do not separate from the flesh. The flesh is white and dry. We have three different varieties of this in our forests: the reddish, the yellowish, and the milky or chalky white. Grows in coniferous forests, and the white variety, outside of coniferous forests, is especially common in mountainous beech forests, on the ground in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzeln und öfters mehrere beisammen wachsend. Der Strunck unten aufgeschwollen, dick, kurz, blaßröthlich, gelblich oder schneeweiß. Ring und Wulst fehlen. Der Hut etwas erhaben, flach, glatt, am Rande öfters fast lappig, oder wellenförmig, blaßröthlich, gelblich fleischfarben, oder schneeweiß, zerbrechlich. Auf der untern Seite des Hutes stehen röthliche, gelbliche, fleischfarbige, oder schneeweisse kurtze Stacheln, die sich nicht vom Fleische absondern. Das Fleisch ist weiß, trocken. Davon haben wir in unseren Waldungen drey verschiedene Abänderungen: als die röthliche, die gelbliche, und die Milch- oder Kreidenweisse. Wächst in Nadelholzwaldungen, und die weiße Abänderung, ausser den Nadelholzwaldungen vorzüglich häufig, in gebirgigen Buchwaldungen, auf der Erde im August, September, October. Gehört unter die eßbaren häufig vorkommenden Schwämme, und wird auf dem Roste mit frischer Butter oder Baumöl, Salz, Pfeffer und Petersilie gebraten, und verspeist.

### ***Hylotelephium telephium* (L.) H. Ohba**

**Synonyms:** *Anacamperos albicans* Haw.; *Anacamperos albida* Haw. ex DC.; *Anacamperos arguta* Haw.; *Anacamperos aurigerana* Jord. & Fourn.; *Anacamperos beugesiana* Jord. & Fourn.; *Anacamperos borderi* Jord. & Fourn.; *Anacamperos buxicola* Jord. & Fourn.; *Anacamperos conferta* Jord. & Fourn.; *Anacamperos convexa* Jord. & Fourn.; *Anacamperos dumeticola* Jord. & Fourn.; *Anacamperos julliana* Jord. & Fourn.; *Anacamperos lapidicola* Jord. & Fourn.; *Anacamperos livida* Haw.; *Anacamperos lugdunensis* Jord. & Fourn.; *Anacamperos monticulorum* Jord. & Fourn.; *Anacamperos navieri* Jord. & Fourn.; *Anacamperos praecelsa* Jord. & Fourn.; *Anacamperos purpurea* Haw. ex DC.; *Anacamperos pycnantha* Jord. & Fourn.; *Anacamperos repens* Jord. & Fourn.; *Anacamperos rhodanensis* Jord. & Fourn.; *Anacamperos rubella* Jord. & Fourn.; *Anacamperos rupifraga* Jord. & Fourn.; *Anacamperos saxifraga* Jord. & Fourn.; *Anacamperos subalbida* Jord. & Fourn.; *Anacamperos triphylla* Haw.; *Anacamperos viridula* Jord. & Fourn.; *Anacamperos vogesiana* Jord. & Fourn.; *Anacamperos vulgaris* Haw.; *Hylotelephium argutum* subsp. *carpaticum* (Reuss) Dostál; *Hylotelephium borderi* (Jord. & Fourn.) Holub; *Hylotelephium carpaticum* (Reuss.) Soják; *Hylotelephium decumbens* (Lucé) V.V. Byalt; *Hylotelephium jullianum* (Boreau) Grulich; *Hylotelephium maritimum* (Bohuslav) Grulich; *Hylotelephium mongolicum* (Franch.) S.H. Fu; *Hylotelephium mugodsharicum* (Boriss.) Grulich; *Hylotelephium parvistamineum* (Petrov) Czerep.; *Hylotelephium purpureum* (L.) Holub; *Hylotelephium sanguineum* (Ortega) Castro. & Velayos; *Hylotelephium triphyllum* (Haworth) Holub; *Hylotelephium vulgare* (Haworth) Holub; *Hylotelephium zhiguliense* Tzvelev; *Sedum albicans* Steud.; *Sedum arduennense* Callay ex Boreau; *Sedum*

*bohuslawii* Rupr.; *Sedum borderi* A.Chev.; *Sedum brunfelsii* Boreau; *Sedum bulliardi* Boreau; *Sedum callayanum* Boreau; *Sedum carioni* Boreau; *Sedum carpaticum* Reuss; *Sedum controversum* Boreau; *Sedum corymbiferum* Boreau; *Sedum erythromelanum* Fr.Braun ex Nyman; *Sedum fabaria* var. *mongolica* Franch.; *Sedum grandidentatum* Boreau; *Sedum guestphalicum* Boeun. ex Rchb.; *Sedum haematodeum* St.-Lag.; *Sedum jullianum* Boreau; *Sedum lactifolium* Salisb.; *Sedum lividum* Drejer; *Sedum lobelii* Boreau; *Sedum lugdunense* Nyman; *Sedum maritimum* Bogusl.; *Sedum maximum* subsp. *fabaria* (W.D.J.Koch) Á.Löve; *Sedum mugodscharicum* Boriss.; *Sedum occidentale* Boreau ex Mast.; *Sedum parvistamineum* Petrov; *Sedum purpurascens* W.D.J.Koch; *Sedum purpureum* Schult; *Sedum rhodanense* Nyman; *Sedum rubellum* A.Chev.; *Sedum sanguineum* Ortega; *Sedum serotinum* Belynyck; *Sedum telephium* L.; *Sedum telephium* f. *purpureum* (L.) F.Seym.; *Sedum telephium* subsp. *fabaria* (W.D.J.Koch) Kirschl.; *Sedum telephium* subsp. *purpureum* (Schult.) Schinz & Keller; *Sedum telephium* var. *purpurascens* (W.D.J.Koch) Webb; *Sedum telephium* var. *purpureum* L.; *Sedum thirkeanum* K.Koch; *Sedum thyrsoides* Boreau; *Sedum triphyllum* Gray; *Sedum viridulum* Haw.; *Sedum vogesiacum* Bonnier; *Sedum vulgare* Link

**Original name (Gmelin 1817):** *Sedum Telephium*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 271. - 274.

**German names and French names (Gmelin 1817):** Große fette Henne, Schmerwurz, Wundkraut, Heidnisch-Wundkraut, l'Orpin, l'Orpin reprise, Grassete

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, expanding

**Botany and Ecology:** Perennial; roots thickened, rounded -elongated, napiform; stems (10) 20 - 40 cm high, usually arched - upcurved at base, mostly with shortened or scattered internodes; leaves opposite, orbicular or oval, broadening toward base, cordate, amplexicaul, strongly glaucous, drying dark green, densely disposed, obscurely emarginate, rarely dentate, (2)4-5 cm long, (1)2-3 cm broad; inflorescence (3)5-10 cm in diameter, dense, corymbiform or loose, with elongated, scattered peduncles forming a corymbiform -paniculate inflorescence; lateral branches not always attaining top of inflorescence pedicels shorter or longer than flowers; flowers ca. 5-6 mm or 2-3 mm long, broad; calyx rounded at base or subacute with triangular, lanceolate, acute sepals, 1/3 as long as corolla; petals ovate, 1-2 mm broad, 5-6 or 2-3 mm long, greenish, pale yellow, whitish-pinkish; stamens 10, as long as petals, those opposite petals united with them to %, with large anthers rounded at the peduncle apex; follicles ca. 4 mm long with straight hard beak; seeds oblong-lanceolate, brown, ca. 0.5 mm long. July - August. Mostly sandy or solonchaks soils, pine forests; as a weed in fields, among shrubs in forests. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** *Ornamental*. (Mehdiyeva et al. 2025f; Paniagua-Zambrana & Bussmann 2025c)

**Uses 1817 (Gmelin 1817):** The young, tender, fleshy, fresh leaves can be used as a salad in spring.

**Description and Ecology (Gmelin 1817):** The root is somewhat spindle-shaped, multi-headed, fleshy, white, and fibrous. The stems are 1-2-3 feet tall, erect, prostrate at the base, round, segmented, smooth, thick, often purple-red, simple, and occasionally branched. The leaves are scattered, sessile, ovate, blunt, thick, fleshy, unevenly serrated, and flat and smooth. The flowers are borne in a leafy umbel. The corolla is white, greenish-white, reddish, or light purple, twice as long as the calyx, and has five petals. The petals are ovate-lanceolate, blunt at the tip, with 10-12 filaments and 5-6 stamens. The seed capsule is multi-seeded. It grows in narrow alleys, between hedges, in vineyards, along terraces, paths, and walls. In mountainous regions, it grows in rough, rocky places and on rocks. It blooms in July, August, and September. Its seeds ripen in September and October, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel etwas spindelförmig, vielköpfig, fleischig, weiß, faserig. Die Stengel 1 - 2 - 3 Fuß hoch, aufrecht, am Grunde niederliegend, rund, gegliedert, glatt, dicklich, öfters ins purpurrothe gehend, einfach, zu Zeiten ästig. Die Blätter zerstreut, aufsitzend, eyrund, stumpf, dick, fleischig, ungleich gesägt, flach glatt. Die Blüthen ausgehend, in einer blätterigen Traubendolde dicht beisammen stehend. Die Blumenkrone weiß, grünlich-weiß, röthlich, oder hellpurpurfarben, noch einmal so lang als der Blumenkelch, fünfblättrig. Die Blumenblätter eyrund-lanzettförmig, an der Spitze stumpf, Staubfäden 10 - 12, Staubwege 5 - 6. Die Samen-Capsel vielsamig. Sie wächst an Hohlwegen, Wegen zwischen Hecken, in den Weinbergen, längst den Terrassen, Wegen und Mauern. In den Gebirgsgegenden an rauhen steinigen Orten und Felsen. Blühet im Juli, August, September. Reifet ihre Samen im September, October, und gehört unter die ausdauernden Gewächse. Die jungen zarten, fleischigen, frischen Blätter, können im Frühjahr als Salat benutzt werden.

***Hypholoma ericaeum* (Pers.) Kühner,**

*Synonyms: Agaricus ericaeus* Pers., *Naematoloma ericaeum* (Pers.) A.H. Sm., *Psilocybe ericaea* (Pers.) Quél., *Prunulus ericaeus* (Pers.) Gray, *Coprinarius ericaeus* (Pers.) P. Kumm., *Geophila ericaea* (Pers.) Quél., *Stropharia subumbonatescens* Murrill, *Naematoloma subumbonatescens* (Murrill) Singer, *Nematoloma ericaeum* (Pers.) Singer; *Nematoloma subumbonatescens* (Murrill) Singer; *Agaricus helvolus* Schaeff.; *Agaricus adnatus* Huds.; *Agaricus sordidulus* J.F. Gmel., *Psilocybe helvola* (Schaeff.) Masee & Crossl., *Agaricus ericeus* Pers.; *Agaricus ericaeus* var. *ericaeus*

**Original name (Gmelin 1817):** *Agaricus ericeus*. Bulliard. tab. 188. und 551. fig. I. - *Agaricus virgineus*. Jacqu. Misc. 2. tab. 15. fig. 1. - *Agaricus clavaeformis*. Schaeff. Fung. tab. 307.

**German names and French names (Gmelin 1817):** Weisser Heidenblätterschwamm, Nägelschwamm, Jungfernschwamm, Heiden-Mousseron; Mousseron des Bruyères, Agaric des Bruyères

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025h).

**Uses 1817 (Gmelin 1817):** It has a good flavor and is eaten in some parts of Germany and especially in France, where it is also known as mousseron. Although several leaf mushrooms are still eaten here and there, especially in Bavaria, Bohemia, Poland, and Russia, I have deliberately refrained from mentioning them here, given the abundance of better, tastier, and healthier mushrooms that grow in the Rhine, Neckar, Main, and Moselle regions, as I was particularly concerned with a correct selection of them.

**Description and Ecology (Gmelin 1817):** Grown singly, or sometimes in large numbers close together. The stem is round, full, sometimes tubular, smooth, white, sometimes light ash-gray, erect, 1/2 - 1 1/2 inches high. The bulge and ring are missing. The cap is somewhat spherical, then semicircular, finally flat, and usually more or less depressed, initially snow-white, finally turning from white to brownish, 1/2 - 2 inches wide. The leaflets are widely spaced, curved, and white. The flesh is firm and white in dry weather, but watery, soft, and translucent in wet weather. Grows frequently here and there on dry pastures, on grassy hills, along roads, in heathland, and in light sandy woodlands, in summer and autumn.

**Original German text Gmelin (Gmelin 1817):** Einzeln, und manchmal viele nahe beisammen stehend. Der Strunck rund, voll, manchmal röhrig, glatt, weiß, zu Zeiten hell aschgrau, aufrecht, ½ - 1½ Zoll hoch. Wulst und Ring fehlen. Der Hut etwas kugelförmig, dann halbrund, endlich eben, und meistens mehr oder weniger vertieft, anfänglich schneeweiß, endlich aus dem weissen ins bräunliche gehend, ½ - 2 Zoll breit. Die Blättchen weit von einander abstehend, gebogen, weiß. Das Fleisch ist bei trockner Witterung fest, weiß, bei nasser hingegen wässerig, weich und durchscheinend. Wächst hie und da häufig auf der Erde auf trocknen Viehtriften, auf grasreichen Erhöhungen, an Wegen, in Heidegegenden und lichten sandigen Waldungen, im Sommer und Herbst. Ist von gutem Geschmacke, und wird in einigen Gegenden Deutschlands und vorzüglich in Frankreich verspeist, wo er ebenfalls unter dem Namen Mousseron bekannt ist. Es werden zwar hie und da vorzüglich in Baiern, Böhmen, Pohlen und Rußland, noch mehrere Blätterschwämme verspeist, welche ich aber bei dem Vorrathe besserer, schmackhafterer und der Gesundheit zuträglicherer Schwämme, welche in den Rhein-, Neckar-, Main- und Moselgegenden wachsen, hier anzuführen, geflissentlich unterlassen habe, indem mir an einer richtigen Auswahl derselben alles liegen mußte.

***Lactarius deliciosus* (L.) Gray**

*Synonyms: Agaricus deliciosus* L.; *Amanita sanguinea* Lam.; *Lactifluus deliciosus* (L.) Kuntze; *Galorrheus deliciosus* (L.) P. Kumm.; *Agaricus lactifluus* var. *deliciosus* (L.) Pers.

**Original name (Gmelin 1817):** *Agaricus deliciosus*. Linn. Sp. pl. - Flor. Dan. tab. 1131. Schaeff. Fungi. tab. XI.

**German names and French names (Gmelin 1817):** Reitzger, Reitzgen, Rietschling, Tännling, Reitzgen-Blätterschwamm, Eßbarer Hirschling; Agaric deliceux

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025i).

**Botany and Ecology:** Usually solitary. The stem is cylindrical, 2-3 inches long, erect, thick, somewhat tubular, light brick-colored, marked with darker spots. The bulge and ring are missing. The cap is 2-7 inches wide, semicircular, depressed in the center, convex at the edge, brick-colored, with many alternating light and dark circles. The leaves run down the stem, are yellowish-brick-colored, and branchy. When injured, it secretes a dark saffron-colored, somewhat pungent milk. Growing singly or frequently in close proximity. The stem is 2-3 inches high, cylindrical, thick, upright, full, ranging from white to light

flesh-colored or reddish. The bulge and ring are missing. The cap is 3-7 inches wide, semicircular, reddish-yellow, marked with darker brownish-reddish circles, somewhat funnel-shaped or depressed in the center, raised toward the edge and uniformly bent horizontally at the same time, and covered with whitish, spider-like tissue. The leaflets are curved, pale red, and run slightly down the stem. The flesh is firm. When wounded, it produces a whitish or pale reddish milk that immediately burns sharply on the tongue. The odor is very disgusting. It differs from the edible eel-moss primarily by the edge of the cap, which is uniformly bent back horizontally and always covered with a whitish, spidery webbing, and also by the whitish or pale reddish milk. The illuminated illustration of this mushroom in the cited Flora Danica is excellent and true to life. It should not be confused with the very sharp and poisonous, inedible fungus, *Agaric meurtier*. *Agaricus necator*. Bulliard. tab. 529, fig. 2. *Agaricus torminosus*. Schaeff. Fungi. tab. 12., with which it has many similarities. Therefore, I find it advisable to refer to the accompanying illustrations and describe this poisonous sponge in more detail. Grows in dry forests, often near the edible eel-moss, in August, September, and October in dry forests and heathland areas.

**Uses 1817 (Gmelin 1817):** It is occasionally eaten as an excellent delicacy, but must be well salted and roasted. In Sweden, it is cut up fresh and immediately thrown into cold water; then warm water is poured over it. Then melt a piece of butter with a little onion, remove the mushroom from the water, and boil it with salt, parsley, and pepper. It releases its juices during cooking, but it must be boiled down to the desired thickness. It is also used in meat sauces, like mushrooms. It can be stored with salt and vinegar throughout the winter. See Bergü mat. medica. p. 866.

**Original German text Gmelin (Gmelin 1817):** Gewöhnlich einzeln stehend. Der Strunck cylindrisch, 2 - 3 Zoll lang, aufrecht, dick, etwas röhrig, hell ziegelfarben, mit dunklern Flecken bezeichnet. Wulst und Ring fehlen. Der Hut 2 - 7 Zoll breit, halbrund, in der Mitte niedergedrückt, am Rande gewölbt, ziegelfarben, mit vielen abwechselnden hellern und dunklern Kreisen. Die Blättchen laufen am Struncke herunter, sind gelblich-ziegelfarben, und ästig. Verwundet giebt er eine dunkel-saffranfarbige, etwas scharfe Milch von sich. Wächst im August, September und October in trockenen Waldungen und Heidengegenden. Er wird hie und da als ein vorzüglicher Leckerbissen verspeist, muß aber gut gesalzen und geröstet werden. In Schweden zerschneidet man sie frisch, und wirft sie sogleich in kaltes Wasser; sodann gießt man warmes Wasser darauf. Hierauf schmelzet man ein Stück Butter mit etwas Zwiebel, nimmt den Schwamm aus dem Wasser, und kocht ihn mit Salz, Petersilie und Pfeffer. Beim Kochen giebt er den Saft von sich, jedoch muß er zur gehörigen Dicke eingekocht werden. Ausserdem braucht man ihn auch zu Saucen an das Fleisch, so wie den Champignon. Zu Salz und Essig kann er den ganzen Winter hindurch aufbewahrt werden. s. Bergü mat. medica. p. 866. Vorzüglich gut und naturgetreu ist die illuminirte Abbildung von diesem Schwamme in den angeführten Flora Danica. Er muß nicht mit dem sehr scharfen und giftigen uneßbaren Reitzger, *Agaric meurtier*. *Agaricus necator*. Bulliard. tab. 529. fig. 2. *Agaricus torminosus*. Schaeff. Fungi. tab. 12. mit dem er viele Aehnlichkeiten hat, verwechselt werden. Daher finde ich für rathlich auf die bezeichnete Abbildungen hinzuweisen, und diesen Giftschwamm näher zu beschreiben: Einzeln oder öfters nahe beisammen stehend. Der Strunck 2 - 3 Zoll hoch, cylindrisch, dick, aufrecht, voll, aus dem weißen ins hell fleischfarbige oder röthliche gehend. Wulst und Ring fehlen. Der Huth 3 - 7 Zoll breit, halbrund, röthlich-gelb mit dunklern braunröthlichen Kreisen bezeichnet, in der Mitte etwas trichterförmig eingedrückt oder vertieft, gegen den Rand hin, erhaben, und an demselben gleichförmig wagerecht eingebogen, und mit weißlichem spinnenähnlichem Gewebe versehen. Die Blättchen sind krummlienigt, blaßroth, und laufen etwas am Struncke herunter. Das Fleisch ist fest. Verwundet giebt er eine weißliche, oder blaßröthliche auf der Zunge sogleich scharf brennenden Milch. Der Geruch ist sehr eckelhaft. Wächst in trockenen Waldungen oft in der Nachbarschaft des eßbaren Reitzgers, im August, September, October. Er unterscheidet sich von dem eßbaren Reitzger vorzüglich, durch den Rand am Hute, welcher gleichförmig wagerecht zurückgebogen, und immer mit einem weißlichen spinnenartigen Gewebe versehen ist, ferner durch die weißliche oder blaßröthliche Milch.

### ***Lactuca alpina* (L.) A.Gray**

*Synonyms:* *Agathyrus alpinus* (L.) D.Don; *Garacium alpinum* Gren. & Godr.

**Original name (Gmelin 1817):** *Sonchus alpinus*. Gmel. Flor. Badens. III. p. 287. - 289.

**German names and French names (Gmelin 1817):** Alpen-Gänsedistel, Berghaasen-Kohl, Berggänsedistel; Laitron des alpes. Laitron de montagne

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): No data

**Contemporary uses:** Sometimes used as salad.

**Uses 1817 (Gmelin 1817):** The young, tender leaves are used in Switzerland and the Pyrenees as a tasty salad, as well as a healthy vegetable. This plant deserves to be introduced into our kitchen gardens. A second species of Alpine sow thistle, the large-flowered blue alpine thistle (*Sonchus plumieri*, Linn.), grows frequently in the Pyrenees, reaches a height of 4-6 feet, has numerous large leaves, and large blue flowers. It is frequently used by mountain dwellers there as a tasty vegetable and salad. It deserves to be included in our gardens not only as a productive and excellent culinary plant, but also as an ornamental plant.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 3-4 feet tall, erect, furrowed, tubular, simple, and somewhat hairy. The leaves are alternate, clasping the stem, heart-shaped, saw-like, unevenly sinuously toothed, smooth, with a large, pointed end. The upper leaves are narrower, heart-lanceolate, sharply and finely toothed. The racemes terminate the stem. The flower stalks are hairy and reddish-brown. The calyx is brownish-red and hairy. The corollas are bluish-red and moderately large. Grows in Breisgau on the Belchen and Feldberg mountains, in the Basel region on Wasserfallen and the Mutet, common in the Swiss Alps, on the Rigi, Pilatus, Gotthart, and others, and less frequently on the Ballon in the Vosges. It blooms in July and August. Its seeds ripen in August and September, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 3 - 4 Fuß hoch, aufrecht, gefurcht, röhrig, einfach, etwas rauhaarig. Die Blätter abwechselnd, stengelumfassend, herzpfeilförmig, schrotsägenartig, ungleich buchtig gezahnt, glatt, die Endlappe groß, zugespitzt. Die oberen Blätter schmaler, herz-lanzettförmig zugespitzt, scharf und fein gezähnt. Die Traubenblüthen endigen den Stengel. Die Blütenstiele sind rauhaarig, röthlich braun. Der Blütenkelch braunroth, haarig. Die Blumenkronen blauroth von mittelmäßiger Größe. Wächst im Breisgau auf dem Belchen und Feldberge, im Basler Gebiete auf Wasserfallen und dem Mutet, häufig auf den Schweizer-Alpen, auf dem Rigi, Pilatus, Gotthart u. a. seltener auf dem Ballon in den Vogesen. Blühet im Juli, August. Reifet ihre Samen im August, September und gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter werden in der Schweiz und auf den Pyrenäen als ein schmackhafter Salat, desgleichen auch, als ein gesundes Gemüse zugerichtet. Diese Pflanze verdiente in unsern Küchengärten eingeführt zu werden. Noch eine zweite Art Alpensäesdistel. Großblumige blaue Alpendistel. *Sonchus Plumieri*. Linn. wächst häufig auf den Pyrenäen, erreicht eine Höhe von 4 - 6 Fuß, hat sehr viele und große Blätter, und große blaue Blüthen. Diese wird daselbst von den Bergbewohnern, häufig als ein schmackhaftes Gemüse, und Salat benutzt. Sie verdiente nicht nur als ergiebige und treffliche Küchenpflanze, sondern auch als Zierpflanze in unsern Gärten aufgenommen zu werden.

### ***Lactuca muralis* (L.) Gaertn.**

*Synonyms:* *Chondrilla erysimifolia* (Willd.) Poir.; *Chondrilla muralis* (L.) Lam.; *Chondrilla ruderalis* Gaertn. ex Steud.; *Cicerbita muralis* Wallr.; *Lactuca atlantica* Pomel; *Lactuca erysimifolia* (Willd.) DC.; *Lapsana erysimifolia* (Willd.) Thell.; *Mycelis angulosa* Cass.; *Mycelis muralis* f. *muralis*; *Phaenopus muralis* (L.) Coss. & Germ.; *Prenanthes erysimifolia* Willd.; *Prenanthes muralis* L.; *Prenanthes parviflora* Gilib.

**Original name (Gmelin 1817):** *Prenanthes muralis*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 299. 300.

**German names and French names (Gmelin 1817):** Gelbe Mauerprenanthe, Prenanthe des murs

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant provides good and productive fodder for cattle and pigs. It is best used in high and low-lying forests and open woodlands, where it grows in abundance. Bees collect honey from its flowers.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 1-2-3 feet tall, upright, round, smooth, and branched. The branches are alternate and panicle-like. The leaves are alternate, clasping the stem, semi-pinnate, serrated, pointed, and smooth, the outer segments large and triangular, often reddish at the edges. Small leaf buds at the base of the flower stalks. The flowers are panicle-shaped, pale yellow, small, and composed of five florets. The corolla is stalked. The receptacle is bare. Grows on walls, forest cliffs, and occasionally in large numbers in forest clearings and open mountain forests. It blooms in June and July. Its seeds ripen in July and August, and is classified as a perennial.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 1 - 2 - 3 Fuß hoch, aufrecht, rund, glatt, ästig. Die Aeste abwechselnd, rispenartig. Die Blätter abwechselnd, stengelumfassend, halbgefiedert, schrotsägenförmig, zugespitzt, glatt, die äussern Abschnitte groß und dreieckig, am Rande öfters röthlich. Kleine Blattansätze am Grunde der Blütenstiele. Die Blüten rispenförmig, blaßgelb, klein, aus fünf Blümchen zusammengesetzt. Die Samenkronen gestielt. Der Fruchtboden nackt. Wächst an Mauern, Waldfelsen, und in den Waldschlägen und lichten Bergwaldungen hie und da in großer Menge. Blühet im Juni, Juli. Reifet ihre Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Diese Pflanze giebt dem Rindvieh und den Schweinen ein gutes und ergiebiges Futter. Sie sollte vorzüglich in den höhern und tieferliegenden Waldschlägen und lichten Waldungen, wo sie in Menge vorkommt, bestens benutzt werden. Die Bienen sammeln Honig aus ihren Blüten.

***Lactuca perennis* L.**

*Synonyms: Cyanoseris perennis* Schur; *Lactuca cichoriifolia* DC.; *Lactuca coerulea* Rchb.; *Lactuca deggeleri* Hegetschw.; *Lactuca perennis* subsp. *perennis*; *Lactuca sonchoides* Lapeyr.; *Scorzonera caerulea* Saut. ex Rchb.;

**Original name (Gmelin 1817):** *Lactuca perennis*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 294. 295.

**German names and French names (Gmelin 1817):** Blauer Bergsalat, Blauer Lattic, Beständiger Lattic; Laituc vivace

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but extinct in the region

**KR 117736** (Fig. 41); **117737** (Fig. 42)

**Contemporary uses:** *Sometimes used as salad.*

**Uses 1817 (Gmelin 1817):** The leaves appear as early as February and March; they are very tender, milky, sweet, and tasty. The inhabitants of Sponheim prepare an excellent salad from them. The young leaves can also be eaten as a pleasant and healthy vegetable. This plant deserves to be used as a food in the areas where it occurs. Last year, I found it very frequently on the steep limestone slopes and their slopes, in the narrow and eerie Danube valley, near Möskirch, which is extremely welcome to plant lovers, and around the high, old mountain castles and fortresses. It can be easily grown from seed in shady spots in our kitchen gardens, as our experiments have shown, and should be introduced as a new early salad.

**Description and Ecology (Gmelin 1817):** The root is branched, fibrous, white, and lactiferous. The stem is 1.5 - 2 - 3 feet tall, erect, smooth, and branched. The branches are alternate and spreading. The leaves are alternate, stem-clasping, semipinnate: the incisions are equally wide, narrowly lanceolate, slightly toothed, or entire, smooth, and lactiferous. The uppermost leaves are entire, smooth, and pale green. The flower spike is large and spreading. The communal calyx is cylindrical, tiled roof-shaped: the scales are acute, with membranous margins. The general corolla is blue, tending to violet, rarely white. The seeds are oval, acute, smooth, and compressed. The corolla is hair-like. The receptacle is naked. Grows in the higher limestone mountain regions of Baden, Württemberg, Sigmaringen, Switzerland, Alsace, and Sponheim on the steep, clay-slate cliffs along the Moselle. It blooms in May, June, and July. Its seeds ripen in July and August and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig, weiß, milchgebend. Der Stengel 1½ - 2 - 3 Fuß hoch, aufrecht, glatt, ästig. Die Aeste abwechselnd, ausgebreitet. Die Blätter abwechselnd, stengelumfassend, halbgefiedert: die Einschnitte gleichbreit, schmal-lanzettförmig, etwas gezahnt, oder ganz, glatt, milchgebend. Die obersten ganz, glatt, fahlgrün. Die Blütenrispe groß, ausgebreitet. Der gemeinschaftliche Blütenkelch walzenartig, ziegeldachförmig: die Schuppen zugespitzt, am Rande häutig. Die allgemeine Blumenkrone blau, ins violette gehend, selten weiß. Die Samen eyrund, zugespitzt, glatt, zusammengedrückt. Die Samenkronen haarförmig. Der Fruchtboden nackt. Wächst in höheren Kalkgebirgsgegenden im Badischen, Würtenbergischen, Sigmaringischen, in der Schweiz, im Elsaß, im Sponheimischen auf den steilen ausgehenden Thonschiefer-Felsen längst der Mosel hin. Blühet im Mai, Juni, Juli. Reifet seine Samen im Juli, August, und gehört unter die ausdauernden Pflanzen. Schon im Februar und März kommen die Blätter zum Vorschein, welche sehr zart, milchig, süß und schmackhaft sind. Die Einwohner im Sponheimischen bereiten daraus einen vorzüglich guten Salat. Auch können die jungen Blätter, als ein angenehmes und gesundes Gemüse verspeist werden. Diese Pflanze verdient als Speiße in denen Gegenden, wo sie vorkommt, bestens benutzt zu werden. Im vorigen Jahre fand ich sie sehr häufig an den steilen Kalkfelsen-Abhängen und dem ausgehenden derselben, in dem für den Pflanzenkenner ausserst willkommenen beengten und schauerlichen Donauthal, ohnweit Möskirch, und um die hohen alten Bergschlösser und Burgen. Sie läßt sich

in unsern Küchengärten leicht aus Samen, an schattigen Stellen erziehen, wie unsere Versuche zeigten, und sollte als ein neuer Frühsalat eingeführt werden.



Figure 41. *Lactuca perennis* L. - KR 117736



Figure 42. *Lactuca perennis* L. - KR 117737

***Lapsana communis* L.**

*Synonyms:* *Lapsana cancellata* var. *cancellata*; *Lapsana communis* subsp. *pubescens* (Hornem.) Arcang.

**Original name (Gmelin 1817):** *Lapsana communis*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 349. 350.

**German names and French names (Gmelin 1817):** Gemeiner Milchen, Rainkohl, Gemeiner Ackerkohl, Wilder Salat; Lampsane, Herbe aux Mamelles, Poulle grasse

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 117599 (Fig. 43)

Figure 43. *Lapsana communis* L. - KR 117599

**Botany and Ecology:** Annual. Stem erect, divaricately branched, less often simple, with (mostly in lower part) spreading, somewhat stiff hairs, usually more or less mixed with glandular hairs, to densely glandular pubescent (f. *glandulosa* Freyn), sometimes subglabrous, 20-100 cm high. Leaves thin, unevenly crenate- or sinuate-toothed, on both surfaces or only beneath and along margin scattered hairy; lower leaves petiolate, 3-10 cm long and 1.5-6.0 cm wide, lyrate pinnatisect, with large ovate, terminal lobes and one or two pairs of small, ovate or lanceolate, lateral lobes; upper leaves sessile, oblong-lanceolate or ovate-rhombic, smaller. Capitula numerous, in paniculate inflorescence, small; involucre about 2-4 mm wide, 5-7 mm long; involucre bracts usually smooth, less often more or less hairy; outer bracts small, inconspicuous, scarious, inner ones five to seven times as long as outer, linear-lanceolate, on outer side with thickened ribs, often darkish at apex. Corolla pale yellow, one and one-half times as long as involucre. Achenes linear-cuneate, slightly curved and lustrous, ribbed, gradually narrowed toward base, glabrous, 3.5-4 mm long. Flowering June-July. Ural, Caucasus, Altai, Middle Asia, on forest

fringes, in open forests, clearings, in shrublands, in fields, in vegetable gardens, orchards, as weed, in the lower- and middle mountain belt. (Boborov and Tzelev 1964).

**Contemporary uses:** A leaf infusion is used as purgative and wound-healing, as poultice with tumors and to heal with nipple cracks in nursing mothers. Georgia: The young leaves of both species are eaten as salad and in herb pies. Plants used as *mkhali Kaheti*: *tatruli mkhali* თათრული მხალი *Amaranthus hybridus* L., *ts'ots'nara mkhali* წოწნარა მხალს *Amaranthus retroflexus* L., *khach'ich'ora* ხაჭიჭორა *Capsella bursa-pastoris* (L.) Medik., *vazisdzira* ვაზიდირა *Lapsana grandiflora* M. Bieb., *bolok'a* ბოლოკა *Rapistrum rugosum* (L.) All., *q'int'ora* ყინტორა *Chaerophyllum aureum* L., *natsarkatama* ნაცარქათამა *Chenopodium album* L., *shalgi* შალგი (*shelga* შელგა) *Brassica campestris* L., *sve* სვე *Humulus lupulus* L., *khboshubla* ხბოშუბლა *Galega orientalis* Lam. ნორჩ, *ch'inch'ari* ჭინჭარი *Urtica dioica* L., *ghoris kada* ღორის კადა *Lactuca serriola* L., *Balba* ბალბა *Malva neglecta* L., *natsarkatama* ნაცარქათამა or *dzaghltzhola* ძაღლთჟოლა *Chenopodium foliosum*, *tatabo* თათაბო *Atriplex hortensis* L., *saghvidzla* საღვიძლა or *burbushela* ბურბუშელა *Taraxacum confusum* Schischk., *tskhenis tsertsvela* ცხენის ცერცველა- *Vicia narborensis*, *vazis dzira* ვაზის ძირა *Lapsana grandiflora* M. Bieb., *mravaldzarghva* მრავალძარღვა *Plantago major* L., *babuats'vera* ბაბუაწვერა *Taraxacum* ssp., *gareuli ts'its'mat'i* გარეული წიწმატი *Cardamine hirsuta* L., *ghinch'a-ghinch'a* ღინჭა-ღინჭა *Sonchus* ssp. (Javakhishvili 1986 1986, Menteshahvili 1943). Racha people used wild plants as food from ancient times and make herb pie of *ts'iteli pkhali* წითელი ფხალი *Amaranthus hybridus* L., *jijilaq'a* ჯიჯილაყა *Amaranthus retroflexus* L., *khbosshubla* ხბოშუბლა *Galega orientalis* Lam., *burt'q'ila* ბურტყილა *Lapsana grandiflora* M. Bieb. The young leaves are eaten as salad and in herb pies. The leaves are used for soups, salads and Pkhali (herb pie). Used as emergency food. In veterinary medicine the crushed leaves are applied to cracked udders and for mastitis in cows. (Bussmann et al. 2019f; 2025s).

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be eaten as a salad or vegetable when food is scarce. In Constantinople, they are often eaten as a salad. When eaten fresh, it provides cattle and pigs with a pleasant and nutritious fodder. This plant should be used to best advantage in light woodlands and woodlands, where it is abundant, especially in the Hardtwald forest, where dark cutting has been introduced for some time.

**Description and Ecology (Gmelin 1817):** The root is fibrous. The stem is 2-3-4 feet tall, erect, furrowed, angular, very bifid, branched, and more or less rough-hairy. The leaves are alternate, petiolate, the lowest lyre-shaped, sinuous, and bluntly toothed, the upper ones elliptic-lanceolate and sinuously toothed. The branch leaves are small, narrow, lanceolate, and entire. The flower stalks are paniculate, spreading, very divided, and thread-like. The general calyx has eight petals, with a few small, pressed scales at the base. The general corolla is yellow. The seeds are oblong, striated, and naked. The aril is absent. The receptacle is naked. Grows frequently on rubble heaps, in gardens, in fields, in vineyards, along paths, hedges, fences, and in abundance in woodlands, both in lowland and mountainous regions. It blooms in July and August. Its seeds ripen in September and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig. Der Stengel 2 - 3 - 4 Fuß hoch, aufrecht, gefurcht, eckig, sehr zweygetheilt, ästig, mehr oder weniger rauhaarig. Die Blätter abwechselnd, gestielt, die untersten leyerförmig, buchtig, stumpf gezahnt, die oberen ey-lanzettförmig und buchtig gezahnt. Die Astblätter klein, schmal, lanzettförmig, ganz. Die Blütenstiele rispenartig, ausgehend, sehr getheilt, und fadenförmig. Der allgemeine Blütenkelch achtblättrig, am Grunde mit einigen kleinen angedrückten Schuppen. Die allgemeine Blumenkrone gelb. Die Samen länglich, gestreift, nackt. Die Samenkronen fehlt. Der Fruchtboden nackt. Wächst sehr häufig auf Schutthaufen, in Gärten, auf Saatfeldern, in den Weinbergen, an Wegen, Hecken, Zäunen, und in Menge in Waldschlägen sowohl in niedern, als Gebirgsgegenden. Blühet im Juli, August. Reifet seine Samen im September, und gehört unter die einjährigen Pflanzen. Die jungen zarten Blätter können bei Mangel, als Salat und Gemüse verspeist werden. In Konstantinopel ißt man dieselben häufig als Salat. Sie giebt frisch dem Rindvieh und den Schweinen ein angenehmes und ergiebige Futter. Diese Pflanze sollte, bei Futtermangel, in den lichten Waldungen und Waldschlägen, wo sie im Ueberflusse, besonders im Hardtwalde vorkommt, wo seit einiger Zeit die Dunkelhiebs eingeführt sind, bestens benutzt werden.

#### **Lathyrus linifolius (Reichard) Bässler**

**Synonyms:** *Lathyrus linifolius* f. *emarginatus* (Hertzsch) Bässler; *Lathyrus linifolius* f. *pubescens* (Beck) Bässler; *Lathyrus linifolius* f. *pyrenaicus* (L.) Bässler; *Lathyrus linifolius* lus. *albiflorus* (Alef.) Bässler; *Lathyrus linifolius* lus. *variegatus* (Rouy) Bässler; *Lathyrus linifolius* var. *montanus* (Bernh.) Bässler; *Lathyrus linifolius* var. *varifolius* (Martrin-Donos) P.D.Sell; *Lathyrus linnaei* Rouy; *Lathyrus linnaei* var. *orientalis* (Fisch. & C.A.Mey.) Simpson; *Lathyrus luteus* (L.) Peterm.; *Lathyrus macrorrhizus* (Dulac) St.-Lag.; *Lathyrus macrorrhizus* Wimm.; *Lathyrus macrorrhizus* prol. *rothii* Rouy; *Lathyrus macrorrhizus* prol. *rothii*

Rouy; *Lathyrus macrorrhizus* subvar. *variegatus* Rouy; *Lathyrus macrorrhizus* var. *angustissimus* Godr.; *Lathyrus macrorrhizus* var. *divaricatus* (Lapeyr.) Godr.; *Lathyrus macrorrhizus* var. *latifolius* C.Schust.; *Lathyrus macrorrhizus* var. *pyrenaicus* (L.) Godr.; *Lathyrus macrorrhizus* var. *varifolius* Martrin-Donos; *Lathyrus macrorrhizus* var. *variifolius* Martrin-Donos; *Lathyrus montanus* Bernh.; *Lathyrus montanus* f. *albiflorus* (Alef.) Beck; *Lathyrus montanus* f. *emarginatus* Hertzsch; *Lathyrus montanus* f. *obtusifolius* (Martrin-Donos) Gams; *Lathyrus montanus* f. *prostratus* (Host) Asch. & Graebn.; *Lathyrus montanus* f. *pyrenaicus* (L.) Asch. & Graebn.; *Lathyrus montanus* f. *unidentatus* A.Christ.; *Lathyrus montanus* f. *variegatus* (Rouy) Beck; *Lathyrus montanus* f. *varifolius* (Martrin-Donos) Asch. & Graebn.; *Lathyrus montanus* lus. *albiflorus* (Alef.) Asch. & Graebn.; *Lathyrus montanus* lus. *variegatus* (Rouy) Asch. & Graebn.; *Lathyrus montanus* subsp. *divaricatus* (Lapeyr.) Arcang.; *Lathyrus montanus* subsp. *pyrenaicus* (L.) Arcang.; *Lathyrus montanus* var. *angustissimus* (Rouy) Asch. & Graebn.; *Lathyrus montanus* var. *divaricatus* (Lapeyr.) Fiori; *Lathyrus montanus* var. *latifolius* C.Schust.; *Lathyrus montanus* var. *linifolius* (Reichard) Asch.; *Lathyrus montanus* var. *obtusifolius* (Martrin-Donos) Beck; *Lathyrus montanus* var. *prostratus* (Host) Wohlf.; *Lathyrus montanus* var. *pubescens* Beck; *Lathyrus montanus* var. *pyrenaicus* (L.) Asch. & Graebn.; *Lathyrus montanus* var. *subunijugus* Ulbr.; *Lathyrus rothii* Rouy; *Lathyrus rothii* var. *angustissimus* Rouy; *Menkenia lutea* Bubani; *Menkenia tuberosa* Bubani; *Orobis bulbosus* Stokes; *Orobis divaricatus* Lapeyr.; *Orobis graminifolius* Becker; *Orobis linifolius* Reichard; *Orobis luteus* L.; *Orobis luteus* var. *orientalis* Fisch. & C.A.Mey.; *Orobis macrorrhizus* Dulac; *Orobis macrorrhizus* var. *pyrenaicus* (L.) Godr. & Gren.; *Orobis plukenetii* Lapeyr.; *Orobis prostratus* Host; *Orobis pyrenaicus* Philippe; *Orobis pyrenaicus* L.; *Orobis tenuifolius* Roth; *Orobis tuberosus* L.; *Orobis tuberosus* prol. *unijugus* Willk.; *Orobis tuberosus* var. *albiflorus* Alef.; *Orobis tuberosus* var. *angustifolius* Mérat; *Orobis tuberosus* var. *aphyllus* Lej.; *Orobis tuberosus* var. *divaricatus* (Lapeyr.) Ser.; *Orobis tuberosus* var. *latifolius* Bastard; *Orobis tuberosus* var. *latifolius* H.Post; *Orobis tuberosus* var. *linifolius* (Reichard) Boenn.; *Orobis tuberosus* var. *major* Merino; *Orobis tuberosus* var. *obtusifolius* Martrin-Donos; *Orobis tuberosus* var. *prostratus* (Host) Posp.; *Orobis tuberosus* var. *pyrenaicus* (L.) DC.; *Orobis tuberosus* var. *pyrenaicus* (L.) Ser.; *Orobis tuberosus* var. *tenuifolius* (Roth) Willd.; *Orobis tuberosus* var. *unijugus* Willk.; *Orobis variegatus* Lapeyr.; *Pisum luteum* (L.) E.H.L.Krause; *Pisum montanum* (Bernh.) E.H.L.Krause

**Original name (Gmelin 1817):** *Orobis tuberosus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 170. 171. - Schkuhr. Botan. Handb. tab. 200.

**German names and French names (Gmelin 1817):** Knollige Walderbse, Waldwicke mit knolligen Wurzeln, Bergerbse, Falsches Süßholz; Orobe tubereux

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened but decline

**KR 178665** (Fig. 44)

**Botany and Ecology:** Perennial; plant 15-85 cm high, glabrous; rootstock thick, cylindrical, branching, slightly curved, with tuber-like thickenings at nodes, bearing shoots; stems erect, ascending or somewhat prostrate at base, narrowly winged; stipules semi-sagittate, lanceolate or ovate-lanceolate, 6-20 mm long, 3-5mm wide, sometimes as long as petioles; rachis narrowly winged, ending in foliaceous lanceolate mucro; leaflets 2-4-paired, 2-3(4) cm long, 0.5-1.5 cm wide, lanceolate or oblong, obtuse or acuminate, bluish-green beneath, dark green above, mat, sometimes leaflets longer, up to 6 cm, and narrower (1)2-5 mm wide Peduncles (without raceme) as long as leaves or slightly longer; racemes loose, 2-5-flowered; bracts squamose; pedicels as long as calyx; flowers purple, 1.2-1.5 cm long; calyx largely gibbous at base, teeth unequal, the lower lanceolate, nearly as long as tube, the upper much shorter, triangular; standard with dark nerves, longer than wings, tapering to wide claw, limb oblong-oval, emarginate at apex; wings shorter than standard, clawed, with oblong limb; keel clawed, limb rounded at lower margin; ovary sessile, glabrous, 10-15-ovuled; pods oblong-linear, 3.8-4.2 cm long, 4 mm wide, nearly black when mature, compressed, valves slightly inflated, netted-veined; seeds 8-11, subglobose, smooth, reddish or brown, hilum linear, about one-third of the seed circumference. May-July. Moist forests, forest glades, among shrubs. (Komarov & Shishkin 1948).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** The roots taste sweet and are very nutritious and are eaten in Westphalia, Holland, Scotland, and elsewhere. The Scots also prepare a pleasant, nourishing drink from them by crushing the roots and fermenting them with water. In Ireland, the extract, which tastes very sweet, is used instead of licorice juice. The plant provides pleasant and healthy food for cattle, and the roots especially for pigs. The seeds provide pleasant food for poultry. In the higher mountains of the Black Forest and in the Odenwald, where suitable forage plants are sorely lacking, it deserves to be cultivated and propagated by art, especially at the edges of the forests, where it thrives and grows luxuriantly. This can most easily be done

through tubers and seeds. A variation of this species is found here, with a stem lying on the ground and narrower leaves, which some botanists have described as a separate species, under the narrow-leaved tuberous wild pea, *Orobus tennifolius*.



Figure 44. *Lathyrus linifolius* (Reichard) Bässler - KR 178665

**Description and Ecology (Gmelin 1817):** It bears many similarities to the preceding species (*Orobus vernus*), from which it differs in its tuberous roots and double-edged, winged stems. It grows primarily in mountain forests and meadows at the edges. It blooms in May and June. Its seeds ripen in July and August, and it is classified as a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch die knolligen Wurzeln, zweyschneidige, oberhalb geflügelte Stengel, unterscheidet. Wächst vorzüglich in Gebirgswaldungen und am Rande derselben auf Wiesen. Blühet im May, Juni. Reifet ihre Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Die Wurzeln schmecken süß und sind sehr nahrhaft, werden in Westphalen, Holland, Schottland und andern Orten gespeist. Auch bereiten die Schottländer ein angenehmes nährendes Getränke daraus, indem sie die Wurzeln zerquetschen und mit Wasser gähren lassen. In Irlland wird das Extract davon, welches sehr süß schmeckt,

anstatt des Süßholzsafes gebraucht. Die Pflanze giebt dem Rindvieh eine angenehme und gesunde Nahrung, und die Wurzeln vorzüglich den Schweinen. Die Samen geben dem Hausgeflügel eine angenehme Nahrung. Sie verdient in den höhern Gebirgen des Schwarzwaldes, und im Odenwalde, wo es gar sehr an geeigneten Futter-Kräutern fehlt, vorzüglich am Rande der Waldungen, wo sie trefflich gedeihet, und üppig wächst, durch Kunst angepflanzt und vermehrt zu werden, welches am leichtesten durch die Knollen und Samen geschehen kann. Davon findet sich bei uns eine Abänderung, mit auf der Erde hinliegendem Stengel, und schmälern Blättern, welche einige Pflanzenkenner als eine eigene Art, unter der schmalblättrigen knolligen Walderbse, *Orobus tennifolius* beschrieben haben.

***Lathyrus niger* (L.) Bernh.**

*Synonyms: Orobus niger* L.; *Pisum nigrum* (L.) E.H.L.Krause

**Original name (Gmelin 1817):** *Orobus niger*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 171. 172 - Schkur. Botan. Handb. tab. 200.

**German names and French names (Gmelin 1817):** Schwarze Walderbse, Schwarze Waldkichern, Hohe schwarze Waldkichern; Orobe noiratre

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Vulnerable, decline

**KR 180544** (Fig. 45)

**Botany and Ecology:** Perennial; plant 50—80 cm high; rootstock short, thickened, nearly woody, producing at summit 1 or few stems; stems erect, nearly leafless below, densely leafy in upper part, due to the short internodes, thin, angular; stipules semi-sagittate, linear-lanceolate, shorter than petioles, 6—10 mm long, 1—2 mm wide; leaves short-petioled; rachis angular, ending in a thin awn; leaflets (2)3—5 -paired, elliptic or oblong-oval, rounded at both ends, mucronate at apex, grayish-green beneath, obscurely nerved at both sides, 20—35mm long, 8—12 mm wide. Peduncles (without racemes) shorter than leaves, thin; racemes 4—6 -flowered, loose, secund; pedicels thin, nearly as long as calyx; calyx broadly campanulate, short-ciliate at margin, upper teeth minute, the two median triangular-acuminate, the lower triangular-subulate, shorter than tube; corolla 11—13 mm long, lilac-violet; standard hardly longer than wings, limb nearly oval, shorter than the wide claw; wings with long slightly curved claw, limb oblong, tapering above, auricled at base; keel long-clawed, nearly rectangular at lower margin, elongating into beak at apex; ovary glabrous; pods rather inflated, oblong-linear, 4—5 cm long, 4—5 mm wide, sessile, gradually elongating, slightly curved at apex, valves inconspicuously nerved; seeds 10—12, oblong-oval, brown, hilum nearly half of seed circumference. July—August. Forests, mainly broadleaved, especially oak but also pine. (Komarov & Shishkin 1948).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant is an excellent, nutritious, healthy, and sweet fodder for cattle and pigs, both fresh and dried, and should be used to its full potential. In the higher, harsh, cold limestone mountain regions of Baden, Württemberg, and Sigmaringen, and in Switzerland, where artificial meadow clover does not thrive, the black woodpea should be cultivated and propagated instead in somewhat shady areas, especially at the edges of forests and in forest meadows with limestone as their substrate. Propagation occurs most quickly through the roots and seeds. This vetch species can be harvested two or three times from May to September. The experiments I conducted with it several years ago here in Karlsruhe leave no doubt that we would subsequently have one of the most excellent fodder plants in areas suitable for its growth. The dried plant turns black, but this does not detract from its quality. The very sweet roots can also be used as human food in an emergency. As Ray reports, they were eaten by the English in a besieged city. The flowers provide the bees with wax and honey.

**Description and Ecology (Gmelin 1817):** The root is long, cylindrical, thick, and woody. The stem is 1.5 to 3 feet tall, erect, smooth, and branched. The branches are alternate and divided, erect. The leaves are alternate and pinnate: the leaflets are 10 to 12 to 14, opposite, elliptic-oblong, pointed, ending in a fine awn. The leaf bases are small, lanceolate, and entire. The flowers are borne on long axillary stalks in unilateral racemes of 6 to 9 flowers. The corollas are purple-red. The pod is long, round, smooth, drooping, black, and multi-seeded. Grows in higher forested mountain regions, especially in limestone mountains, such as the Baden Oberland, in Fürstenberg, Nellenburg, near Villingen, Donaueschingen, Engen, Aach, Stockach, Möskirch, and frequently on steep limestone slopes, and above it in the Danube Valley near Möskirch, in Württemberg and Sigmaringen, as well as in the Basel region, in Bruntrut, and on the Jura Mountains. Blooms in May and June. Its seeds ripen in August and are considered perennial plants.



Figure 45. *Lathyrus niger* (L.) Bernh. - KR 180544

**Original German text Gmelin (Gmelin 1817):** Die Wurzel lang, walzenförmig, dick, und holzig. Der Stengel  $1\frac{1}{2}$  - 3 Fuß hoch, aufrecht, glatt, ästig. Die Aeste abwechselnd, und getheilt, aufrecht. Die Blätter abwechselnd, gefiedert: die Blättchen 10 - 12 - 14, gegenüberstehend, eyrund-länglich, spitzig, in eine feine Granne ausgehend. Die Blattansätze klein, lanzettförmig, ganz. Die Blüthen stehen auf langen Achselstielen in einseitigen 6 - 9 blüthigen Trauben. Die Blumenkronen purpurroth. Die Hülse lang, rund, glatt, herabhängend, schwarz, vielsamig. Wächst in höhern Waldgebirgsgegenden, vorzüglich in Kalkgebirge, als in den badischen Oberlanden, im Fürstenbergischen, Nellenburgischen, bei Villingen, Donaueschingen, Engen, Aach, Stockach, Möskirch und häufig an den steilen Kalkabhängen, und überdenselben im Donauthal ohnweit Möskirch, im Württembergischen und Sigmaringischen, ferner im Basler Gebiete, im Bruntrutischen, und auf dem Juragebirge. Blühet im May, Juni. Reifet ihre Samen im August, und gehört unter die ausdauernden Gewächse. Diese Pflanze ist ein treffliches nährendes, gesundes und süßes Futter, für das Rindvieh und die Schweine, sowohl frisch als getrocknet, und sollte bestens genutzt werden. In den höhern, rauhen kalten Kalkgebirgsgegenden im Badischen, Württembergischen, und Sigmaringischen, und in der Schweiz, wo der künstliche Wiesenklec nicht gedeihet, sollte statt diesem, die schwarze

Walderbse in etwas schattigen Gegenden, vorzüglich am Rande der Waldungen, und auf Waldwiesen, welche Kalksteine zur Unterlage haben, bestens angebaut und vermehrt werden. Die Vermehrung geschieht am geschwindesten durch die Wurzeln und Samen. Diese Wickenart kann vom May bis in September, zwey bis drey mal abgeschnitten werden. Die mit ihr vor mehreren Jahren dahier in Carlsruhe, durch mich angestellten Versuche, lassen keinen Zweifel übrig, daß wir in der Folge, in den zu ihrem Wachstume geeigneten Gegenden, eines der vorzüglichsten Futtergewächse an ihr haben würden. Die getrocknete Pflanze wird schwarz, wodurch ihr jedoch nichts benommen wird. Die sehr süßen Wurzeln können im Nothfall, auch als Nahrung für Menschen angewendet werden. Sie sind wie Ray berichtet, von den Engländern in einer belagerten Stadt gegessen worden.

### ***Lathyrus pratensis* L.**

*Synonyms:* *Lathyrus cashmericus* Royle ex Baker; *Lathyrus denudatus* Gilib.; *Lathyrus lusseri* Heer ex W.D.J.Koch; *Lathyrus pratensis* f. *pallidiflorus* H.Lindb. ex Hiitonen; *Lathyrus pratensis* f. *sepium* (Scop.) Bolzon; *Lathyrus pratensis* subsp. *hallersteinii* Nyman; *Lathyrus pratensis* subsp. *lusseri* (Heer ex W.D.J.Koch) Soják; *Lathyrus pratensis* subsp. *pratensis*; *Lathyrus pratensis* subsp. *velutinus* (DC.) Soják; *Lathyrus pratensis* var. *hirsutus* Lej.; *Lathyrus pratensis* var. *montanus* Lecoq & Lamotte; *Lathyrus pratensis* var. *subalpinus* Rouy; *Lathyrus pratensis* var. *tomentosus* Wahlb.; *Lathyrus pratensis* var. *velutinus* DC.; *Lathyrus sepium* Scop.; *Lathyrus velutinus* (DC.) Landolt; *Orobis pratensis* (L.) Stokes; *Pisum pratense* (L.) E.H.L.Krause

**Original name (Gmelin 1817):** *Lathyrus pratensis*. Linn. Sp. pl. - Gmel. Fl. Bad. III. p. 177. 178.

**German names and French names (Gmelin 1817):** Gelbe Wiesenplatterbse, Gelbe Wiesenkickern, Honigwicken, Gelbe Vogelwicken, Gelbe Zaunwicken; Gesse de prés

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 209354** (Fig. 46)

**Botany and Ecology:** Herbs perennial, 30-120 cm tall. Stem decumbent or climbing, wingless. Leaves with simple or branched tendril at apex; stipules sagittate, (5-)10-45 × 3-10(-15) mm; leaflets 1-paired, elliptic, lanceolate, or linear-lanceolate, 10-30(-50) × 2-9(-13) mm, puberulent, with parallel veins. Raceme 3-6 × as long as leaf, 5-12-flowered. Calyx campanulate, pubescent; longest tooth longer than tube. Corolla yellow, 12-18 mm; standard orbicular, ca. 14 mm, with claw; wings slightly shorter than standard. Legume black, linear, 2.5-4.5 cm. Seeds yellow or brown, orbicular, smooth. Flowering June-August, fruiting August-October. (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant provides excellent food for cattle, horses, pigs, and sheep, and deserves to be cultivated and propagated more extensively, especially in river regions subject to frequent flooding, where it grows abundantly. Poultry eats the seeds very willingly, and they were also used in bread during times of scarcity.

**Description and Ecology (Gmelin 1817):** The root is creeping and white. The stems are 1.5 - 2 - 4 feet tall, weak, upward-ascending, angular, and branched. The leaves are alternate, stalked, and paired; the pairs are opposite, lanceolate, trifoliate, and entire. The leaf bases are semi-arrow-shaped. The flowers are borne in the axils of the leaves and have long stalks. The stalks are solitary, angular, furrowed, and have 8 - 10 flowers. The flowers are yellow, racemose, and unilateral. The pods are compressed, smooth, black, and multi-seeded. The seeds are round, smooth, and pale gray. Grows in the Rhine, Main, and Neckar river areas, and other riverine areas, often in low-lying, wet, moist, and dry meadows, in fields, and on hedges. Blooms in May, June, and July. Its seeds ripen in August and September and are considered perennial plants.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend, weiß. Die Stengel 1½ - 2 - 4 Fuß hoch, schwach, aufwärts steigend, eckig, ästig. Die Blätter abwechselnd, gestielt, gepaart; die Paare gegenüberstehend, lanzettförmig, dreyrippig, ganz. Die Blattansätze halbpfeilförmig. Die Blüten aus den Achseln der Blätter, langgestielt. Die Stiele einzeln, eckig, gefurcht, 8 - 10 blüthig. Die Blüten gelb, traubenförmig, einseitig. Die Hülsen zusammengedrückt, glatt, schwarz, vielsamig. Die Samen rundlich, glatt, blaßgrau. Wächst in den Rhein-, Main-, Neckar- und andern Flußgegenden, häufig auf niedrigliegenden, sowohl nassen, feuchten als trockenen Wiesen, auf Aeckern, und an Hecken. Blühet im May, Juni, Juli. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Diese Pflanze giebt dem Rindvieh, den Pferden, Schweinen und Schaafen eine treffliche Nahrung, und verdiente vorzüglich in den öftern Ueberschwemmungen

ausgesetzten Flußgegenden, wo sie üppig wächst, mehr angebaut und vermehrt zu werden. Die Samen frißt das Hausgeflügel sehr gerne, auch wurden sie in theuren Zeiten auf Brod benutzt.



Figure 46. *Lathyrus pratensis* L. - KR 209354

#### ***Lathyrus sylvestris* L.**

*Synonyms: Lathyrus angustifolius* Medik.; *Lathyrus grandiflorus* Láng; *Lathyrus heterophyllus* Lapeyr.; *Lathyrus intermedius* Wallr.; *Lathyrus noeanus* Alef.; *Lathyrus platyphyllos* (Retz.) W.D.J.Koch; *Lathyrus platyphyllos* Retz.; *Lathyrus pyrenaicus* Jord.; *Lathyrus silvester* sensu auct.; *Lathyrus sylvestris* L.; *Lathyrus sylvestris* f. *pyrenaicus* (Jord.) Rouy; *Lathyrus sylvestris* prol. *pyrenaicus* (Jord.) Rouy; *Lathyrus sylvestris* subsp. *angustifolius* (Medik.) Rothm.; *Lathyrus sylvestris* subsp. *platyphyllos* (Retz.) Nyman; *Lathyrus sylvestris* subsp. *pyrenaicus* (Jord.) O.Bolòs & Vigo; *Lathyrus sylvestris* var. *ensifolius* Ser.; *Lathyrus sylvestris* var. *intermedius* Kožuharov; *Lathyrus sylvestris* var. *intermedius* Lamotte; *Lathyrus sylvestris* var. *oblongus* Ser.; *Lathyrus variegatus* Gilib.; *Pisum silvestre* (L.) E.H.L.Krause

**Original name (Gmelin 1817):** *Lathyrus sylvestris*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 178. 179.

**German names and French names (Gmelin 1817):** Große Walderbse, Waldkichern, Buhlererbsen; Gesse de Bois

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 179362** (Fig. 47)



Figure 47. *Lathyrus sylvestris* L. - KR 179362

**Botany and Ecology:** Perennial; plant 20–60 cm high, sparingly pubescent, sometimes subglabrous; rootstock creeping, producing rather thin roots, with 1–3 stems growing from summit; stems angular, suberect, not branching, rarely slightly branching; stipules semi-sagittate, narrowly lanceolate or lanceolate-linear, 4–12(15)mm long, 0.5–1 mm wide; petioles short, rachis angular, ending in a rather long awn; leaflets 2–3-paired, 1–4(6)cm long, 2–5 mm wide, linear-lanceolate, acuminate, rigid. Peduncles axillary, longer than leaves (without raceme); racemes 4–10-flowered; pedicels slightly shorter

than calyx; flowers yellowish -white, 15— 17 mm long; calyx campanulate, teeth triangular-ovate, shorter than tube; standard tapering to claw, limb orbicular -oval; wings shorter than standard, oblong - oval; keel shorter than wings, clawed, nearly rectangular at lower margin, elongating into beak at apex; style abruptly broadening -spatulate at apex; ovary glabrous; pods linear, 40—45 mm long, 3—4 mm wide, slightly compressed, sessile, short -acuminate at apex, glabrous, valves netted-veined; 15—20, obliquely disposed, ellipsoidal or subglobose, hilum one-third of the circumference. May—June. Steppes and weedy places. (Komarov & Shishkin 1948).

**Contemporary uses:** *Georgia: used in traditional medicine. It is a honey plant.*

**Uses 1817 (Gmelin 1817):** The young plants provide cattle with a pleasant and plentiful fodder and should be used for this purpose when there is a shortage. The seeds provide good nutrition for poultry and, when there is a shortage, can also be prepared and eaten by humans instead of lentils, vetches, and peas. They were also recommended for baking bread in times of high prices. In rough, hedge-covered limestone regions, especially on sunny hills and slopes, this plant is often found in such abundance that it covers entire, considerable areas. Where it should be used to its full potential. The flowers provide the bees with wax and honey.

**Description and Ecology (Gmelin 1817):** roots are widely spreading. The stems are supported by hedges, 5-6-7 feet long, winged, double-edged, and branched. The leaves are alternate, stalked, and paired. The pairs are opposite, linear-lanceolate, long-veined, and branched. The leaf tendrils are branched. The leaf bases are semi-arrow-shaped, pointed, and entire. The long flower stalks arise singly from the leaf axils, angular, and have 4-5-7 flowers. The corollas are purple-red, rose-red, rarely whitish, and large. The pods are long, narrow, smooth, and multi-seeded. The seeds are round and rough. Grows here and there very frequently, in low-lying and especially in mountainous limestone regions, on hedges, fences, along paths, at the edge of forests and along vineyards, in Baden, Württemberg, Switzerland, Alsace, and other places where it not infrequently covers the hedges. It blooms in June, July, and August. Its seeds ripen in August and September and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weit auslaufend. Die Stengel von den Hecken unterstützt, 5 - 6 - 7 Fuß lang, geflügelt, zweischneidig, ästig. Die Blätter abwechselnd, gestielt, gepaart. Die Paare gegenüberstehend, linienlanzettförmig, genervt, lang. Die Blattranken ästig. Die Blattansätze halbpfeilförmig, zugespitzt, ganz. Die langen Blütenstiele einzeln aus den Achseln der Blätter kommend, eckig, 4 - 5 - 7 blüthig. Die Blumenkronen purpurroth, rosenroth, seltener weißlich, groß. Die Hülsen lang, schmal, glatt, vielsamig. Die Samen rund, rauh. Wächst hie und da sehr häufig, in tiefer liegenden und vorzüglich in gebirgigen Kalksteingegenden, an Hecken, Zäunen, an Wegen, am Rande der Waldungen und längst den Weinbergen hin, im Badischen, Württembergischen, in der Schweiz, im Elsaß, und an andern Orten wo sie nicht selten die Hecken überzieht. Blühet im Juni, Juli, August. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Die jungen Pflanzen geben dem Rindvieh ein angenehmes und ergiebiges Futter, und sollten bei Mangel dazu bestens benutzt werden. Die Samen geben dem Hausgeflügel eine gute Nahrung, und können bei Mangel, statt der Linsen, Wicken, und Erbsen, auch von Menschen zubereitet und verspeist werden. Auch wurden dieselben in theuren Zeiten zu Brodbacken empfohlen. In rauhen mit Hecken bewachsenen Kalksteingegenden, vorzüglich auf sonnenreichen Hügeln und Abhängen, findet sich diese Pflanze oft in solcher Menge, daß sie daselbst ganze beträchtliche Stellen überzieht. Wo sie bestens benutzt werden sollte. Den Bienen geben die Blüten Wachs und Honig.

#### ***Lathyrus tuberosus* L.**

**Synonyms:** *Lathyrus attenuatus* Viv.; *Lathyrus festivus* Sennen; *Lathyrus tuberculatus* Gaudin; *Pisum tuberosum* (L.) E.H.L.Krause

**Original name (Gmelin 1817):** *Lathyrus tuberosus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 176. 177.

**German names and French names (Gmelin 1817):** Knollige Platterbse, Erdnüsse, Erdmäuse, Erdeicheln, Erkelnüsse, Erdfeigen, Grundeicheln, Saubrod, Falsch Schweinbrod; Gesse tubereuse, Glands de terre, Tareole, Tarnottes, Magustans

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 180018** (Fig. 48)



Figure 48. *Lathyrus tuberosus* L. - KR 180018

**Botany and Ecology:** Herbs perennial; rhizomes bearing small tubers. Stem 30-120 cm tall, erect, glabrous, wingless. Leaves with simple or branched tendril at apex; stipules semisagittate, 5-20 × 1-4 mm; leaflets 1-paired, elliptic, oblong, or obovate, glabrous, with parallel veins. Raceme 2-7-flowered. Calyx campanulate, 6-7 mm; longest tooth shorter than tube. Corolla purple-red, 1.5-2 cm; standard subovate, with claw; wings obovate, auriculate at base. Ovary linear; style twisted. Legume brown, linear, 2-4 cm, glabrous. Seeds brown, elliptic, tuberculate. Flowering June-August, fruiting August-September (Wu *et al.* 1994-2013).

**Contemporary uses:** Romania: wound care. Georgia: tubers eaten cooked. Romania: food plant, mostly for children. Slovakia: tubers raw or baked in ashes, eaten by shepherds and children. Czech Republic: Tubers eaten raw. Hungary: Roots roasted, seeds rarely eaten. Flowers in high gastronomy. Georgia: It is a good food plant. Cattle eat well mixed in hay, as well as on spring pastures. Poland: In Corpus Christi wreaths. (Batsatsashvili *et al.* 2017e; Bussmann *et al.* 2025t; Paniagua-Zambrana *et al.* 2020e; 2025u).

**Uses 1817 (Gmelin 1817):** The tuberous roots, freed from their black covering, have a pleasant, sweet flavor, somewhat similar to that of sweet chestnuts. Bergius obtained three ounces of excellent white starch from one pound of these tubers; they therefore contain even more starch than the common pear and potatoes (*tubera solani*). They are peeled, boiled with salt, and eaten like potatoes and chestnuts with a little butter, or with spices, as a nourishing vegetable. In Holland, they are cultivated, and the tubers are sold at markets under the name Aart-Nutt (Aart-Müze), and are eaten. According to J. G. Gmelin, they are one of the most common and excellent foods of the Tartars. The herb provides cattle with a pleasant, nourishing, and healthy feed. In rough, stony, higher, cold, limestone regions, where this plant is often the most odious weed in crop fields, its tubers should be collected and used as the best substitute for potatoes during grain shortages and where there is a shortage of potatoes. These tubers are a pleasant and excellent source of fat for pigs, and they eagerly seek them out. It would be worthwhile to cultivate this plant in such harsh, cold limestone regions, where meadow clover and even potatoes fail to thrive, by artificially cultivating it, as our small-scale experiments have shown. What great benefits this would bring to these regions, which so often lack the necessary food! Planting and rapid propagation are achieved through tubers and seeds. How much the high, stony limestone fields and many barren areas would benefit from being converted into artificial meadows by this plant, and how much they would be beautified as a result. I hope these suggestions will be put to use very soon.

**Description and Ecology (Gmelin 1817):** The root is tuberous, conical or fig-shaped, often cylindrical, brownish-black on the outside, white on the inside, and fibrous. The stems are 2-3 feet long, erect, weak, or often prostrate, angular, naked, smooth, and branched. The leaves are alternate, stalked, and paired: the leaflets are opposite, ovate-pointed, awned, smooth, and bright green. The leaf tendrils are trifoliate. The stipules are arrow-lanceolate and entire. The flowers arise from the axils and have long stalks. The stalks have 4-5-6 flowers. The corollas are large, beautiful purple-red or rose-colored, and pleasantly fragrant. The pods are compressed, smooth, and multi-seeded. Grows on stony, mountainous, limestone soils, in seedbeds, in Baden, Württemberg, Fürstenberg, Sigmaringen, Nellenburg, the Basel region, in Switzerland, in Bruntrut, along the Jura, in Alsace, and in the Palatinate, here and there in large quantities, where it often suppresses grain. It blooms in June, July, and August. Its seeds ripen in August and September, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel knollig, kegel- oder feigenförmig, oft ins walzenförmige gehend, aussen braunschwarz, innen weiß, faserig. Die Stengel 2 - 3 Fuß lang, aufrechtstehend, schwach, oder öfters hinliegend, eckig, nackt, glatt, ästig. Die Blätter abwechselnd, gestielt, gepaart: die Blättchen gegenüberstehend, eyrund- zugespitzt, begrannt, glatt, lebhaft grün. Die Blatt-Rancken dreymal getheilt. Die Nebenblätter pfeil- lanzettförmig, ganz. Die Blüten aus den Achseln kommend, langgestielt. Die Stiele 4 - 5 - 6 blüthig. Die Blumenkronen groß, schön purpurroth, oder rosenfarben, angenehm riechend. Die Hülsen zusammengedrückt, glatt, vielsamig. Wächst auf steinigem bergigen Kalkböden, in den Saatfeldern, im Badischen, Würtembergischen, Fürstenbergischen, Sigmaringischen, Nellenburgischen, im Baslergebiete, in der Schweiz, im Bruntrudtischen, längst dem Jura hin, im Elsaß und in der Pfalz hie und da in großer Menge, wo sie nicht selten das Getreide unterdrückt. Blühet im Juni, Juli, August. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Die knolligen von ihrer schwarzen Hülle befreiten Wurzeln, haben einen angenehmen süßen Geschmack, der dem, der süßen Kastanien, einigermaßen gleicht. Bergius hat aus einem Pfund dieser Knollen, drey Unzen treffliches weisses Stärkemehl erhalten, sie enthalten also noch mehr Stärkemehl, als die Grundbirn, Kartoffeln (*tubera Solani*). Sie werden geschält, mit Salz abgekocht und wie die Kartoffeln und Kastanien mit etwas Butter gegessen, auch mit Gewürze, als nährendes Gemüse zubereitet. In Holland werden sie angebauet, und die Knollen unter dem Namen Aart-Nutt, Aart-Müze, zum Verkauf auf die Märkte gebracht, und verspeist. Sie sind nach J. G. Gmelin, eines der gewöhnlichsten und vorzüglichsten Nahrungsmittel der Tartarn. Das Kraut giebt dem Rindvieh ein angenehmes nährendes und gesundes Fütter. In rauhen steinigem höheren kalten Kalkgegenden, wo diese Pflanze oft das verwünschteste Unkraut der Saatfelder ist, sollten ihre Knollen bei Getreidemangel und wo es an Kartoffeln fehlt, als das beste Surrogat derselben, eingesammelt und benutzt werden. Für die Schweine sind diese Knollen, eine angenehme und treffliche Mastung, auch suchen sie dieselben begierig auf. Es verlohnte sich der Mühe, diese Pflanze in solchen rauhen kalten Kalksteingegenden, wo der Wiesenklees und sogar die Kartoffeln nicht gedeihen wollen, durch Kunst anzupflanzen, wodurch Pflanze und Knollen größer und schmackhafter werden, wie unsere im Kleinen damit angestellten Versuche zeigten. Welche große Vortheile würden diesen Gegenden, denen es so oft an dem nöthigen Futter fehlt, dadurch erwachsen! Die Anpflanzung und schnelle Vermehrung geschieht durch die Knollen und Samen. Wie sehr würden die hohen steinigem Kalkfelder, und so manche steril liegende Gegend, durch die Umschaffung in künstliche Wiesen durch diese Pflanze gewinnen, und wie sehr würden sie dadurch noch nebenher verschönert werden. Möchten doch diese Winke recht bald benutzt werden.

***Lathyrus vernus* (L.) Mill.**

**Synonyms:** *Lathyrus flaccidus* (Kit. ex Rchb.) Dalla Torre & Sarnth.; *Lathyrus gaudinii* Rouy; *Lathyrus gracilis* (Gaudin) Ducommun; *Lathyrus vernus* f. *albescens* Hadač; *Lathyrus vernus* f. *angustifolius* (Endl.) Bolzon; *Lathyrus vernus* f. *gracilis* (Gaudin) Asch. & Graebn.; *Lathyrus vernus* f. *macranthus* (Rohlena) Bässler; *Lathyrus vernus* f. *roseus* Beck; *Lathyrus vernus* f. *variegatus* J.Schust.; *Lathyrus vernus* f. *variegatus* (J.Schust.) Bässler; *Lathyrus vernus* prol. *gaudinii* Rouy; *Lathyrus vernus* subsp. *flaccidus* (Ser.) Arcang.; *Lathyrus vernus* subvar. *albiflorus* (Rchb.) Rouy; *Lathyrus vernus* var. *albiflorus* (Rchb.) Asch. & Graebn.; *Lathyrus vernus* var. *albiflorus* (Rchb.) Wohlf.; *Lathyrus vernus* var. *angustifolius* (Endl.) Rouy; *Lathyrus vernus* var. *flaccidus* (Ser.) Ducommun; *Lathyrus vernus* var. *gracilis* (Gaudin) Wohlf.; *Lathyrus vernus* var. *latifolius* (Schur) Rouy; *Lathyrus vernus* var. *macranthus* Rohlena; *Lathyrus vernus* var. *rigidus* Fiori; *Lathyrus vernus* var. *roseus* Asch. & Graebn.; *Menkenia verna* (L.) Bubani; *Orobus angustistipulatus* Gand; *Orobus flaccidus* (Ser.) Kit.; *Orobus flaccidus* Kit. ex Rchb.; *Orobus gracilis* Gaudin; *Orobus longifolius* Kit.; *Orobus pauciflorus* Kit.; *Orobus praecox* Lilja; *Orobus purpureocaeruleus* Gilib.; *Orobus ruscifolius* Willd. ex Poir.; *Orobus sylvaticus* Baumg.; *Orobus vernus* L.; *Orobus vernus* f. *latissimus* C.G.Westerl.; *Orobus vernus* subsp. *flaccidus* (Ser.) Nyman; *Orobus vernus* var. *albidus* Döll; *Orobus vernus* var. *albiflorus* Rchb.; *Orobus vernus* var. *angustifolius* Endl.; *Orobus vernus* var. *angustissimus* Neilr.; *Orobus vernus* var. *flaccidus* Ser.; *Orobus vernus* var. *gracilis* (Gaudin) W.D.J.Koch; *Orobus vernus* var. *latifolius* Schur; *Orobus vernus* var. *medius* Simonk.; *Orobus vernus* var. *ruscifolius* (Willd. ex Poir.) Ser.; *Orobus vernus* var. *subalpinus* Schur; *Pisum vernum* (L.) E.H.L.Krause

**Original name (Gmelin 1817):** *Orobus vernus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 169. 170.

**German names and French names (Gmelin 1817):** Frühlings-Walderbsen, Waldkichern; Orobe printannier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but rare in the region

**KR 180084** (Fig. 49)

**Botany and Ecology:** Perennial; plant 20- 50 cm high; rootstock thick, branching, without stolons, producing many thin black roots; stems erect, often branching above, angular; petioles canaliculate, much longer than stipules; rachis ending in a bristle; stipules rather large, ovate-lanceolate, 15-20 mm long, 5-8 mm wide; leaflets 2-4 -paired, 3.5- 8 cm long, 12-30(35)mm wide, ovate or broadly oval, more or less long-acuminate, gray-green beneath, nitidous. Peduncles erect, longer than leaves; racemes 3-8-flowered; flowers drooping, rather large, 15- 18(20)mm long, purple; calyx teeth unequal, the lower broadly lanceolate, slightly shorter than tube, the upper much shorter, triangular, attached; corolla becoming blue at post anthesis and when dry; petals tapering to claw; limb of standard orbicular-oval, emarginate at apex; wings nearly as long as standard, limb oblong-oval; keel nearly as long as standard, rounded at lower margin; pods linear, 4- 5 cm long, 4-5mm wide, compressed, tapering at apex, glabrous, netted veined, brown or blackish at post anthesis; seeds 8- 10, globose, smooth, more or less variegated, hilum one-fourth of the circumference. April-May. Shady forests and among shrubs. (Komarov & Shishkin 1948).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant, whose stems grow closely together, is a pleasant and good food for cattle. It deserves to be used in our mountain forests, where it is common and is distinguished by its pleasant green color and beautiful flowers even in early spring. It deserves to be planted in mountainous regions on the edge of forests, especially in the Black Forest and the Odenwald, and to be propagated as an excellent fodder for cattle. Propagation occurs through root cuttings and seeds, which are placed about an inch deep in loosened soil. It also contributes greatly to the beautification of these areas and must also be considered an excellent bee food. It is occasionally cultivated in gardens as an ornamental flower.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stems are 7-12 inches long, erect, angular, simple and smooth. The leaves are alternate, stalked and pinnate. The leaflets are 6, sessile, oval, acute, entire, smooth and vibrant green. The leaf bases are cordate, entire and broad. The flowers are borne in racemes on a single, long, upright lateral stalk. The raceme is unilateral. The calyx is single-leaved, tubular, obliquely margined, and has five teeth. The corolla is butterfly-shaped and a beautiful violet-purple color, sometimes flesh-colored. The standard is oblong, curved back at the tip and sides. The two wings are oblong, tapering towards each other and almost as long as the standard. The navicular is bifid, pointed and erect. The stigma is linear, with fine hairs on the inner side from the center to the tip. The pod is round, long, pointed, and multi-seeded. The seeds are roundish. Grows very frequently here and there in shady mountain forests, especially on their edges. It blooms in February, March, April, and May. Its seeds ripen in June and is classified as a perennial plant.



Figure 49. *Lathyrus vernus* (L.) Mill. - KR 180084

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Die Stengel 7 - 12 Zoll lang, aufrecht, eckig, einfach, glatt. Die Blätter abwechselnd, gestielt, gefiedert. Blättchen 6, aufsitzend, eyrund, spitzig, ganz, glatt, lebhaft grün. Die Blattansätze herzpfeilförmig, ganz, breit. Die Blüten sitzen auf einem gemeinschaftlichen langen aufrechten Seitenstiele, in Trauben. Die Blüthentraube ist einseitig. Der Blumenkelch einblättrig, röhrenförmig, am Rande schief, und fünfzählig. Die Blumenkrone Schmetterlingsförmig, schön violett- purpurfarbig, zu Zeiten fleischfarben. Die Fahne verkehrt herzförmig, an der Spitze und denen Seiten zurückgebogen. Die zwey Flügel länglich, sich gegen einander neigend, beinahe so lang als die Fahne. Das Schiffchen unten zwey getheilt, zugespitzt, aufrecht. Die Narbe linienförmig, an der innern Seite von der Mitte bis zur Spitze hin feinhaarig. Die Hülse rund, lang, zugespitzt, vielsamig. Die Samen rundlich. Wächst hie und da sehr häufig in schattigen Gebirgswaldungen, und vorzüglich am Rande derselben. Blühet im Februar, März, April, May. Reifet ihre Samen im Juni, und gehört unter die ausdauernden Gewächse. Diese Pflanze, deren Stengel dicht beisammen stehen, ist dem Rindvieh eine angenehme und gute Nahrung. Sie verdient in unsern Bergwaldungen, wo sie häufig vorkommt, und sich schon im ersten Frühjahr, durch ihr angenehmes Grün, und die schönen Blüten auszeichnet, benutzt zu werden. Sie verdient in

den Berggegenden am Rande der Waldungen vorzüglich im Schwarzwalde und im Odenwalde angepflanzt, und als ein vorzügliches Futter für Rindvieh vermehrt zu werden. Die Vermehrung geschieht durch Wurzelableger und Samen, welche etwa einen Zoll tief in die aufgelockerte Erde gebracht werden. Sie trägt nebenher viel zur Verschönerung dieser Gegenden bei, und muß zugleich als ein vorzügliches Bienenfutter betrachtet werden. Sie wird hie und da in Gärten als Zierblume gehalten.

***Leccinum aurantiacum* (Bull.) Gray**

*Synonyms: Boletus aurantiacus* Bull.; *Krombholziella aurantiaca* (Bull.) Maire; *Boletus scaber* var. *aurantiacus* (Bull.) Opat.; *Trachypus aurantiacus* (Bull.) Romagn.; *Boletus versipellis* var. *aurantiacus* (Bull.) Vassilkov; *Krombholzia aurantiaca* (Roques ex Bull.) E.J. Gilbert; *Leccinum populinum* M. Korhonen; *Leccinum salicola* Watling; *Krombholziella salicola* (Watling) Šutara; *Boletus salicola* (Watling) Hlaváček; *Solenia rufa* Schaeff. ex Kuntze,

**Original name (Gmelin 1817):** *Boletus aurantiacus*. - Bulliard. tab. 489. fig. 2 und tab. 236.

**German names and French names (Gmelin 1817):** Rothgelber Steinpilz, Rothgelber Kühpilz, Rothgelber Löcherschwamm, Roussile, Gyrole rouge, Bolet orangé

**Conservation status** (<https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany prohibited

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025jkl).

**Uses 1817 (Gmelin 1817):** It is also eaten and, while young, has a tasty, tough flesh, which, however, becomes soft and tasteless with increasing age, as is the case with most sponges.

**Description and Ecology (Gmelin 1817):** Standing solitarily. The stem is usually very thick and bulbous, sometimes long and thin, spotted white, brown, or red. The ring and bulge are missing. The cap is 8-10-15 inches wide, round, domed, often very large, reddish-yellow, finally brownish-red. The holes are white, straight, long, and can be separated from the cap. The flesh is thin, white, and initially very firm. Appears to be a variation of *Boletus bovinus* Linn. and *Boletus rufus*. Schaeff. Fung. tab. 105. Grows with the preceding one on the ground, in low and high mountain forests, pastures, and heaths, in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzelnd stehend. Der Strunck meistens sehr dick und bauchig, zu Zeiten lang und dünne, weiß, braun oder roth gefleckt. Ring u. Wulst fehlen. Der Hut 8 - 10 - 15 Zoll breit, rund, gewölbt, öfters sehr groß, rothgelb, endlich braunroth. Die Löcher weiß, gerade, lang und lassen sich vom Hut absondern. Das Fleisch dünne, weiß, und anfänglich sehr fest. Wächst mit dem vorhergehenden auf der Erde, in niedrigen und höheren Bergwaldungen, Viehtriften und Heiden, im August, September, October, und scheint eine Abänderung des *Boletus bovinus* Linn. und des *Boletus rufus*. Schaeff. Fung. tab. 105. zu seyn. Wird ebenfalls verspeist, und hat so lange er jung ist, ein wohlschmeckendes derbes Fleisch, welches aber bei zunehmendem Alter, wie es der Fall bei den meisten Schwämmen ist, weich und geschmacklos wird.

***Lotus corniculatus* L.**

*Synonyms: Lotus corniculatus* var. *corniculatus*; *Lotus corniculatus* var. *crassifolia* Fr.; *Lotus corniculatus* var. *kochii* Chrtková; *Lotus corniculatus* var. *maritimus* Rupr.

**Original name (Gmelin 1817):** *Lotus uliginosus*. Gmel. Fl. Badens. III. p. 245. 246. - Schkuhr. Bot. Handb. tab. 211.

**German names and French names (Gmelin 1817):** Gehörnter Sumpf-Schotenklee, Gelber großer Schotenklee; Lotier corniculée des Marais

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 179403** (Fig. 50)



Figure 50. *Lotus corniculatus* L. - KR 179403

**Botany and Ecology:** Herbs, perennial, 15-80 cm, with a taproot, scattered sparsely white puberulent or glabrescent. Stem cylindrical to angular, solid, decumbent or ascending. Leaflets 5, apical 3 obovate to oblanceolate-obovate (lateral 2 oblique), 5-20 × 4-10 mm, papery, basal 2 stipulelike, midrib obscure. Umbels rarely more than 7-flowered; peduncle 3-10 cm; sterile bract with 1-3 leaflets, ± equal to calyx, 5-7 mm. Flowers (9-)10-18 mm. Calyx teeth almost equal in length, narrowly triangular, ± equaling, longer than, or shorter than tube. Corolla yellow or partly or wholly orange-red, often bluish black when dry. Ovary glabrous; ovules 35-40; style 4-6 mm. Legume brown, linear-cylindric, 20-25 × 2-4 mm. Seeds light to dark brown, 1-colored or spotted with violet-black spots or dots, small, ovoid, 1-1.7 mm. Flowering February-October, fruiting March-October (Wu *et al.* 1994-2013).

**Contemporary uses:** Romania: antispasmodic, sedative, insomnia, nervous disorders. Turkey: sedative, anti-hemorrhoidal, abdominal pain, diuretic, stomach pain, nephralgia. Pakistan: to stop bleeding; cardi tonic, sleeping problems, gastric

problems, tonic, skin inflammation. Estonia: tea. Hungary: roots as children's snack. Romania / Pakistan: fodder. Ethiopia: hepatitis in livestock. (Mehdiyeva et al. 2025g; Paniagua-Zambrana et al. 2025v).

**Uses 1817 (Gmelin 1817):** This plant is an excellent fodder, both green and dried, for cattle and horses. It is common in the lower and higher mountain regions and valleys and should be cultivated and propagated in the marshy, fen, and swampy areas found here and there, not far from rivers, streams, standing water, and lakes. This can be done most easily by seed. This plant, so important for meadow cultivation in marshy areas, is currently unknown to our farmers. It bears many similarities to the common horned trefoil (*Lotus corniculatus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 244, 245), which grows in our meadows, pastures, fields, vineyards, and along roads, and is also used as a good fodder herb.

**Description and Ecology (Gmelin 1817):** The root is whitish. The stems are 2-3 feet tall, erect, rounded, branched, and hollow. The leaves are alternate, stalked, and trifoliate. The leaflets are oval-lanceolate, pointed, awned, entire, smooth, and slightly hairy above. The two leaflets are very similar to the leaflets, but broader than the leaves. The yellow flowers are borne on long, bare, hollow stalks, somewhat umbel-like, numbering 5-7-12. The five calyx teeth are awl-shaped and recurved before the flowers open. The pods are cylindrical, smooth, and multi-seeded. The seeds are somewhat kidney-shaped, brown, and spotted. Grows in abundance in the Rhine, Main, Neckar, Danube, and other river regions, in damp, wet, marshy forests, woodlands, marshy meadows, along ditches, and standing water, here and there. It blooms in June and July. Its seeds ripen in August and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weißlich. Die Stengel 2 - 3 Fuß hoch, aufrecht, rund ästig, hohl. Die Blätter abwechselnd, gestielt, dreyfach. Die Blättchen oval-lanzettförmig, spitzig, begrannt, ganz, glatt, oben etwas fein behaart. Die zwey Blattansätze den Blättchen sehr ähnlich, aber breiter als dieselben. Die gelben Blüthen stehen auf langen nackten hohlen Stielen, etwas doldenartig zu 5 - 7 - 12. Die fünf Kelchzähne pfriemenförmig, und ehe die Blumen blühen zurückgebogen. Die Hülsen walzenförmig, glatt, vielsamig. Die Samen etwas nierenförmig, braun, gefleckt. Wächst in den Rhein-, Main-, Neckar-, Donau- und andern Fluß-Gegenden, in feuchten, nassen sumpfigen Waldungen, Waldschlägen, auf sumpfigen Wiesen, an Wassergräben, und stehenden Wassern, hie und da in Menge. Blühet im Juni, Juli. Reifet seine Samen im August, und gehört unter die ausdauernden Gewächse. Diese Pflanze muß, als ein ganz vorzügliches Futter, sowohl grün als gedörrt, für Rindvieh und Pferde bestens benutzt werden. Sie kommt in den niedern und höhern Berggegenden und Thälern häufig vor, und sollte in den Bruch-Moor- und Sumpfigegenden, die sich hie und da, ohnweit den Flüssen, Bächen, stehenden Wassern und Seen befinden, bestens angebauet und vermehrt werden, welches auf die leichteste Art durch Samen geschehen kann. Zur Zeit ist diese, für die Wiesencultur in Sumpfigegenden so wichtige Pflanze, unsern Landwirthen unbekannt. Sie hat viele Aehnlichkeit mit dem gemeinen gehörnten Schotenklee: *Lotus corniculatus*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 244. 245, welcher bei uns auf Wiesen, Weiden, Aeckern, in den Weinbergen, und an den Wegen vorkommt, und ebenfalls als ein gutes Futterkraut benutzt wird.

### ***Lycoperdon tuber* L.**

*Synonyms: Tuber cibarium* With; *Tuber cibarium* Bull.

**Original name (Gmelin 1817):** *Tuber cibarium*. Bulliard. tab. 356. *Lycoperdon Tuber*. Linn. Sp. pl.

**German names and French names (Gmelin 1817):** Trüffeln, Trüffelschwamm; Truffe comestible

**Contemporary uses:** *Edible when fresh.*

**Uses 1817 (Gmelin 1817):** It is one of the highly valued edible mushrooms, which are prepared in a variety of ways, especially for the tables of the wealthy. In addition to being collected by humans, they are also commonly sought out by specially trained dogs, who smell them above ground and, by scratching, indicate the places where they find them. In some regions, especially in Italy, pigs are trained for this purpose.

**Description and Ecology (Gmelin 1817):** Spherical, dense, blackish, with a rough, warty surface, without roots or fibers. There are several variations, including the black truffle (*Truffe noire*), which is the most common. The white truffle (*Truffe blanche*), which is whitish on the outside and then turns ash-brown. The black-violet truffle, and the ash-gray truffle with a garlic scent, are rare and highly valued. Grows several inches underground, especially in loose soil in oak, chestnut, and beech forests, in late autumn.

**Original German text Gmelin (Gmelin 1817):** Kugelförmig, dicht, schwärzlich, auf der Oberfläche rauwarzig, ohne Wurzeln und Fasern. Davon giebt es mehrere Abänderungen, als die schwarze Trüffel : *Truffe noire*. welches die gemeinste ist. Die

weisse Trüffel : Truffe blanche, welche aussen weißlich und nachher aschgrau braun ist. Die schwarz-violette Trüffel, die aschgraue Trüffel mit Knoblauch Geruch. Welch letztere zwey Abänderungen selten, und sehr geschätzt sind. Wächst mehre Zoll tief unter der Erde, vorzüglich in lockerem Boden in Eich-, Kastanien- und Buchwäldungen, im Späthjahr. Gehört unter die sehr geschätzten eßbaren Schwämme, welche auf mannigfaltige Art vorzüglich für die Tafeln der Reichen zubereitet werden. Man pflegt sie, ausserdem daß sie von Menschen eingesammelt werden, auch noch durch besonders abgerichtete Hunde aufzusuchen, welche sie über der Erde riechen, und durch Scharren die Stellen bezeichnen, wo sie dieselben auswittern. In einigen Gegenden, vorzüglich in Italien, werden Schweine zu diesem Geschäfte abgerichtet.

#### ***Lythrum salicaria* L.**

*Synonyms:* *Chabraea vulgaris* Bubani; *Lythron salicarium* St.-Lag.; *Lythrum alternifolium* Lorey; *Lythrum altissimum* Pomel; *Lythrum anceps* (Koehne) Makino; *Lythrum argyi* H.Lév.; *Lythrum cashmerianum* Royle; *Lythrum cinereum* Griseb.; *Lythrum coronense* Schur; *Lythrum diffusum* Sweet; *Lythrum dubium* Schult.; *Lythrum gracile* (DC.) DC. ex A.Lafont; *Lythrum hexagonum* Bercht. ex Opiz; *Lythrum nummulariifolium* Pers.; *Lythrum palustre* Salisb.; *Lythrum propinquum* Weinm.; *Lythrum pubescens* Sweet; *Lythrum purshianum* Steud.; *Lythrum quadrifolium* Mart.; *Lythrum salicaria* f. *alata* Rivas Mateos; *Lythrum salicaria* f. *albiflora* Y.N.Lee; *Lythrum salicaria* f. *angustius* Koehne; *Lythrum salicaria* f. *brevistyla* Willk. & Lange; *Lythrum salicaria* f. *caudatum* (Koehne) Kitag.; *Lythrum salicaria* f. *depauperatum* Brenner; *Lythrum salicaria* f. *glabrum* (Ledeb.) Regel; *Lythrum salicaria* f. *gracile* (DC.) Bolzon; *Lythrum salicaria* f. *latius* Koehne; *Lythrum salicaria* f. *longistyla* Willk. & Lange; *Lythrum salicaria* f. *mediostyla* Willk. & Lange; *Lythrum salicaria* f. *orgyalis* Priszter; *Lythrum salicaria* f. *rariflorum* Brenner; *Lythrum salicaria* f. *serratifolia* Rivas Mateos; *Lythrum salicaria* f. *tomentosum* (Mill.) Bolzon; *Lythrum salicaria* f. *virescens* Merino; *Lythrum salicaria* subf. *anceps* Koehne; *Lythrum salicaria* subsp. *anceps* (Koehne) H.Hara; *Lythrum salicaria* subvar. *caudatum* Koehne; *Lythrum salicaria* subvar. *genuinum* Koehne; *Lythrum salicaria* subvar. *glabricaule* Koehne; *Lythrum salicaria* subvar. *gracile* (DC.) Koehne; *Lythrum salicaria* subvar. *oblongum* Koehne; *Lythrum salicaria* var. *anceps* (Koehne) Koehne; *Lythrum salicaria* var. *angustifolium* Gaudin; *Lythrum salicaria* var. *genuinum* Gren. & Godr.; *Lythrum salicaria* var. *glabricaule* (Koehne) Kitag.; *Lythrum salicaria* var. *glabrum* Ledeb.; *Lythrum salicaria* var. *gracile* DC.; *Lythrum salicaria* var. *longespdatum* Sennen; *Lythrum salicaria* var. *mairei* H.Lév.; *Lythrum salicaria* var. *pubescens* Pursh; *Lythrum salicaria* var. *salicaria*; *Lythrum salicaria* var. *stylosa* Mert. & W.D.J.Koch; *Lythrum salicaria* var. *tomentosum* (Mill.) DC.; *Lythrum salicaria* var. *vulgare* DC.; *Lythrum salicarium* St.-Lag.; *Lythrum spicatum* Gray; *Lythrum spicatum* var. *verticillatum* Svanlund; *Lythrum spiciforme* Dulac; *Lythrum tomentosum* Mill.; *Salicaria spicata* Lam.; *Salicaria vulgaris* Moench

**Original name (Gmelin 1817):** *Lythrum Salicaria*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 311. 312.

**German names and French names (Gmelin 1817):** Rother Weiderich, Weidenkraut, Blutkraut; La Salicaire, Lysimache rouge

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 218066** (Fig. 51)

**Botany and Ecology:** Perennial herbs or subshrubs, 0.3-1.5 m tall, scabrous or sparsely to densely gray pubescent [or tomentose], sometimes somewhat glabrescent. Stem erect, 4-angled. Leaves opposite or 3-whorled, sometimes alternate toward stem apex, ovate-lanceolate to broadly lanceolate, 2.5-10 × 0.5-1.5 cm, base rounded, truncate, or semiclasping, apex acute to subobtuse. Inflorescences terminal, spicate, 15-35 cm; bracts broadly lanceolate or deltoid-ovate. Flowers in 1- to multi-flowered whorled axillary cymes, shortly pedicellate. Floral tube 5-8 × 1.5-2 mm, 12-ribbed; sepals deltate, 0.5-1 mm; epicalyx segments erect, linear, 1.5-2 mm, much longer than sepals. Petals reddish purple to rose-purple, lanceolate-oblongate, 7-10 × 1.5-3 mm. Flowering May-September, fruiting July-October (Wu et al. 1994-2013).

**Contemporary uses:** Azerbaijan: astringent, antihemorrhagic, diarrhea, dysentery, hematuria, leucorrhea, epistaxis, dysmenorrhea. Iran: A poultice made of purple loosestrife leaf and flower powder is used to treat varicose veins and heal wounds and eczema. The decoction of its aerial parts is an anti-inflammatory, astringent, antiseptic, and antibiotic, and is also used in the treatment of eye diseases, diarrhea, dysentery, intestinal and uterine swelling, tuberculosis, and treatment of severe menstrual bleeding. Azerbaijan: A decoction of aerial parts and flowers is taken from nervous diseases and against diarrhea. Crushed leaves are used as a wound healing agent for cuts. The roots and flowers have strong astringent and wound-healing properties and are used as a decoction for bloody diarrhea, bleeding, and for flux. Azerbaijan / Georgia: A good honey plant that gives a lot of nectar. A dyeing solution is made from the whole plant to produce yellow and orange. The solution is used for dyeing woolen yarn, as well as products from it. Romania: astringent, diarrhea, dysentery,

gastrointestinal disorders, uterine hemorrhages. Albania: hemorrhoids, anemia. Italy: as vegetable. (Khajoei Nasab et al. 2025; Paniagua-Zambrana et al. 2025w).



Figure 51. *Lythrum salicaria* L. - KR 218066

**Uses 1817 (Gmelin 1817):** This tender, young plant provides cattle with abundant and healthy food. Since it grows in abundance in wet years, especially on flooded and swampy meadows and pastures, it should be used as cattle fodder in April and May. By mixing it with other sour fodder, the fodder is greatly improved and rendered harmless.

**Description and Ecology (Gmelin 1817):** The root is branched, fibrous, brown-yellow on the outside, white on the inside. The stem is 2-3-4-5 feet tall, erect, angular, branched at the top, and somewhat finely hairy. The branches are upright, quadrangular, often reddish. The lower leaves are opposite, the upper leaves somewhat alternate, sessile, arranged in 3-4 clusters around the stem, heart-lanceolate, flat, pointed, somewhat rough, and entire. The flowers are borne in long, upright, whorled spikes that terminate the stem and branches. The calyx has 12 teeth, the teeth are purple-red. The corolla consists of six lanceolate, blunt, somewhat wavy, purple-red leaves. There are 12 stamens, six of which are short. The seed capsule

is multi-seeded, oblong, pointed, and 1-2-lobed. This beautiful and attractive ornamental plant grows in abundance in the Rhine, Main, Danube, and Neckar regions, along ditches, streams, swamps, ponds, and flood-prone areas, on Lake Constance, and on marshy meadows and pastures in the mountainous regions, especially in the Black Forest and Odenwald. It blooms in July, August, September, and October and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig, aussen braungelb, innen weiß. Der Stengel 2 - 3 - 4 - 5 Fuß hoch, aufrecht, eckig, oben ästig, und etwas feinhaarig. Die Aeste aufrecht, viereckig oft röhlich. Die untern Blätter gegenüberstehend, die oberen etwas abwechselnd, aufsitzend, zu 3 - 4 um den Stengel stehend, herzlantzettförmig, flach, spitzig, etwas rauh, ganz. Die Blüten stehen in langen aufrechten Quirlähren, welche den Stengel und die Aeste endigen. Der Blütenkelch ist zwölfzahnig, die Zähne purpurroth. Die Blumenkrone besteht aus sechs lanzettförmigen, stumpfen, etwas wellenförmigen purpurrothen Blättern. Staubfäden 12, worunter sechs kurze sind. Die Samen-Capsel vielsamig, länglich, zugespitzt, 1 - 2 fächerig. Diese schöne und ansehnliche Zierpflanze, wächst in großer Menge in den Rhein-, Main-, Donau- und Neckargegenden an Wassergräben, Bächen, Sümpfen, Teichen, und Ueberschwemmungen ausgesetzten Stellen, am Bodensee, auf Sumpfwiesen und Weiden in den Gebirgsgegenden vorzüglich im Schwarzwalde und Odenwalde. Blühet im Juli, August, September, October, und gehört unter die ausdauernden Gewächse. Die noch junge zarte Pflanze, giebt dem Rindvieh reichliche und gesunde Nahrung. Da sie bei nassen Jahrgängen in großer Menge, vorzüglich auf überschwemmten und sumpfigen Wiesen und Weiden vorkommt, sollte sie, im April und May, als Viehfutter, benutzt werden. Durch eine Beymischung derselben, zu anderm sauern Futter, wird dasselbe gar sehr verbessert und unschädlich gemacht.

#### ***Macrolepiota procera* (Scop.) Singer**

*Synonyms:* *Agaricus procerus* Scop.; *Lepiota procera* (Scop.) Gray; *Lepiotohyllum procerum* (Scop.) Locq.; *Agaricus antiquatus* Batsch; *Agaricus annulatus* Lightf.; *Agaricus colubrinus* Bull.; *Mastocephalus procerus* (Scop.) Kuntze; *Amanita procera* (Scop.) Fr.; *Leucocoprinus procerus* (Scop.) Pat.

**Original name (Gmelin 1817):** *Agaricus procerus*. Schaeff. Fung. tab. 22. 23. - *Agaricus colubrinus*. Bulliard. tab. 583. und 78.

**German names and French names (Gmelin 1817):** Hoher Blätterschwamm, Parasol-Schwamm, Buberitze, Bubutzen; Cleurée, Coulevrelle, Coulemelle, Columelle, Goillemell, Parasol, Boutarot, Né-de-Chat, Poturon, Champignon-franc

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025m).

**Uses 1817 (Gmelin 1817):** It has a very good flavor and is therefore eaten under very different names in some parts of Germany, but especially in France. Some people there also call it "jaseran," which in France refers to all edible leaf mushrooms found in forests. They are grilled or fried with fresh butter or olive oil, pepper, salt, and parsley.

**Description and Ecology (Gmelin 1817):** Grows solitarily. The stem is thickly swollen at the base, round, very long, 1-2 feet tall, straight and erect, white, and brownish-spotted like a snake, tubular inside. The ring is erect, persistent, and strong. The cap is initially egg-shaped, then semicircular, finally spreading, and raised in the center, whitish, reddish-ash colored, scaly, with shaggy edges, very large, 8-15 inches wide. The flesh is white and firm. The leaflets are white, free-standing, lanceolate at the base, and protrude from the stem tip. Grows frequently here and there on dry pastures, on heaths, meadows at the edge of forests, and in dry, sandy forests, on the ground, in August, September, and October.

**Original German text Gmelin (Gmelin 1817):** Einzeln stehend. Der Strunck am Grunde dick aufgeschwollen, rund, sehr lang, 1 - 2 Fuß hoch, gerade und aufrecht, weiß, und gleich einer Schlange bräunlich gefleckt, innen röhrig. Der Ring aufrecht, bleibend, starck. Der Hut anfangs eyförmig, dann halbrund, endlich ausgebreitet, und in der Mitte mit einer Erhabenheit versehen, weißlich, röhlich-aschfarben, schuppig, am Rande zottig, sehr groß, 8 - 15 Zoll breit. Das Fleisch weiß, fest. Die Blättchen weiß, freystehend, am Grunde lanzettförmig, und von der Strunckspitze abstehend. Wächst hie und da häufig auf trockenen Viehtriften, auf Heiden, Wiesen am Rande der Waldungen und in trockenen sandigen Waldungen, auf der Erde, im August, September, October. Er ist von sehr gutem Geschmacke und wird daher in einigen Gegenden Deutschlands, vorzüglich aber in Frankreich, unter sehr verschiedenen Namen verspeist, ist auch daselbst bei einigen unter dem Namen Jaseran bekannt, womit aber in Frankreich alle eßbaren Blätterschwämme, welche in den Waldungen vorkommen, belegt werden. Sie werden auf dem Roste oder sonst mit frischer Butter, oder Baumöl, Pfeffer, Salz und Petersilien gebraten.

***Malus domestica* (Suckow) Borkh.**

*Synonyms: Malus astracanica* hort. ex Dum.Cours., *Malus batavica* Poit. & Turpin, *Malus dioica* (Moench) Medik., *Malus dolichomorpha* Juz., *Malus domestica* subsp. *caucasica* Likhonos, *Malus domestica* subsp. *hybrida* Likhonos, *Malus domestica* subsp. *intermedia* Likhonos, *Malus domestica* subsp. *macrocarpa* Likhonos, *Malus domestica* subsp. *medio-asiatica* Likhonos, *Malus domestica* subsp. *occidentali-europaea* Likhonos, *Malus domestica* subsp. *pumila* (Mill.) Likhonos, *Malus domestica* subsp. *rossica* Likhonos, *Malus domestica* var. *calvillea* Likhonos, *Malus domestica* var. *dasyphylla* (Borkh.) Langenf., *Malus domestica* var. *parmaenea* Likhonos, *Malus domestica* var. *renettea* Likhonos, *Malus frutescens* Medik., *Malus sieversii* f. *niedzwezkyana* (Dieck) Langenf., *Malus sieversii* var. *persicifolia* (Popov) Ponomar., *Malus sylvestris* subsp. *paradisiaca* (L.) Soó, *Malus sylvestris* var. *dasyphylla* (Borkh.) Ponomar., *Malus sylvestris* var. *praecox* (Pall.) Ponomar., *Pyrus astracanica* DC., *Pyrus dioica* Moench, *Pyrus malus* L., *Pyrus malus* var. *mitis* Wallr., *Pyrus malus* var. *paradisiaca* L., *Pyrus malus* var. *prasomila* L., *Pyrus niedzwezkyana* Hemsl., *Pyrus pumila* (Mill.) Steud.

**Original name (Gmelin 1817):** Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 388. 389. - *Malus sylvestris*. Bauh. hist. plant.

**German names and French names (Gmelin 1817):** Wilder Apfelbaum, Holzapfelbaum; Pomier sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 252955** (Fig. 52)

**Botany and Ecology:** Small or often rather large trees with spreading crown, divaricate branches, and robust annotinous shoots; leaves mostly large, of variable shape, mostly ovate with rounded base, crenate-serrate, with persistent pubescence on both sides (much less strong above), short-petioled; flowers large, white or pink, usually darker on the outside, with rather short or short white-tomentose pedicels; hypanthium and calyx densely tomentose; fruits usually large, more than 3 cm in diameter, short-stalked. Flowering April-May Middle Asia, in broad-leaved and coniferous forests, in floodplain forests, in the mountains up to 3000 m. Widely cultivated. (Komarov and Shishkin 1935).

**Contemporary uses:** *Romania: unspecified medicinal use; diarrhea of children, tea, stomach disorders. Ukraine: cough; wounds, cold, fever, headache. Serbia: mouth blisters, ulcers. Morocco: Apples are commonly used as a means of treating diabetes, digestive problem and fever. Lebanon: It is common for local people to consume apple fruits orally as a natural remedy for cancer, to reduce the appearance of skin freckles, and to lower cholesterol levels. Palestine: Apples are eaten fresh or as juice and are used to treat heart diseases, diarrhea, and diabetes. Additionally, they are used as a treatment for hair and scalp issues. Furthermore, the apple peel can be boiled with 1 teaspoon of curcum to treat cancer. They also have benefits for pregnant women, as consuming the fruits, either fresh or as juice, can facilitate delivery and increase fetal movement in the womb. The whole fruit is edible except for the seeds. In Morocco, apples are used in a variety of ways in Moroccan cuisine. They are often eaten fresh as a snack or in salads and are also used in cooking to add sweetness and flavor to savory dishes. One traditional Moroccan dish that features apples is Tagine of Chicken with Apples and Olives, in which chicken is simmered with apples, olives, and spices in a clay pot. Apples are also used to make jams, jellies, and preserves in Morocco. Georgia: The fruits are eaten, used to produce alcohol and Svanetian vinegar and are an ingredient for Svanetian salt, also jam, thlapi. Albania: dried for winter, raki; Czech Republic: Fruits added to fermenting cabbage for quality and taste, afterwards also eaten. Romania: compote, jam, brandy, soup. Poland: wild and semi-wild apples eaten raw, dried, compotes, commonly included in sauerkraut. Belarus: eaten raw, dried, lactofermented in sauerkraut, boiled. Eastern Europe: tea, pickled; additive for tree sap fermentation. Bulgaria: fruit pickle in vinegar or in brine. Apples can be pressed to make apple juice or fermented to make apple cider, a popular alcoholic beverage. Apples are used in many beauty products, such as soaps, lotions, and shampoos, due to their natural properties that can help moisturize and nourish the skin. Apples can be used as a feed supplement for livestock, particularly pigs and chickens. Apples are used in the production of some industrial products, such as pectin, which is used as a thickener in food products, and apple cider vinegar, which is used in cooking, cleaning, and as a health supplement. Apples trees are also grown for ornamental purposes. They are known for their beautiful blooms in spring and the colorful fruits in fall. Czech Republic: fuelwood. Ukraine: in fruit baskets for feast of transfiguration, wood for smoking meat.* (Belkasmı et al. 2024b; Busmann et al. 2020kl; 2025uv; Paniagua-Zambrana et al. 2025x).

**Uses 1817 (Gmelin 1817):** It grows in the same regions as the crab pear tree and is the progenitor of so many grafted apple trees. Like crab pears, crab apples can be used excellently in vinegar and brandy. They provide excellent fattening for cattle and pigs. These beneficial and beautiful trees should also be carefully cared for. In Saxony, during the high prices of 1771 and the following years, crab apples were used to make a good, tasty bread after they were cut up, ground, and mixed with flour.



Figure 52. *Malus domestica* (Suckow) Borkh. - KR 252955

**Original German text Gmelin (Gmelin 1817):** Er kommt in denselben Gegenden mit dem Holzbirnbaume vor, und ist der Stammvater so vieler veredelten Apfelbäume. Die Holzäpfel können wie die Holzbirnen bestens auf Essig und Brandtewein benutzt werden. Sie geben dem Rindvieh und den Schweinen eine treffliche Mastung. Auch diese so wohlthätigen und schönen Bäume sollten bestens geschont werden. Aus den Holzäpfeln hat man in Sachsen in der Theuerung im Jahre 1771 und den folgenden Jahren, nachdem solche zerschnitten, gemahlen, und mit Mehle vermischt worden sind, ein gutes und wohlschmeckendes Brot bereitet.

***Malva pusilla* Sm.**

*Synonyms:* *Althaea borealis* Alef.; *Malva borealis* Wallm.; *Malva bracteata* Rchb.; *Malva crenata* Kit.; *Malva henningii* Goldb.; *Malva lignescens* Iljin; *Malva pseudoborealis* Schur; *Malva repens* Gueldenst.; *Malva rotundifolia* L.

**Original name (Gmelin 1817):** *Malva rotundifolia*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 135.

**German names and French names (Gmelin 1817):** Rundblättrige Pappel, Gänsepappel, Gänsemalven, kleine Käspappel, Gemeine Käspappel, Hasenpappel; Petite Mauve, Mauve à feuille ronde

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, expanding

**Botany and Ecology:** Herbs perennial, usually procumbent, many branched, 20-50 cm tall, scabrous. Stipule small, ovate-lanceolate, 4-6 × 2-3 mm; petiole 3-12 cm, stellate velutinous; leaf blade reniform, rarely 5-7-lobed, 1-3 × 1-4 cm, papery, abaxially sparsely stellate puberulent, adaxially sparsely velutinous, base cordate, margin minutely denticulate, apex rounded. Flowers usually 3-4-fascicled, axillary, rarely solitary on stem. Pedicel 2-5 cm, sparsely stellate puberulent. Epicalyx lobes lanceolate, 2-5 × 1-1.5 mm, stellate puberulent. Calyx campanulate, 5-6 mm, stellate puberulent, 5-lobed, lobes triangularly acuminate. Corolla white to pinkish, 10-12 mm in diam.; petals obcordate, 9-15 × 3-5 mm, apex notched; claw bearded. Filament tube stellate puberulent. Style branches 13-15. Fruit flat globose, 5-6 mm in diam.; mericarps 12-15, abaxially smooth, angles rounded, puberulent. Seeds reniform, ca. 1 mm in diam., reticulate or not. (Wu *et al.* 1994-2013).

**Contemporary uses:** *Azerbaijan: In Traditional medicine of medieval Azerbaijan, flowers boiled in milk were used for anuria, A decoction of aerial parts in the form of a compress was used for eczema. Azerbaijan: A dyeing solution is made from the flowers to obtain a gray color. The solution is used for dyeing woolen yarn, as well as products from it. Romania: emollient, expectorant, antitussive, anti-inflammatory, diuretic, depurative, laxative, astringent, cicatrizing, pulmonary problems, intestinal and urinary ailments, digestive disorders, ocular and skin disorders, asthma, cough, hemorrhoids, hemorrhages, ascitis, wounds, burns, abscesses. Belarus: immature fruits as snack for children. (Batsatsashvili et al. 2017f; Bussmann et al. 2020w; Jan et al. 2021c; Kharchoufa et al. 2024; Paniagua-Zambrana et al. 2020f; 2025y).*

**Uses 1817 (Gmelin 1817):** The young leaves can be eaten as a vegetable and salad and should be used for this purpose when food is scarce. They were once a very popular vegetable among the Romans and Egyptians. This plant provides cattle and pigs with healthy and pleasant food. The wood mallow, horse poplar, hemp poplar, and wild red poplar (*Mauve sauvage, Malva sylvestris*, Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 136), which is frequently found here and there around towns and villages, on paths, walls, hedges, and on rubble heaps, can also be used in the same way.

**Description and Ecology (Gmelin 1817):** The root is long, fibrous, and white. The stems are 1-1.5 feet tall, prostrate, round, somewhat hairy, and branched. The branches are alternate. The leaves are alternate, stalked, cordate, rounded, somewhat five-lobed, and toothed. The leaf bases are oval and pointed. The flowers are stalked, clustering in 3-5 clusters in the leaf axils. The calyx is double; the outer one is trifoliate, the inner one is single-leaved, five times semidivided and larger. The corolla is small, whitish, marked with purple-red veins, five times divided to the base. The segments are oblate and cordate. The seed capsule is rounded and compound. The seeds are kidney shaped. Grows in abundance in and around towns and villages, along roads, paths, old walls, and occasionally on rubble heaps. Blooms in June and July. Its seeds ripen in August and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel lang, faserig, weiß. Die Stengel 1 - 1½ Fuß hoch, niederliegend, rund, etwas haarig, ästig. Die Aeste abwechselnd. Die Blätter abwechselnd, gestielt, herzförmig, rundlich, etwas fünfflappig, gezähnelte. Die Blattansätze eyrund, spitzig. Die Blüten gestielt, zu 3 - 5 in den Achseln der Blätter. Der Blütenkelch gedoppelt; der äussere dreyblättrig, der innere einblättrig, fünfmal halbgetheilt und größer. Die Blumenkrone klein, weißlich mit purpurrothen Adern bezeichnet, fünfmal bis an den Grund getheilt. Die Abschnitte verkehrt, herzförmig. Die Samen-Capsel rundlich, zusammengesetzt. Die Samen nierenförmig. Wächst in und um Städte und Dörfer, an Straßen, Wegen, alten Mauern, auf Schutthaufen hin und wieder in Menge. Blühet im Juni, Juli. Reifet ihre Samen im August, und gehört unter die ausdauernden Gewächse. Die jungen Blätter können als Gemüse und Salat verspeist werden, und sollten dazu bei Mangel benutzt werden. Sie waren bei den Römern und Egyptiern einst ein sehr beliebtes Gemüse. Dem Rindvieh und den Schweinen giebt diese Pflanze eine gesunde und angenehme Nahrung. Auf dieselbe Art kann auch die Waldmalve, Roßpappel, Hanfpappel, wilde rothe Pappel. Mauve sauvage. *Malva sylvestris*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 136. welche um Städte und Dörfer, an Wegen, Mauern, Hecken, und auf Schutthaufen bey uns hie und da häufig vorkommt, benutzt werden.

***Malva sylvestris* L.**

**Synonyms:** *Althaea godronii* Alef.; *Althaea mauritiana* Alef.; *Althaea vulgaris* Alef.; *Althaea vulgaris* Bubani; *Malva acutiloba* K.Koch; *Malva albiflora* C.Presl; *Malva altissima* Sennen; *Malva ambigua* Guss. ; *Malva aragonensis* Sennen; *Malva elata* Salisb.; *Malva equina* Wallr.; *Malva erecta* C.Presl; *Malva erevaniana* Takht.; *Malva glabra* Desr.; *Malva grossheimii* Iljin; *Malva gymnocarpa* Pomel; *Malva longelobata* Sennen; *Malva lucida* Lindl.; *Malva martrinii* Rouy; *Malva mauritanica* Spreng.; *Malva mauritiana* L.; *Malva obtusa* Moench; *Malva orientalis* Mill.; *Malva plebeja* Steven; *Malva polymorpha* Guss.; *Malva pumila* Retz.; *Malva racemosa* C.Presl; *Malva recta* Opiz; *Malva ruderalis* Salisb.; *Malva sylvestris* subsp. *mauritiana* (L.) Boiss.; *Malva sylvestris* subsp. *sylvestris* ; *Malva sylvestris* var. *mauritiana* (L.) Boiss.; *Malva sylvestris* var. *sylvestris* ; *Malva tomentella* C.Pres; *Malva vivianiana* Rouy; *Malva vulgaris* Gray

**German names and French names (Gmelin 1817):** Mauve sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, expanding

**Botany and Ecology:** Biennial, rarely perennial or annual. The plant is 30-120 cm high. The stem is erect, rarely ascending, mostly branched, covered with scattered, rather long, simple, 2-pronged hairs. They are usually interspersed with smaller stellate hairs, forming a densely hairy coat, or conversely the stem is almost smooth, or very rarely is almost naked on the stem, calyx, and pedicels. The petioles are very long, those of lower and middle leaves greatly exceeding blade, mostly glabrous or only along groove, above densely hairy, more rarely sparsely hairy throughout. The leaf blade is orbicular, cordate or rarely in upper leaves truncate at base, 5-7 lobed, occasionally in lower and middle leaves lobeless, lobes semicircular or broadly ovate, not extending 1/3 the diameter of the blade, rarely resembling the fig leaf or current leaf. The young leaves are covered by hairs on both sides. They become more smooth as they age. The stipules are oblong to lanceolate, acute, pale green, parallel-nerved, margin long-ciliate. The flowers are several, rarely solitary. There are small stellate hairs interspersed with the longer 2-pronged hairs on the flower. The corolla is pink, drying lilac, 3-4 times the length of the calyx. The petals are 20-25 mm long. They are oblong to obovate, deeply notched. The seeds are reniform, with broad flat back, 1.5-2mm long and broad, reddish-brown. They ripen to a dark brown, thin, fine, and uniformly wrinkly. The plant is found in shrub thickets, open woods, parks, gardens, waste places, orchards, cereal fields, field borders, waysides, and along fences. Caucasus: Ciscaucasia, Dagestan, Western, Eastern and Southern Transcaucasia. Batsatsashvili, Mehdiyeva et al. 2017; Jan, Turi et al. 2021; Paniagua Zambrana, Bussmann et al. 2020). Mainly on roadsides, gardens and cultivated fields, fringe, shrubs, ruderal habitats. Up to middle mountain belt, on an elevation 400-1100 m. Flowers from May to September, fruits from June to October. (Flora of Azerbaijan, 1950-1961).

**Contemporary uses:** Azerbaijan: An infusion of leaves and flowers is used internally as an expectorant, enveloping and emollient, as well as for colds and inflammatory processes of the digestive tract and constipation. The gruel prepared from leaves and flowers is used in the form of emollient poultices for external inflammatory processes (tumors, ulcers, boils and burns). Iran: Infused, boiled, and moisturized with water, flowers, seeds, and leaves of *Malva sylvestris* are used for common colds, heatstroke, mouth and throat protuberance, chest diseases, and anti-abdominal pain in infants, and as a diaphoretic, heat regulation, oral mucositis, and anti cough. The Cataplasm of flowers and leaves of this species is also used topically for skin problems. Syrup, powder, and decoction of fruits and flowers are used for hypertension, sore throat, acne, mouth disease, and cold and as a refrigerant. Leaves of all species are used in traditional medicine. A decoction of leaves is taken for stomachache and menstrual disorders, and the fresh leaves are cooked and eaten for abdominal pain in Merzifon. Fruits, leaves, and roots are used to treat asthma, abdominal pain, ulcer, colds, sore throat, constipation, abscesses, inflammation, infertility in women, and edema, and as an emmenagogue. They also serve as stomachic and digestive, and are used to treat wounds, gynecologic problems and hemorrhoids. All species are used as anti-inflammatory: A decoction of leaves and roots is used to gargle to treat inflammations of the upper airways, and the tincture is also applied externally for skin inflammation, ulcers, blastema and hemorrhoids. Applied as mitigative, laxative and for wound healing. *Malva sylvestris* is also used for gastro-intestinal diseases. An infusion of flowers and leaves is internally taken to treat colds and inflammatory process of the digestive tract, as well as constipation. An infusion of flowers is used in cough and as expectorant. Sick people were given mkhali (vegetable spread) made of *M. sylvestris* during fasting periods. Leaves used for sarma. Azerbaijan: The leaves are eaten raw, and qutabs are prepared mixed with other herbs. In the Guba region, the leaves of this plant, along with fried onions and a small amount of rice, are used to prepare a soup called "o dolmasy", seasoned with alchi paste, and in Karabakh - called "balv Armenia: All species have edible fruits and leaves. Mainly fresh and cooked leaves and young fruits; traditional soup is preparing as well. Tender leaves and stems are consumed all over the Caucasus. Azerbaijan: Young leaves all species are used as food in the form of a green soup. Used to make Sarma. Georgia: Racha-Lechkhumi: Moloka (*Malva sylvestris*) and natsarkatama (*Chenopodium album* L.) together with ch'inch'ari (*Urtica dioica* L.) are the major components of pkhali

(vegetable spread of mixed herbs). Other, optional, herbs are: jijilaq'a (*Amaranthus retroflexus* L.), tik'niq'ura (*Myosotis* sp. in Racha), satitura (*Campanula rapunculoides* L.), dukht'i (*Althaea* sp.), fine stems and leaves of glikhorkha (*Cirsium incanum* Fisch.); tsatskhvi (*Tilia* sp.) leaves and flowers may also be added. All the herbs should be collected while young. Plants are sorted, well washed and boiled. The boiled mass is drained, placed on a plate (formerly wooden bowls "gobi" (these were made of linden, elm and chopped. The chopped mass is dressed with ground walnut, finely cut greens: green onion shoots (chopped onion bulbs can also be used), coriander, fennel, dill, a little mint, salt and well mixed. If the resulting mass is too thick, a little broth is added (ground walnut can be stirred in broth at the beginning of pkhali preparation). Imereti: *Malva* is one of the major components of "pkhali"; other major herbs are: jijilaq'a (*Amaranthus retroflexus*), ch'inch'ari (*Urtica dioica*), ts'its'marita (*Cardamine hirsuta* L.), kharik'bila (*Capsella bursa-pastoris* (L.) Medik.), andzla (*Cirsium incanum*), katmikona (*Ranunculus chius* D.C.), msukana (*Portulaca oleracea* L.) and balba (*Malva* sp.) – both make the mass smoother; other herbs used in small amounts are: dedaput'k'ara (*Stachys* sp., birk'abalakhi (*Arctium lappa* L.) – collected only in early spring, zhunzhruko (*Stellaria media* (L.) Cirillo), mat'it'ela (*Polygonum aviculare* L.) and khvartkla (*Convolvulus arvensis* L.) – in larger amounts than other accessory herbs, k'obrchkhila (*Falcaria vulgaris* Bernh.), bat'ispekhebi (*Erodium cicutarium* (L.) L'Her.), ch'inch'ris-deda (*Lamium album* L.) – gives slightly bitter taste, samq'ura (*Trifolium* sp.), ionja (*Medicago* sp.), tavshava (*Origanum vulgare* L.), young potato leaves (makes the mass smoother), ia (*Viola* sp., a large amount must not be used as the plant is somewhat toxic), babuats'vera (*Taraxacum* sp.) – gives slightly bitter taste, endro (*Rubia tinctorium* L.) leaves, dedabrik'onk'a (*Lamium purpureum* L.), vardk'ach'ach'a (*Cichorium intybus* L.) – gives a bitter taste, gholo (*R. crispus* L.) – gives brown colour, q'aq'acho (*Papaver* sp.), and mzhauna (*Rumex acetosa* L.) – gives sour taste. The herbs are collected in early spring as well as summer, and autumn but after first harvest of tomato, eggplant, spinach, and cucumber. In early spring the taste of the herbs is very different from that in summer. When preparing pkhali from all these field weeds, the following greens are used as spices, and they are not boiled with the rest of the mixture: dill, fennel, leek, coriander, parsley, celery, green onion shoots, silky wormwood, mint, garlic is also added. All these components of pkhali dressing are mixed with ground walnut; boiled herb mass is chopped. Guria: During fasting periods sick people were given moloka mkhali. Khevi: *Malva* can be eaten raw or boiled. Pshavi: *Malva* is boiled, mixed with melted butter and egg, salted and eaten with broth. Tusheti: *Malva* is used used to prepare mkhali; the herb is dried in large amounts for winter. Kakheti: Young leaves are boiled, squashed, mixed with onion stewed in advance in oil or melted butter; beaten egg can be added. *Malva* is seasoned with vinegar and garlic. In autumn pomegranate juice can be used. *Malva* is also boiled, the water is drained from the pot, then only garlic and salt are added and the pot is kept on fire until the broth evaporates. Boiled, squashed and chopped young leaves of *Malva* are also mixed with vinegar, walnut, chopped coriander, the mass is then salted. Shida Kartli: A semi-liquid meal called "shech'amandi" was made of *Malva*. In spring fresh leaves are collected, scalded, onion is stewed in oil, course flour is stirred in the water, the liquid is poured into herb mass, stewed onion is added and the meal is seasoned with coriander, some garlic and finally salted. *Malva* should be collected in June while young and before it makes seeds. The herb is washed, boiled and chopped with a knife; onion is stewed in oil, black bread flour, garlic, pepper, fresh coriander. Kvemo Kartli: *Malva*, natsarkatama (*Chenopodium album*), ia-ia (*Viola* sp.), shavi pkhali (*Amaranthus retroflexus*), gholo (*Rumex* sp.) (only in winter) are boiled together, squashed, chopped, seasoned with greens: coriander, parsley, onion stewed in oil, salted and finally "mats'oni" (Georgian / Caucasian yogurt) is added. Samtskhe-Javakheti (Lesser Caucasus *Malva*, koprchkhila (*Falcaria vulgaris*), natsarkatama (*Chenopodium album*), ia-ia (*Viola* sp.), balba (*Malva sylvestris*, *M. neglecta*), ghvalo (*Rumex crispus*), danduri (*Portulaca oleracea*), mraval dzarghva (*Plantago major*) and ch'inch'ari (*Urtica dioica*) are mixed. One part of each of the listed herbs with two parts of nettles are scalded, chopped, put into a bowl, seasoned with estragon, coriander, parsley, dill, green onion and some p'rasa (*Allium porrum* L.); the broth is added to produce cream-like mass and crashed walnut, garlic, pepper are added; eaten with "mch'adi" (corn pie). Young shoots of *Malva sylvestris* are used alone to make in Pshavi, Kakheti. *M. sylvestris* was taken in relatively large amounts to give a multi-herb mkhali smother consistence. Coriander is most commonly used throughout the country; however, other greens and spices such as parsley, celery, dill, fennel, and mint are also used in dressings. Either ground walnut (sometimes stirred in herb broth) or stewed onion (the latter option practiced in East Georgia) are mixed with boiled, squashed and chopped herb mass; onion is stewed in oil, melted butter or grease. Sometimes beaten egg was added to the recipe. In Samtskhe-Javakheti "mats'oni" (Georgian / Caucasian yogurt) was added to the herb mass mixed with stewed onion and seasoned with greens. Vinegar or pomegranate juice (the latter in autumn) and garlic were the only dressing added to the *M. sylvestris* mkhali in some recipes. *M. sylvestris* in combination with other herbs and mixed with cheese and melted butter was used to make pie filling. In Tusheti the herb is dried in large amounts for winter. All *Malva* species are frequent components of Phkhali all over Georgia. Azerbaijan: A dye solution is prepared from flowers. *Malva neglecta* yields pink and lilac colors and shades. Solution is used for dyeing wool yarn as well as products made of wool. *Malva sylvestris* yields black-blue, dark-violet or grey color and shade is obtained from flowers (depending on stain) for dyeing wool and its products. Honey plant. Armenia: All species are used as fodder and as honey plants. *Malva sylvestris* yields black-blue, dark-violet or grey color and shade is obtained from flowers (depending on stain) for dyeing wool and its products. All species are used as nectariferous plant, produces much nectar and

pollen. Lebanon: Eaten as salad and cooked. Balkans: swelling in the arms from a lot of work, bronchitis, asthma, emphysema, antitussive, bronchitis, antimicrobial. Romania: emollient, expectorant, antitussive, anti-inflammatory, diuretic, depurative, laxative, astringent, cicatrising, pulmonary problems, intestinal and urinary ailments, digestive disorders, ocular and skin disorders, asthma, cough, haemorrhoids, haemorrhages, ascitis, wounds, burns, abscesses; leukorrhoea, wounds, burns, abscess, foot swellings emollient, vulnerary, maturative, anti-inflammatory. Italy: gargles, anti-inflammatory. Albania: diuretic. Bulgaria: blocked ear. Croatia: tea. Turkey: leaves for sarma. Hungary: immature fruits as snack for children. Eastern Europe: children's snack. Italy / Slovakia: boiled in soups. Albania: eaten as healthy food. Makedonia: boiled. Poland: potherb, immature fruits eaten as children's snack. Balkans: used to make brooms. (Batsatsashvili *et al.* 2017f; Busmann *et al.* 2020w; Jan *et al.* 2021c; Kharchoufa *et al.* 2024; Paniagua-Zambrana *et al.* 2020f; 2025y).

**Uses 1817 (Gmelin 1817):** same as previous species

**Description and Ecology (Gmelin 1817):** same as previous species

**Original German text Gmelin (Gmelin 1817):** same as previous species

### ***Melampyrum arvense* L.**

**Synonyms:** *Marinellia vulgaris* Bubani; *Melampyrum alpestre* Brugger; *Melampyrum laciniatum* Koshev. & Zing.

**Original name (Gmelin 1817):** *Melampyrum arvense*. - Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 676. 677.

**German names and French names (Gmelin 1817):** Ackerkuhweizen, Wachtelweizen, Schwarzweizen, Mohrenweizen, Brandweizen, Ackerfleischblume; Blé de Vache, Blé de Boeuf, Blé noir, Rouge herbe

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Vulnerable, decline

**Botany and Ecology:** Annual. Plant 15-50 cm tall, covered with minute, white often sparse, appressed hairs. Stem erect, cylindrical, branched; branches slender, projecting upward. Leaves lanceolate, 2-6(7) cm long, 5-8 mm broad, or broadly lanceolate, 1 cm broad, thick, somewhat fleshy, or linear, 2-5 mm broad, long acuminate, entire or with 1-A long, acute teeth, subsessile or sometimes with 2 mm long petioles, covered on both surfaces with short white hairs. Flowers on 1 mm long pedicels, divergent in all directions, in long, dense, 3.5-10(14) cm long, 2-2.5 cm broad cylindrical-spicate inflorescence. Bracts ovate-lanceolate, pinkish purple (1.7)2-2.5 cm long, 0.3-0.7 cm broad, almost equaling calyx or slightly longer, deeply cristate-dentate; teeth 3-8 mm long, long acuminate, sometimes with 2 rows of black or brown scaly points in lower part, secreting nectar, glabrous or sometimes puberulent and ciliate along margin. Calyx 1.2-2 cm long, generally densely pubescent; tube 6-8 mm long calyx teeth 0.6-1.4 cm long, linear barbate, subulate, often arcuate, almost equaling corolla tube. Corolla purple, 2-2.5(3) cm long, densely covered outside with white, 2-cellular, lanate hairs, inside with somewhat sparse, cylindrical, multicellular hairs; lower lip with yellow spots; corolla with white or pale sky-blue ring inside below throat. Anthers 4.5 mm long, with sharp-pointed, subequal or sometimes unequal appendages; appendages in lower anthers slightly longer than others. Ovary obovoid, 2 mm long, 1.2 mm broad, glabrous, cinnamon brown; style 5 times as long as ovary, glabrous or sometimes sparsely hairy above. Capsule obovoid, 0.8-1 cm long, 4-5 mm broad, 1/2-2/3 as long as calyx, with small curved beak, glabrous, dehiscent by 2 valves; valves thickened along margin, glabrous or rarely puberulent. Seeds oblong, 3-4.5 mm long, 1.5-2.5 mm broad, obtuse, dark cinnamon brown, opaque. May to September. In mixed and oak forests, birch groves forest glades, in forest, forest-steppe and subalpine meadows. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant, magnificent in flowering, often completely suppresses grain and must be controlled as a harmful weed. It provides cattle with healthy and pleasant food and should therefore be used for cattle in times of scarcity. The seeds, mixed with grain, give the flour a bluish color and an unpleasant bitter taste. Some have suggested using it on bread in times of scarcity, but we cannot recommend it for this purpose.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 1-1.5 feet tall, erect, quadrangular, somewhat rough and branched. The branches are opposite. The leaves are opposite and sessile; the upper leaves, and especially the branch leaves, are somewhat alternate, narrowly lanceolate, entire, and the upper leaves are slightly toothed at the base. The flowers terminate the stem and branches and form a spike. The spikes are loose, conical, large, and beautiful, vivid purple mixed with yellow. The bracts are oval, erect, tiled, with bristle-like teeth, purple, the uppermost ones graduating from purple to violet. The calyxes are striped and reddish. The corolla tube is purple, surrounded by a yellow spot. The seeds

are oval, lobed, and black. Grows frequently in cereal fields, especially corn and wheat fields, on limestone marl soil, in the hills and low mountain ranges of Baden, Württemberg, and other similar regions. It blooms in June and July, its seeds ripen in July and August and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 1 - 1½ Fuß hoch, aufrecht, viereckigt, etwas rauh, ästig. Die Aeste gegenüberstehend. Die Blätter gegenüberstehend, aufsitzend, die obern und vorzüglich die Astblätter, etwas abwechslend, schmal-lanzettförmig, ganz, die obern am Grunde etwas gezahnt. Die Blüten endigen den Stengel und die Aeste, und bilden eine Aehre. Die Aehren sind locker, kegelförmig, groß, schön, lebhaft purpurfarben mit gelb gemischt. Die Deckblätter eyrund, aufrecht, ziegeldachförmig, mit borstenförmigen Zähnen, purpurfarben, die obersten aus dem purpurrothen ins violette gehend. Die Blütenkelche gestreift, röthlich. Die Röhre der Blumenkrone purpurfarben, mit einem gelben Fleck umgeben. Die Samen eyrund, buckelig, schwarz. Wächst häufig auf Getreide- und vorzüglich auf Korn- und Weizen-Aeckern, welche auf Kalkmergel- Boden, in den Hügeln und Mittelgebirgen liegen, im Badischen, Württembergischen und andern ähnlichen Gegenden. Blühet im Juni, Juli, reifet ihre Samen im Juli, August, und gehört unter die einjährigen Gewächse. Diese zur Blüthezeit prachtvolle Pflanze, welche nicht selten das Getreide gänzlich unterdrückt, und als ein nachtheiliges Unkraut vermindert werden muß, gibt dem Rindvieh eine gesunde und angenehme Nahrung, und sollte daher, bei Mangel für dasselbe benutzt werden. Die Samen, dem Getreide beigemischt, geben dem Mehle eine blauliche Farbe, und einen unangenehmen bitteren Geschmack. Sie wurden zwar von einigen, bei Mangel, auf Brod zu benutzen vorgeschlagen, wozu wir sie aber nicht empfehlen können.

### ***Melampyrum pratense* L.**

*Synonyms: Marinellia vulgaris* Bubani; *Melampyrum alpestre* Brugger; *Melampyrum laciniatum* Koshev. & Zing.

**Original name (Gmelin 1817):** *Melampyrum pratense*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 679. - 681.

**German names and French names (Gmelin 1817):** Gelber Kuhweizen, Wiesen- und Waldkuhweizen, Waldhirse, Gelbe Waldhirse, Melampire des prés

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Annual. Plant 15-30(60) cm tall. Stem glabrous or pubescent in upper part with sparse, short, white retrorse hairs, erect, simple or branched, with 1-2 pairs of slender branches. Leaves ovate-lanceolate or linear-lanceolate, 4-9 cm long, 0.5-1.2 cm broad or 0.3 cm broad, long-acuminate, entire or upper leaves sometimes sparsely dentate at base, narrowed into 1-1.5 mm long petiole or sessile, glabrous or diffusely pilose on both surfaces, covered with short rigid ciliae along margin. Flowers on 1-2 mm long glabrous pedicels, erect, later horizontally unilaterally divergent, in sparse, 2-7 cm long, 1 cm broad racemose inflorescence. Bracts similar to leaves in shape, ovate-lanceolate or linear-lanceolate, 1.7 cm long, 0.4 cm broad; lower bracts rounded at base, entire or slightly sinuate-dentate; upper bracts cuneate at base, with 1-2 or several subulate-linear teeth or all bracts entire. Calyx 7 mm long, subglabrous, with 3 mm long tube, sometimes sparsely pilose along veins and with linear-subulate teeth; teeth tapering upward, subequal, 4(5) nmi long, shorter than corolla tube, sparsely hirtellous along margin. Corolla 1.5-2.5 times as long as calyx, lemon-yellow, white, brownish or yellowish at first, later light pink with purple stripes (var. *purpurascens* Aschers.) with erect white tube with somewhat closed throat; lower lip slightly diverging from upper flattened lip. Anthers 2.5 nmi long, with unequal mucronate appendages; lower anthers longer. Ovary ovoid, 2-3 mm long, 1.5 mm broad, glabrous; style 3 times as long as ovary, curved above, smooth. Capsule ovoid, 0.8-1 cm long, 0.4-0.5 cm broad, slightly longer than or 1 1/3 times as long as calyx, glabrous, obliquely apiculate, dehiscence fissure glabrous. Seeds oblong, 5.5-6 mm long, 2.5 mm broad, smooth. May to July. In tundras, coniferous, deciduous and mixed forests, glades, marshy and mixed-grass meadows in forests, fontinal, sphagnous marshes, along banks of lakes and sea coasts. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** It provides cattle with a pleasant and excellent fodder; its consumption gives cows' butter a yellow color and an excellent flavor. Since this plant occurs in great abundance in our light, sandy pine forests, in the Hardtwald, the Black Forest, and the Odenwald, especially in open areas and where the *Dunckelhiebe* is common, it should definitely be used for cattle.

**Description and Ecology (Gmelin 1817):** The root is branched and fibrous. The stem is 1-2 feet tall, erect, at times elongated and branched. The branches are opposite. The lower leaves are opposite, sessile, lanceolate, and entire; the middle ones are

toothed at the base; the upper ones, nearest the flowers, are spear-shaped, recurved, and smaller than the others. The flowers arise from the leaf angles, are arranged in pairs, and are somewhat stalked and unilateral. The calyx is single-leaved, tubular, four-divided, with thin segments. The corolla is yellow and masked. The tube is whitish and curved back. The margin is compressed. The upper lip is helmeted, compressed, emarginate, and curved back at the edge. The lower lip is semi-trifid, flat, erect, blunt, with two dark reddish-yellow projections in the center. The stamens are covered with tooth-shaped glands. The seed capsule is elongated, egg-shaped, oblique, pointed, compressed, bivalved, bilobed, with one seed. The seeds are oval, tuberculate, and thickened at the base. Grows frequently in the Rhine, Main, Danube, and Neckar regions, in forest meadows, open woodlands, and clearings, and in large numbers in the Hardwald forest. It blooms in May, June, July, August, and September. Its seeds ripen in August, September, and October, and is classified as an annual plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig. Der Stengel 1 - 2 Fuß hoch, aufrecht, zu Zeiten hingestreckt, ästig. Die Aeste gegenüberstehend. Die untern Blätter gegenüberstehend, aufsitzend, lanzettförmig, ganz; die mittlern am Grunde gezahnt; die obern zunächst den Blüten stehenden, spießförmig, zurückgeschlagen, und kleiner als die übrigen. Die Blüten kommen aus den Blattwinkeln, stehen zu zwey, und sind etwas gestielt, einseitig. Der Blumenkelch ist einblättrig, röhrenförmig, viermal getheilt, mit dünnen Abschnitten. Die Blumenkrone gelb, maskirt. Die Röhre weißlich zurückgekrümmt. Der Saum zusammengedrückt. Die Oberlippe gehelmt, zusammengedrückt, ausgerandet, und am Rande zurückgebogen. Die Unterlippe halb dreyspaltig, flach, aufrecht, stumpf, in der Mitte mit zwey dunkelrothgelben Hervorragungen besetzt. Die Staubfäden mit zahnförmigen Drüsen besetzt. Die Samen-Capsel länglich, eyförmig, schief, zugespitzt, zusammengedrückt, zweyklappig, zweyfächerig, die Fächerchen einsamig. Die Samen eyrund, höckerig, am Grunde verstärkt. Wächst in den Rhein-, Main-, Donau- und Neckargegenden, auf Waldwiesen, in lichten Waldungen, Waldschlägen, häufig, und in dem Hardwald, in großer Menge. Blühet im May, Juni, Juli, August, September. Reifet seine Samen im August, September, October, und gehört unter die einjährigen Gewächse. Sie giebt dem Rindvieh ein angenehmes und treffliches Futter; von dem Genuße derselben, bekommt die Butter der Kühe, eine gelbe Farbe, und einen vortrefflichen Geschmack. Da diese Pflanze vorzüglich in unsern lichten sandigen Fohrenwaldungen, im Hardtwalde, im Schwarzwalde, und im Odenwalde, besonders in lichten Stellen und da, wo die Dunkelhiebe üblich sind, in größter Menge vorkommt, sollte sie in jedem Betracht, für das Rindvieh benutzt werden.

#### ***Melilotus altissimus* Thuill.**

*Synonyms:* *Medicago altissima* (Thuill.) E.H.L.Krause; *Melilotus adriaticus* Borbas; *Melilotus altissima* Thuill.; *Melilotus altissimus* prol. *macrorhizus* Rouy; *Melilotus altissimus* var. *macrorhizus* (Rouy) P.Fourn.; *Melilotus altissimus* var. *paluster* W.D.J.Koch; *Melilotus giganteus* Wender.; *Melilotus macrorrhiza* sensu auct.; *Melilotus macrorrhizus* (Waldst. & Kit.) Pers.; *Melilotus macrorrhizus* sensu auct.; *Sertula altissima* (Thuill.) Kuntze; *Sertula macrorrhiza* (Waldst. & Kit.) Kuntze; *Trifolium altissimum* (Thuill.) Loisel.; *Trifolium macrorrhizum* Waldst. & Kit.; *Trifolium melilotus-altissimum* C.C.Gmel.; *Trigonella altissima* (Thuill.) Coulot & Rabaute

**Original name (Gmelin 1817):** *Trifolium Melilotus altissimum*. - Gmel. Flor. Badens. III. p. 219. 220.

**German names and French names (Gmelin 1817):** Hoher gelber und weißer Steinklee, Hoher Meliloten-Klee; Melilot élevé

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): vNot threatened

**Botany and Ecology:** Biennial; taproot stout; stems 50 -150 cm long, virgate, arcuately ascending or erect; stipules subulate, 5-8 mm long, very rarely the lower ones with a short tooth; leaflets tapering toward base, in upper part with 8-20 dentations on each margin, grayish beneath with short appressed hairs or glabrate, the lower obovate, the upper oblong; racemes 2-5 cm long, densely 15-50-flowered; pedicels 1.5-2 mm long, hairy; flowers 5-7 mm long; calyx hairy, ca. 2.5mm long, the triangular-lanceolate acuminate teeth half the length of calyx; corolla golden-yellow; standard oboval, brown- striped, about as long as wings, these equaling or slightly exceeding the keel; ovary lanceolate, obscurely stipitate, 2- or 3-ovuled; style about as long as to one and a half times as long as ovary, slightly curved; pod pendent, 3.5-5mm long and 2.5-3mm broad, rhomboid, compressed along the ventral suture, darkening, sparsely hairy, slightly reticulate with rather faint anastomosing veins; seed solitary or 2, ca. 2 mm long, ferruginous, obscurely tuberculate. July- September. Wet meadows and pastures. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** Like common sweet clover, it provides excellent fodder for cattle and deserves to be used for this purpose. This plant should be cultivated and propagated particularly well in our river regions, in lower, frequently flood-prone areas. Our experiments with it showed that, when cultivated, its woody, tough stems become herbaceous and reach a height of 9-12 feet in gardens. I would prefer the white-flowered variety to the yellow-flowered variety for cultivation, as it produces a greater number of tender branches and leaves. It can be mown two or three times during the summer and produces a plentiful yield. It should also be grown on slightly moist sandy fields. The common white and yellow sweet clover, which grows here and there along roads, in crop fields, fallow fields, meadows, and pastures, deserves to be planted and propagated, especially in the slightly higher mountain regions of the Black Forest and the Odenwald.

**Description and Ecology (Gmelin 1817):** It differs from the common sweet clover (*Trifolium Melilotus officinalis* Linn.) by its much taller, stiffly upright, harder stems, 5-6-9 feet tall, which are brownish-red or purple-red underneath. It has larger leaves, longer flower clusters, somewhat smaller flowers, rounder, single-seeded pods, and a weaker scent. Grows primarily in the Rhine, Main, and Neckar regions along these rivers, often in damp and flood-prone areas. It blooms in June, July, and August. Its seeds ripen in September and is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Er unterscheidet sich von dem gewöhnlichen Steinklee. *Trifolium Melilotus officinalis* Linn. Durch viel höhere, 5 - 6 - 9 Fuß hohe steif aufrecht stehende, härtere Stengel, welche unten braunroth oder purpurroth sind. Durch größere Blätter, längere Blüthentrauben, etwas kleinere Blüten, rundere einsamige Hülsen, und schwächeren Geruch. Wächst vorzüglich in den Rhein-, Main- und Neckargegenden längst diesen Flüssen, häufig an feuchten und Ueberschwemmungen ausgesetzten Gegenden. Blühet im Juni, Juli, August. Reifet seine Samen im September, und gehört unter die zweyjährigen Gewächse. Giebt dem Rindvieh, wie der gemeine Steinklee, ein treffliches Futter, und verdient dazu bestens benutzt zu werden. Diese Pflanze sollte vorzüglich in unsern Flußgegenden, an tiefern, öftern Ueberschwemmungen ausgesetzten Stellen, bestens angebaut und vermehrt werden. Unsere damit angestellten Versuche zeigten, daß durch die Cultur ihre holzartigen zähen Stengel krautartig werden, und im Gartenlande eine Höhe von 9 - 12 Fuß erreichten. Die Abänderung mit weisser Blüthe, würde ich zum Anbaue, dem gelbblühenden vorziehen, weil sie eine größere Menge zarter Aeste und Blätter treibt. Sie kann den Sommer über, zwey bis dreymal abgemähet werden, und giebt einen reichlichen Ertrag. Sie sollte auch auf etwas feuchten Sandfeldern angebaut werden. Der gewöhnliche weisse und gelbe Steinklee, welcher hie und da an Wegen, Saatfeldern, auf Brachäckern, Wiesen und Weiden wächst, verdient vorzüglich in den etwas höher gelegenen Berggegenden des Schwarzwaldes und des Odenwaldes, angepflanzt und vermehrt zu werden.

### ***Mespilus germanica* L.**

*Synonyms: Mespilus domestica* Gaterau; *Mespilus germanica* var. *sylvestris* (Mill.) P.D.Sell; *Mespilus portentosa* Poit. & Turpin; *Mespilus vulgaris* Gueldenst.; *Mespilus vulgaris* Rchb.

**Original name (Gmelin 1817):** *Mespilus germanica*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 380. 382.

**German names and French names (Gmelin 1817):** Mispelbaum, Nespelbaum, Hespelbaum, Mespele, Nespele, Hespeler; Neflier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, but rare in the region

### **KR 252990 (Fig. 53)**

**Botany and Ecology:** Spiny shrub 2-3 m (in cultivation a spineless tree up to 6 m), spines c. 1 cm. The twigs bearing long, soft, shaggy, but unmated hairs when young, becoming smooth with maturity. The leaves are lanceolate to obovate, 5-12 x 2-6 cm, entire or serrulate, bilaterally adpressed-pubescent or subglabrous above and adpressed-pubescent beneath. The flowers are white, 3-4 cm in diameter. The pedicels are 5 mm. The calyx is densely pubescent. The sepals are longer than the petals. The fruit is 1.5-3 cm. The plant can be found in open forests, on rocks, and in the machine. From sea level to 1650 m. It is also widely cultivated. Mainly in Northern Turkey, the Eastern Balkans, Crimea, Caucasia. Flowers in May, and fruits from September to October. In forests, fringe and shrubs. Up to middle mountain belt, on an elevation (400-1100). Flowers in May, and fruits from September to October. In Armenia in Lori, Aparan, Idjevan, Sevan, Zangezur, Meghri floristic regions. Distributed almost throughout Azerbaijan from lowland to middle mountain zone. Grows as undergrowth in oak, hornbeam, oak-hornbeam, oak-haematite and other forests as secondary shrub, on edges and in open glades. Often gardened because of its fruits. Reproduced with seeds, root shoots and grafting. Flowering in April-May, and fruiting in October-November. As

a part of understory in thinned forests, in various communities with *Cornus mas* as the major accompanying species, in lower and upper mountainous zones, up to 1200 m. (Flora of Azerbaijan 1950-1961).



Figure 53. *Mespilus germanica* L. - KR 252990

**Contemporary uses:** Georgia, Armenia, Azerbaijan: Medlar is a honey and medicinal plant. For medicine fruits and leaves are used. In traditional medicine the tincture of leaves and fruits is used for kidney disease, hemorrhoids, gastroenterology diseases, and removal of urinary calculi. The tincture of leaves is useful for washings. Root, bark and leaves are used to treat some malignant tumors. Fruits and bark contain tannins and vitamins A, C. Leaves and fruits possess strong astringency. A decoction of leaves and fruits is used in diarrhea, and dysentery. A decoction and infusion of leaves is used to treat hemorrhoids, as gargle for angina and laryngitis, and the juice of fresh leaves is applied for toothache. A broth made of meddlar bark was used in traditional medicine. Wet patches were applied to heal varicose veins, a process that lasted around one month. Traditional medicine uses meddlar fruits and bark to heal scabies. Meddlar leaves, seeds, and fruits were also used to heal inflamed digestive tracts, and urolithiasis. Dagestan: The fruits of the *Mespilus germanica* are used as an

*antidiarrheal agent. Iran: Fruit, leaf, root, and bark infusions are widely applied orally to treat diarrhea, sore throat, fever, diabetes, and vomiting. Medlar doshab a fondant molasses syrup, prepared by straining fruit juices, then boiling until concentrated, turning into a dark, honey-like consistency) is used for the treatment of canker sores (aphthous ulcers) - doshab apply to the sores 2-3 times a day then spit out. The raw fruit is used as a tonic. A decoction of the leaves and fruit is used to regulate blood sugar, cholesterol and blood pressure, diarrhea, and reduce fever. Raw fruit and decoction are effective against fever and constipation. Crushed flowering shoots of *Crataegus germanica* mixed with the aboveground parts of *C. monogina* are used to lower blood pressure and regulate heart rate. Seeds help to remove bladder stones. In northern Iran, syrup made from fruit and sugar is considered the best medicine to cure diarrhea in children, while gargle leaf extract is used for sore throat. Georgia, Armenia, Azerbaijan: The fruits are used fresh and processed (confectionery, for making juices, lemonade, kvass etc.). This is the best food for sick and newly recovered people. Ripe fruits can be used for porridge. Fruits are edible only after a fermentation process or after impact of frost. Fruits are used in raw and marinated condition, used for making fruit paste and juice. Fruit consumption is common throughout Georgia both raw and as jam. Dagestan: The fruits of medlar in Dagestan are in high demand and consumed after the first frost, when they soften, becoming wrinkled, and the astringent taste changes to sweet. In South Dagestan, the fruits are also soaked: the fruits are poured into a jar vessel with a narrow neck, completely filled with spring water, then sealed hermetically and stored in a dark cold room. In this form, the medlar is stored for up to 4 months. After unsealing the vessel in a warm room and contact with oxygen in the air, the process of intensive fermentation of the sugars contained in the medlar begins. As a result of it, the fruits swell and acquire a pleasant taste with a slight sharpness. Since sugars pass into the water during the soaking, it also begins to ferment intensively, resembling champagne in appearance. At the beginning of fermentation, the liquid is consumed, and after complete transformation into vinegar, it is used as a seasoning. Iran: Wild and domesticated fruits are edible and nutritious, used as fresh or processed foods (to make juices, syrups, sauces, nuts, etc.). The fruit is processed and can be used as a sauce in foods in place of pomegranate sauce. Georgia, Armenia, Azerbaijan: Roots and leaves are used in traditional carpet weaving as source of brown and yellow dye. Decorative species, with perspective for reforestation and landscaping. A dye solution is prepared from bark, leaves and fruits to obtain yellow and beige colors and used for dyeing wool yarn as well as products made of wool (Qasimov 1980). Bark and leaves are rich in tannins and are used to cure leather. Especially beautiful during flowering and fruiting. The wood is used for furniture. Iran: The seeds are used to make necklaces and decoration items. Albania: antidiarrheal, antidiabetic. Azerbaijan: Snack, lactofermented in brine, juice used as seasoning for noodles, pekmez. Formerly widely used as food. Pickled. Bulgaria / Ukraine: lactofermented in brine. (Batsatsashvili et al. 2017g; Bussmann et al. 2025x; Paniagua-Zambrana et al. 2025z).*

**Uses 1817 (Gmelin 1817):** The ripe fruits, as picked from the tree, are hard, bitter, and astringent, but after lying on straw for a few days, they become soft, brown, mild, sweet, taste pleasant, and provide healthy nutrition. Through fermentation, they can be used to make a very good brandy. Pressed with apples, they also produce a pleasant and healthy wine. Through cultivation and grafting in and on vineyards and gardens, the fruits become much larger and tastier, and the tree also loses its thorns. Since this beneficial tree is becoming rarer in our country with each passing year, its planting, propagation, and grafting deserves to be favored in suitable locations, especially in the low mountain ranges, above and near vineyards. It would thrive particularly well, among other places, in the warm and sunny Kaiserstuhl region of Breisgau. Propagation is quickest and best achieved by grafting onto hawthorn and pear wild shoots.

**Description and Ecology (Gmelin 1817):** A shrub or medium-sized tree. The bark is ash-gray-brownish. The branches are alternate, smooth, the younger ones are finely hairy, with single, straight, strong thorns. The leaves are alternate, short-stalked, oblong-lanceolate, flat, slightly serrated or entire at the margins, somewhat tomentose beneath. The flowers are borne solitarily, with short stalks. The calyx is five-lobed. The calyx segments are long, detached, and pubescent. The corolla is five-petaled, white, rarely reddish, and large. The berry is obovate, ovate, truncated, crowned, green or reddish, five-lobed. Seeds are 5, hard, brown. It is quite common in wooded low mountain regions, between the Favorite and Ebersteinburg, on the Frömersberg near Baden, as well as in the mountains between Baden and the Bühlertal valley, also in the Jura Mountains and the Vosges. It blooms in May and ripens its fruits in September and October.

**Original German text Gmelin (Gmelin 1817):** Ein Strauch oder mittelmäßiger Baum. Die Rinde aschgrau-bräunlich. Die Aeste abwechselnd, glatt, die jüngern feinhaarig, mit einzelnen geraden starken Dornen. Die Blätter abwechselnd, kurzgestielt, länglich-lanzettförmig, flach, am Rande etwas gesägt oder ganz, unterhalb etwas filzig. Die Blüten ausgehend, einzeln stehend, kurzgestielt. Der Blumenkelch fünfmal eingeschnitten. Die Kelchabschnitte lang, abstehend, weichhaarig. Die Blumenkrone fünfblättrig, weiß, seltener rötlich, groß. Die Beere verkehrt, eyrund, abgestutzt, gekrönt, grün oder rötlich, fünffächerig. Samen 5, harte, braune. Kommt ziemlich häufig in waldigen Mittelgebirgsgegenden, zwischen der Favorite und Ebersteinburg, auf dem Frömersberg bei Baden, so wie in den Gebirgen zwischen Baden und dem Bühlerthale, auch an dem Juragebirge, und den Vogesen, vor. Blühet im May und reifet seine Früchten im September und October. Die reifen Früchte

sind, so wie sie vom Baum abgenommen werden, hart, herbe und zusammenziehend, werden aber nachdem sie etliche Tage auf Stroh gelegen, weich, braun, milde, süß, schmecken angenehm, und geben eine gesunde Nahrung. Durch die Gährung kann man einen sehr guten Brandtwein aus ihnen bereiten. Auch geben sie unter Aepfel gekeltert, einen angenehmen und gesunden Wein. Durch die Cultur und Veredlung an und in den Weinbergen und in den Gärten, werden die Früchte ungleich größer und schmackhafter, auch verliert der Baum dadurch seine Dorne. Da dieser wohlthätige Baum mit jedem Jahre bei uns seltener wird, verdiente dessen Anpflanzung, Vermehrung und Veredlung, in den dazu geeigneten Stellen, in den Mittel-Gebirgen, vorzüglich, oberhalb und neben den Weinbergen bestens begünstigt zu werden. Ganz vorzüglich würde er unter andern, an dem warmen und sonnenreichen Kaiserstuhl im Breisgau gedeihen. Die Vermehrung geschieht am schnellsten und besten durch Pfropfen auf Weißdorn und Birnwildlinge.

### ***Morchella esculentua* (L.) Pers.**

*Synonyms: Phallus esculentus* L.; *Morellus esculentus* (L.) Eaton; *Helvella esculenta* (L.) Sowerby; *Morchella rotunda* var. *esculenta* (L.) Jacquet.; *Morilla esculenta* (L.) Quél.; *Phalloboletus esculentus* (L.) Kuntze; *Morchella esculenta*  $\beta$  *esculenta* (L.) Pers.; *Morilla esculenta* (L.) Quél.; *Morchella esculenta* var. *aurantiaca* Clowez; *Morchella esculenta* var. *rubroris* Clowez & Luc Martin; *Morchella ochraceoviridis* Clowez; *Morchella ovalis* var. *minor* Clowez & Luc Martin

**Original name (Gmelin 1817):** *Phallus esculentus*. Linn. Sp. pl. - Bulliard. tab. 218. - Schaeff. Fung. tab. 199. 298. 299. 300.

**German names and French names (Gmelin 1817):** Gemeine Morchel, Spitzmorchel, Morchel; Morille

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - collection in Germany only in small quantities for personal use

**Contemporary uses:** *Edible when fresh.* (Bussmann & Paniagua-Zambrana 2025a; Ranjitkar *et al.* 2021).

**Uses 1817 (Gmelin 1817):** It is one of the popular and tasty edible sponges that are sold fresh and dried.

**Description and Ecology (Gmelin 1817):** Standing solitarily. The stem is cylindrical, upright, short, swollen at the base, whitish, hollow, fragile, and naked. The ring and bulge are missing. The cap is egg-shaped, elongated, more or less pointed, membranous, latticed, attached to the stem, fragile, yellowish-brown, brown, or blackish-brown. There are several varieties depending on size, shape, and color, which Schaeffer illustrated and described in the same place, and which Bulliard described as: Morille blanche: white morel: initially completely white, becoming straw-yellow with age; Morille grise: gray morel: initially white-gray or light brownish-reddish, becoming brownish-red with age; Morille brune: brown morel: initially gray-brown, becoming brownish-black with age; illustrated and described in the same place. Grows in damp meadows, pastures, and lowland and mountain forests, on the ground in spring. Grows in damp meadows, pastures, and lowland and mountain forests, on the ground in spring.

**Original German text Gmelin (Gmelin 1817):** Einzeln stehend. Der Strunck walzenförmig, aufrecht, kurz, unten aufgeschwollen, weißlich, hohl, zerbrechlich, nackt. Ring und Wulst fehlen. Der Hut eiförmig, länglich, mehr oder weniger zugespitzt, häutig, gegittert, am Struncke anhängend, zerbrechlich, gelbbraun, braun, schwärzlich-braun. Davon giebt es in Betracht der Größe, Gestalt und Farbe mehrere Abarten, welche Schaeffer a.d.a.O. abgebildet und beschrieben hat, und die Bulliard unter Morille blanche : weiße Morchel : von anfänglich ganz weißer, im Alter strohgelber Farbe : Morille grise : graue Morchel : von anfänglich weißgrauer, oder hell braunröthlicher, im Alter braunrother Farbe. Morille brune : braune Morchel : von anfänglich graubrauner, im Alter braunschwärzlicher Farbe a.a.O. abgebildet und beschrieben hat. Wächst auf feuchten Wiesen, Viehtriften und in niedrigen und Bergwaldungen, auf der Erde im Frühjahr. Gehört zu den beliebten und schmackhaften eßbaren Schwämmen, die frisch und gedörret zu Markte gebracht werden.

### ***Myrrhis odorata* (L.) Scop.**

*Synonyms: Chaerophyllum odoratum* Crantz; *Lindera odorata* (L.) Asch.; *Myrrhis brevipedunculata* Hoffm.; *Myrrhis iberica* Hoffm.; *Myrrhis odorata* subsp. *sulcata* (Lag.) Nyman; *Myrrhis odorata* var. *culta* Alef.; *Myrrhis odorata* var. *sulcata* (Lag.) Alef.; *Myrrhis sulcata* Lag.; *Scandix odorata* L.; *Selinum myrrhis* E.H.L.Krause

**Original name (Gmelin 1817):** *Scandix odorata*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 693. - 695. - Jacqu. Flor. Austr. 5. app. tab. 37.

**German names and French names (Gmelin 1817):** Anis-Körbel, Wohlriechender Körbel, Welscher Körbel, Myrrhenkörbel, Spanischer Körbel; Myrrhis odorante, ou musqué

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Highly threatened, strong decline, extinct in the region

**KR 99050** (Fig. 54); **99054** (Fig. 55)



Figure 54. *Myrrhis odorata* (L.) Scop. - KR99050



Figure 55. *Myrrhis odorata* (L.) Scop. - KR99054

**Botany and Ecology:** Perennial; root thick, nodose, dark brown, multicapital; stem erect, 50-120 cm high, cylindrical, thinly ribbed, hollow inside, branching above, glabrous or slightly pubescent, nodes and sheaths of leaves always covered with rather long, thin, often retrorse hairs; leaves triangular, 2-4 times pinnatisect, the lower long-petioled, lobes acuminate, those of the first order oblong-ovate, of the second order ovate; lobules of the last order ovate-oblong or lanceolate, dentate, covered with short soft hairs beneath; upper leaves small, less dissected. Umbels of 8-10 rays; involucre 0; pedicels of bisexual flowers hairy, of staminate flowers glabrous; leaflets of involucels 5-7, lanceolate, acuminate, almost scarious, ciliate; flowers in terminal polygamous umbels, bisexual with few staminate flowers, lateral umbels mostly staminate; calyx-teeth inconspicuous; petals white, notched, acuminate tip curved inward, peripheral petals slightly expanded, to 3 mm long; fruit 2-2.5 cm long. May-July. Escaped from cultivation, in meadows and along forest edges. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** Sometimes as kitchen herb.

**Uses 1817 (Gmelin 1817):** The entire plant is spicy, with an aniseed scent and flavor, sweet, pleasant, healthy, and nourishing. The young roots and leaves are used as an addition to soups, salads, fine herbal broths, in egg tarts, and also like spinach.

The finely chopped seeds, still green, mixed with lettuce or other salad herbs, impart a pleasant flavor, improve the health, strengthen and warm the stomach, and reduce flatulence, as I have thoroughly observed among the mountain dwellers in Catalonia and the Spanish and French Pyrenees. These mountain dwellers use all parts of the plant as an excellent food, as a seasoning, and as a proven household remedy for colicky sores caused by colds and flatulence. This plant thrives in our gardens, where it grows luxuriantly, increases milk production, and must also be considered an excellent fodder for dairy cows and pigs. The flowers provide excellent and abundant honey to the bees that frequently visit them. It deserves to be planted and propagated not only in all kitchen gardens, but also in mountainous regions on sunny limestone-marl hills, in, below, and above vineyards, and, if possible, propagated. This can be done most simply and easily by seed, which is placed in the loosened soil in spring and covered one inch deep. The sunny volcanic hills on the Kaiserstuhl in Breisgau, the area around Alt-Breysach, Achkarn, Burgen, Rothweil, Bückensohl, and Hohenlimburg, as well as the volcanic hills in the Hegau, such as Hohen Stoffeln, Hohen Hegen, Mettberg, and Hohentwyl, are particularly suitable for this purpose.

**Description and Ecology (Gmelin 1817):** The very long, fleshy root is spindle-shaped and white. The stem is 2-3-4 feet tall, erect, round, striated, smooth, jointed, and branched. The branches are upright. The leaves are alternate, large, tripinnate, pubescent, pale green, and often spotted with white or brown. The leaflets are lanceolate and serrate. The leaf sheaths are membranous and striated. The umbels terminate at the end of the stem and branches and have 2-3-7 and several long, unequal, hairy rays. The general involucre is absent or is sometimes unifoliate. The particular involucre has 5-7 leaflets. The leaflets are narrowly lanceolate, membranous, translucent, white, recurved, and finely hairy, the length of the umbel. The flowers are white. The seeds are somewhat beak-shaped, one inch long, with five grooves on the back, blackish-brown, shiny, and crowned at the tip. This plant originally grows in Switzerland, Austria, France, Italy, and Spain on higher mountains and is currently, albeit rarely, planted individually in our gardens. It blooms in May, June, and July, ripens its seeds in August and September, and is considered a perennial.

**Original German text Gmelin (Gmelin 1817):** Die sehr lange fleischige Wurzel ist spindelförmig weiß. Der Stengel 2 - 3 - 4 Fuß hoch, aufrecht, rund, gestreift, glatt, gegliedert, ästig. Die Aeste aufrecht stehend. Die Blätter abwechselnd, groß, dreifach gefiedert, weichhaarig, blaßgrün, und oft mit weißen oder braunen Flecken besetzt. Die Blättchen lanzettförmig, gesägt. Die Blattscheiden häutig, gestreift. Die Dolden endigen den Stengel und die Aeste, und haben 2 - 3 - 7 und mehrere lange, ungleiche, haarige Strahlen. Der allgemeine Umschlag fehlt, oder ist zu Zeiten einblättrig. Der besondere Umschlag ist 5 - 7 blättrig. Die Blättchen desselben schmal lanzettförmig, häutig, durchscheinend, weiß, zurückgeschlagen, feinhaarig, von der Länge des Doldchens. Die Blumen sind weiß. Die Samen etwas schnabelförmig, einen Zoll lang, auf dem Rücken mit fünf Furchen, schwärzlich-braun, glänzend, an der Spitze gekrönt. Diese Pflanze wächst ursprünglich in der Schweiz, in Oesterreich, Frankreich, Italien und Spanien auf höheren Gebirgen, und wird zur Zeit, jedoch selten hie und da einzeln in unsern Gärten angepflanzt. Sie blühet im May, Juni, Juli, reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Die ganze Pflanze ist gewürzhaft, von Anis-Geruch und Geschmack, süß, angenehm, gesund und nährend. Die jungen Wurzeln und Blätter werden als Zugemüße, zu Suppen, Salat, feinen Kräuter-Brühen, in Eyerkuchen, und auch wie Spinat benutzt. Die noch grünen klein geschnittenen Samen, mit Kopf-Salat oder andern Salatkräutern vermischt, theilen denselben einen angenehmen Geschmack mit, verbessern sie, stärken und erwärmen den Magen und treiben die Blähungen, wovon ich mich bey den Gebirgsbewohnern in Catalonien und auf den spanischen und französischen Pyreneen sattsam überzeugt habe. Diese Gebirgsbewohner benutzen alle Theile der Pflanze als vorzügliches Nahrungsmittel, als Würze und erprobte Hausarzney in Colicken, welche von Erkältung, und Blähungen entstanden sind. Diese Pflanze kommt in unsern Gärten sehr gut fort, und hat dasselbst einen üppigen Wuchs, vermehrt die Milch und muß zugleich als ein vorzügliches Futter für Milchkühe und Schweine betrachtet werden. Die Blüten geben den Bienen, die sie häufig besuchen, trefflichen und reichlichen Honig. Sie verdient nicht nur in allen Küchengärten, sondern auch in den Gebirgsgegenden auf sonnenreichen Kalkmergel-Hügeln, in, unterhalb und oberhalb der Weinberge gepflanzt und möglich vermehrt zu werden, welches auf die einfachste und leichteste Art durch Samen, welcher im Frühjahr in das aufgelockerte Erdreich gebracht, und einen Zoll tief bedeckt wird, geschehen kann. Vorzüglich geeignet dazu, sind die sonnenreichen vulkanischen Hügel am Kaiserstuhl im Breisgau, die Gegend um Alt-Breysach, Achkarn, Burgen, Rothweil, Bückensohl, und Hohenlimburg; ferner die vulkanischen Hügel im Hegau, als hohen Stoffeln, hohen Hegen, Mettberg, Hohentwyl.

### ***Nuphar lutea* (L.) Sm.**

*Synonyms: Nenuphar luteum* Link; *Nuphar rivularis* Dumort.; *Nuphar sericea* Láng; *Nuphar spathulifera* Rchb.; *Nuphar systyla* Wallr.; *Nuphar tenella* Rchb.; *Nymphaea affinis* Hayek; *Nymphaea lutea* L.; *Nymphaea umbilicalis* Salisb.; *Nymphona lutea* (L.) Bubani; *Nymphozanthus affinis* Fernald; *Nymphozanthus luteus* Fernald; *Nymphozanthus sericeus* Fernald; *Nymphozanthus vulgaris* Rich.

**Original name (Gmelin 1817):** *Nymphaea lutea*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 480. 481.

**German names and French names (Gmelin 1817):** Große gelbe Seeblume, Gelbe Wassernympfe, Gelbe Wasserrose; Nenufar jaune

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

**Botany and Ecology:** Rhizomes stout, 3-8 cm in diam. Petiole ca. 50 cm, glabrous; floating leaf blade elliptic, 15-30 × 10-22 cm, leathery, abaxially glabrous or pubescent, adaxially glabrous, base cordate and basal lobes spreading. Flower 4-5 cm in diam. Peduncle to ca. 50 cm, glabrous. Sepals yellow, broadly ovate to orbicular, 2-3 cm. Petals linear, 1-1.5 cm, apex truncate to rounded. Anthers yellow, 4-7 mm. Stigmatic disc entire, 7-19 mm in diam., rays 5-25. Fruit ca. 2.5 cm in diam. Seeds olive green, ovoid, ca. 5 mm. Flowering June-August. (Wu *et al.* 1994-2013).

**Contemporary uses:** Romania: *Astringent, febrifuge, diarrhea, fever, pulmonary disorders. Wounds, leukorrhea, skin infections astringent, anti-infective, emollient, anti-inflammatory.* Poland / Lithuania / Belarus: *headache, skin infection, women's vaginal discharge.* Russia: *Rhizome ground as additive to flour. Seeds sometimes eaten.* Georgia: *mostly used as ornamental.* (Bussmann *et al.* 2025y; Paniagua-Zambrana *et al.* 2025A).

**Uses 1817 (Gmelin 1817):** The roots have a slightly sharp, bitter, and slimy taste and provide good food for pigs. In Sweden, they were consumed by humans during periods of famine and scarcity, without harm, and on the island of Seeskär near Narva, bread was baked from them with spruce bark. This food would probably not have pleased the Rhinelander.

**Description and Ecology (Gmelin 1817):** The root is very long, large, thick, cylindrical, segmented, fibrous, spongy-fleshy inside, pale yellow, brown outside. The leaves have long stalks, heart-shaped, large, broad, rounded, leathery, smooth, entire at the edges, floating on the water, spread out. The flowers are borne on long, single-flowered stalks and float on the water's surface. The calyx has five petals. The corolla is large, yellow, and multi-petaled. The berry is hard, oval, truncated, narrower at the neck, crowned at the tip, multi-lobed, and multi-seeded. Grows in the Rhine region and on Lake Constance, often in ditches, ponds, and standing water. It blooms in June and July, its seeds ripen in August and September and is a perennial.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel sehr lang, groß, dick, walzenförmig, gegliedert, faserig, innen schwammig-fleischig, blaßgelb, aussen braun. Die Blätter langgestielt, herzpfeilförmig, groß, breit, zugerundet, lederartig, glatt, am Rande ganz, auf dem Wasser schwimmend, ausgebreitet. Die Blüten stehen auf langen einblumigen Stielen, und schwimmen auf der Oberfläche des Wassers. Der Blumenkelch fünfblättrig. Die Blumenkrone groß, gelb, vielblättrig. Die Beere hart, eyrund, abgestutzt, am Halse enger, an der Spitze gekrönt, vielfächerig, vielsamig. Wächst in den Rheingegenden und am Bodensee häufig in Wassergräben, Teichen und stehenden Wassern. Blühet im Juni, Juli, reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Die Wurzeln sind von etwas scharfem, bitterm und schleimigen Geschmacke, und geben den Schweinen eine gute Nahrung. In Schweden wurden sie bei Theurung und Mangel, von Menschen ohne Schaden genossen, und auf der Insel Seeskär bei Narva mit der Fichtenrinde Brod daraus gebacken. Diese Kost dörfte dem Rheinländer nicht behagen.

### ***Nymphaea alba* L.**

**Synonyms:** *Castalia alba* Greene; *Castalia biradiata* Hayek.; *Castalia minoriflora* Simonk.; *Castalia speciosa* Salisb.; *Leuconymphaea alba* (L.) Kuntze; *Nymphaea alba* subsp. *minoriflora* (Simonk.) Stucchi; *Nymphaea alba* var. *alba*, *Nymphaea alba* var. *rubra* Lönnr.; *Nymphaea basniniana* Turcz.; *Nymphaea biradiata* Sommerauer; *Nymphaea erythrocarpa* Hentze; *Nymphaea exumbonata* Rupr.; *Nymphaea kosteletzkyi* Paillard ex Lehm.; *Nymphaea melocarpa* Asch. & Graebn.; *Nymphaea milletii* Boreau; *Nymphaea minoriflora* (Simonk.) Wissjul.; *Nymphaea neglecta* Hausl.; *Nymphaea occidentalis* Moss; *Nymphaea officinalis* Gaterau; *Nymphaea parviflora* Hentze; *Nymphaea permixta* Boreau; *Nymphaea polystigma* E.H.L.Krause; *Nymphaea rotundifolia* Hentze; *Nymphaea splendens* Hentze; *Nymphaea suaveolens* Dumort.; *Nymphaea urceolata* Hentze; *Nymphaea venusta* Hentze

**Original name (Gmelin 1817):** *Nymphaea alba*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 482.

**German names and French names (Gmelin 1817):** Große weisse Seeblume, Weisse Wassernymphe, Weisse Seerosen; Nenufar blanc

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

KR 217513 (Fig. 56)



Figure 56. *Nymphaea alba* L. - KR 217513

**Botany and Ecology:** Rhizomes repent, sparsely branched, but not stoloniferous. Leaf blade suborbicular, 10--25 cm in diam., papery, abaxially glabrous, scarcely peltate, base deeply cordate and basal lobes subparallel or spreading, margin entire. Flower floating, (7--) 10--20 cm in diam. Calyx insertion on receptacle circular; sepals lanceolate, 3--5(--8) cm, obscurely veined, caducous or decaying after anthesis. Petals (12--)20--25(--33), white, ovate-oblong, 3--5.5(--8) cm, transition to stamens gradual. Filament of inner stamens  $\pm$  as wide as anther; connective apically unappendaged. Carpels completely

united, walls between locules of ovary single. Stigma rays (8--14--20(--25)); carpellary appendages triangular-tapered. Fruit semiglobose, 2.5--3 cm. Seeds ellipsoid, 2--3(--5) mm, smooth. Fl. Jun--Aug. (Wu *et al.* 1994-2013).

**Contemporary uses:** Romania: astringent, febrifuge; diarrhea, fever, pulmonary disorders. Belarus / Italy: seeds as snack. Russia: rhizomes as additive to flour. Georgia: planted as ornamental. India: boils, diarrhea, anthelmintic. Pakistan: anxiety, acne. (Busmann *et al.* 2025z; Paniagua-Zambrana *et al.* 2025B).

**Uses 1817 (Gmelin 1817):** Its properties and uses are the same as those of the preceding species (*Nymphaea lutea*); it is no small ornament to our waters. Given the shortage, it would be worthwhile to experiment with these roots on flour. Perhaps their unpleasant taste could be removed by certain additives or other techniques, in which case it would perhaps yield little or nothing to the Egyptian lotus, Lotus d'Egypte, Nymphaea Lotus, Linn., which frequently grows on the banks of the Nile and is sought out and eaten there by the poor. It is very common in the same regions as the yellow water nymphaea, and differs from it by its larger white flowers and four-petaled calyx.

**Original German text Gmelin (Gmelin 1817):** Sie kommt in denselben Gegenden mit der gelben Wassernympfe, sehr häufig vor, und unterscheidet sich von ihr, durch die größern weissen Blumen, und einen vierblättrigen Kelch. Eigenschaften und Gebrauch sind wie bei der vorhergehenden Art, sie ist keine geringe Zierde unserer Wasser. Es verlohnte sich bei Mangel, wohl der Mühe, mit diesen Wurzeln, auf Mehl, Versuche anzustellen. Vielleicht könnte man ihnen, ihren unangenehmen Geschmack, durch gewisse Zusätze, oder andere Kunstgriffe benehmen, wo sie alsdann vielleicht dem Aegyptischen Lotus, Lotus d'Egypte. Nymphaea Lotus. Linn. welche häufig an den Ufern des Nils wächst, und daselbst von den armen Leuten aufgesucht und verspeist wird, wenig oder nichts nachgeben würde.

#### ***Oenothera biennis* L.**

*Synonyms:* *Brunyera biennis* (L.) Bubani; *Oenothera beckeri* Renner; *Oenothera biennis* f. *biennis*; *Oenothera biennis* f. *leptomeres* (Bartlett) P.D.Sell; *Oenothera biennis* f. *muricata* (L.) H.Lév. ex Thell.; *Oenothera biennis* f. *nanella* de Vries; *Oenothera biennis* subf. *latifolia* (Asch.) Thell.; *Oenothera biennis* subsp. *biennis* Thell.; *Oenothera biennis* subsp. *caeciarum* Munz; *Oenothera biennis* subsp. *centralis* Munz; *Oenothera biennis* subsp. *chicaginis* (de Vries ex Renner & Cleland) Á.Löve & D.Löve; *Oenothera biennis* subsp. *grandiflora* Stomps; *Oenothera biennis* subsp. *rubricaulis* (Kleb.) Stomps; *Oenothera biennis* subsp. *suaveolens* (Pers.) Rouy & E.G.Camus; *Oenothera biennis* var. *alba* Alef.; *Oenothera biennis* var. *angustifolia* Renner; *Oenothera biennis* var. *biennis*; *Oenothera biennis* var. *cantabrigiana* B.M.Davis; *Oenothera biennis* var. *grandiflora* (L'Hér.) Lindl.; *Oenothera biennis* var. *leptomeres* Bartlett; *Oenothera biennis* var. *lutea* Alef.; *Oenothera biennis* var. *muricata* (L.) Torr. & A.Gray; *Oenothera biennis* var. *parviflora* Abrom.; *Oenothera biennis* var. *pyncocarpa* Wiegand; *Oenothera biennis* var. *rubricaulis* Farw.; *Oenothera biennis* var. *sulphurea* de Vries ex Bartlett; *Oenothera biennis* var. *vulgaris* Torr. & A.Gray; *Oenothera brevicapsula* Bartlett; *Oenothera brevispicata* Hudziok; *Oenothera cambrica* Rostański; *Oenothera cambrica* var. *impunctata* Rostański; *Oenothera carinthiaca* Rostański; *Oenothera casimiri* Rostański; *Oenothera chicaginis* de Vries ex Renner & R.E.Cleland; *Oenothera chicaginis* var. *bartlettii* Soldano; *Oenothera chicaginis* var. *minutiflora* Rostański & V.Jehlik; *Oenothera chicaginis* var. *parviflora* Renner; *Oenothera chicaginis* var. *chicagoensis* Renner ex R.E.Cleland & Blakeslee; *Oenothera communis* H.Lév.; *Oenothera communis* f. *canescens* H.Lév.; *Oenothera communis* f. *suaveolens* (Pers.) H.Lév.; *Oenothera communis* var. *biennis* (L.) H.Lév.; *Oenothera compacta* Hudziok; *Oenothera editicaulis* Hudziok; *Oenothera ersteinensis* R.Linder & R.Jean; *Oenothera flaemingina* Hudziok; *Oenothera furca* Boedijn; *Oenothera gauroides* var. *brevicapsula* (Bartlett) R.R.Gates; *Oenothera gauroides* Hornem.; *Oenothera glabra* Mill.; *Oenothera grandiflora* var. *tracyi* (Bartlett) R.R.Gates; *Oenothera grandifolia* R.R.Gates; *Oenothera graveolens* Gilib.; *Oenothera hirtella* de Vries; *Oenothera inconspicua* Hudziok; *Oenothera indivisa* Hudziok; *Oenothera jueterbogensis* Hudziok; *Oenothera jueterbogensis* var. *macrosperma* Hudziok; *Oenothera latipetala* (Soldano) Soldano; *Oenothera macrosperma* (Hudziok) Hudziok; *Oenothera marinellae* Soldano; *Oenothera media* Link; *Oenothera mediomarchica* Hudziok; *Oenothera muricata* L.; *Oenothera muricata* var. *latifolia* Asch.; *Oenothera muricata* var. *rhodoneura* Renner; *Oenothera muricata* var. *rubricaulis* Farw.; *Oenothera nissensis* Rostański; *Oenothera nissensis* var. *fiedleri* Gutte & Rostański; *Oenothera novae-scotiae* var. *serratifolia* R.R.Gates; *Oenothera nuda* Renner ex Rostański; *Oenothera numismatica* Bartlett; *Oenothera obscurifolia* Hudziok; *Oenothera octolineata* Hudziok; *Oenothera paradoxa* Hudziok; *Oenothera paralamarckiana* R.R.Gates; *Oenothera parviflora* var. *muricata* Farw.; *Oenothera pedemontana* Soldano; *Oenothera pellegrinii* Soldano; *Oenothera pratincola* Bartlett; *Oenothera pratincola* f. *typica* Bartlett; *Oenothera pratincola* var. *numismatica* (Bartlett) R.R.Gates; *Oenothera pubescens* Nees; *Oenothera punctulata* Rostański & Gutte; *Oenothera purpurata* Kleb.; *Oenothera pyncocarpa* G.F.Atk. & Bartlett; *Oenothera pyncocarpa* var. *cleistogama* R.R.Gates; *Oenothera pyncocarpa* var. *parviflora* R.R.Gates; *Oenothera pyramidiflora* Hudziok; *Oenothera reynoldsii* Bartlett; *Oenothera reynoldsii* f. *semialta* Bartlett; *Oenothera reynoldsii* f. *typica*

Bartlett; *Oenothera rostanskii* V.Jehlík; *Oenothera royfraseri* R.R.Gates; *Oenothera rubiella* de Vries; *Oenothera rubiennis* de Vries; *Oenothera rubricaulis* Kleb.; *Oenothera rubricaulis* var. *dentifolia* V.Jehlík & Rostański; *Oenothera rubricaulis* var. *longistylis* Gutte & Rostański; *Oenothera rubricauloides* Rostański; *Oenothera ruderalis* Bartlett; *Oenothera sabulosa* Farw.; *Oenothera sackvillensis* R.R.Gates; *Oenothera sackvillensis* var. *albiviridis* R.R.Gates; *Oenothera sackvillensis* var. *royfraseri* (R.R.Gates) R.R.Gates; *Oenothera salicastrum* de Vries; *Oenothera sesitensis* Soldano; *Oenothera shulliana* A.H.Sturtev.; *Oenothera stenomeris* Bartlett; *Oenothera stenomeris* f. *typica* Bartlett; *Oenothera stucchii* Soldano; *Oenothera suaveolens* Pers.; *Oenothera suaveolens* var. *latipetala* Soldano; *Oenothera tacikii* Rostański; *Oenothera tracyi* Bartlett; *Oenothera turoviensis* Rostański; *Oenothera victorinii* R.R.Gates & Catches.; *Oenothera victorinii* f. *rostanskii* (V.Jehlík) V.Jehlík & Rostański; *Oenothera victorinii* var. *intermedia* R.R.Gates; *Oenothera victorinii* var. *parviflora* R.R.Gates; *Oenothera victorinii* var. *undulata* R.R.Gates; *Oenothera wratislaviensis* Rostański; *Onagra biennis* Scop.; *Onagra chrysantha* var. *latifolia* Spach; *Onagra europaea* Spach; *Onagra media* Spach; *Onagra muricata* Moench; *Onagra vulgaris* Spach; *Onosuris acuminata* Raf.; *Pseudo-oenothera virginiana* Rupr.

**Original name (Gmelin 1817):** *Oenothera biennis*. Linn. Sp. pl. - Gmel. Flor. Badens.

**German names and French names (Gmelin 1817):** Nachtkerze, Rhapontik-Wurzel, Französischer Rapunzel, Wein-Blume, Nachtschlüsselblume, Gelber Weiderich, Rapunzelzellerie, Schinkensalat; Herbe aux ânes. Onagre, Jambon des jardiniers

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Expanding.

**Botany and Ecology:** Herbs erect, biennial, with basal rosette. Stems 30-200 cm tall, simple or sparsely branched, densely to very sparsely strigillose and with longer spreading and usually pustulate-based hairs, inflorescence often also glandular puberulous. Leaves green or pale green, with inconspicuous veins, sessile or shortly petiolate; rosette blade 10-30 × 2-5 cm; cauline blade narrowly oblanceolate to elliptic, 5-22 × (1-)1.5-5(-6) cm, base acute to attenuate, margin dentate to subentire, often lobed near base, apex acute. Inflorescence a dense mostly unbranched spike. Flowers open near sunset; floral tube (2-)2.5-4 cm. Sepals 1.2-2.2(-2.8) cm, with free tips 1.5-3 mm, erect. Petals yellow, fading to orange, 1.2-2.5(-3) cm. Anthers 3-6(-9) mm; pollen ca. 50% fertile. Ovary densely glandular puberulous and sparsely villous or with very sparse pustulate-based hairs, sometimes only densely strigillose; stigma surrounded by anthers. Capsules green, narrowly lanceoloid to lanceoloid, 2-4 cm, sessile. Seeds in two rows per locule, brown to nearly black, 1.1-2 mm, irregularly pitted. Fl. Jul-Oct, fr. Jul-Nov.  $2n = 14$ , permanent translocation heterozygote; self-compatible, autogamous (Wu *et al.* 1994-2013)

**Contemporary uses:** *Ornamental.*

**Uses 1817 (Gmelin 1817):** It originates from Virginia, from where it came to Europe in 1614 as an ornamental flower for gardens, and from there it established itself in the wild. The roots are sweet, nourishing, and tasty in the first year, before they produce stems. In several regions, it is therefore commonly grown in kitchen gardens, boiled, sliced, and prepared with oil, vinegar, salt, and a little pepper as a salad. It is also a popular vegetable and used in soups. The root, cut into thin slices, resembles boiled ham very deceptively and is therefore known in some places as ham salad. Since it surpasses many other culinary plants in flavor and nutritional value, it certainly deserves to be cultivated consistently in our kitchen gardens. When healthy and nutritious culinary plants are scarce, the roots, which grow so frequently outdoors before they produce stems, can be dug up and used in spring and autumn. This plant can also be easily and quickly propagated from seed, which is placed in slightly loosened soil in the spring and covered with a half-inch depth of soil, where the roots can be dug up in the following late season and eaten over the winter. It can also be kept in sand in cellars over the winter and eaten in the spring.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, fibrous, white, or brownish-red. The stem is 3-4-5 feet tall, erect, furrowed, branched, covered with raised, rough spots. The branches are alternate, reddish toward the base. The basal leaves are stalked, those on the stem are alternate, upwardly apical, elliptic-lanceolate, flat, and somewhat rough to the touch. The flowers are borne in the axils of the leaves, solitary and sessile. The calyx is single-leaved, four times incised. The incisions are narrow, pointed, and depressed. The corolla is four-leaved, the leaves are oblong, flat, large, and yellow. The style is thread-like. The stigma is four times split and recurved. The seed capsule is quadrangular, four-lobed. The seeds are many, angular, and naked. This plant grows frequently along paths around towns and villages, on rubble heaps, in meadows, and along ditches, especially in the Rhine, Neckar, and Main regions. It blooms in July and August. Its seeds ripen in September and October, and it is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ist spindelförmig, faserig, weiß, oder bräunlichroth. Der Stengel 3 - 4 - 5 Fuß hoch, aufrecht, gefurcht, ästig, mit erhabenen rauhen Punkten besetzt. Die Aeste abwechselnd, gegen den Grund röhlich. Die Wurzelblätter gestielt, die am Stengel abwechselnd, nach oben aufsitzend, eyrund- lanzettförmig, flach, etwas

rauh anzufühlen. Die Blüten stehen an den Achseln der Blätter, sind einzeln, aufsitzend. Der Blütenkelch ist einblättrig, viermal eingeschnitten. Die Einschnitte schmal, spitzig, niedergebogen. Die Blumenkrone vierblättrig, die Blätter verkehrt herzförmig, flach, groß, gelb. Der Griffel fadenförmig. Die Narbe viermal gespalten, und zurückgebogen. Die Samen-Capsel viereckig, vierfächerig. Samen viele, eckige, nackte. Diese Pflanze wächst sehr häufig an Wegen um Städte und Dörfer, auf Schutthäufen, auf Wiesen und an Wassergräben, vorzüglich in den Rhein-, Neckar- und Maingegenden. Blühet im Juli, August. Reifet ihre Samen im September, October, und gehört unter die zweyjährigen Gewächse. Sie kommt ursprünglich aus Virginien, von wo aus sie im Jahr 1614 nach Europa als Zierblume in die Gärten kam, und von da sich im Freyen ansiedelte. Die Wurzeln sind im ersten Jahre, ehe sie Stengel treiben, süß, nährend und schmackhaft. Man pflegt sie in mehreren Gegenden deshalb in den Küchengärten anzubauen, abzukochen, in Scheiben zu schneiden, und mit Oehl, Essig, Salz und etwas Pfeffer als Salat zuzurichten, auch als beliebtes Gemüse, und in Suppen zu gebrauchen. Die Wurzel in dünne Scheiben geschnitten, stellt abgekochten Schinken sehr täuschend vor, und ist daher an einigen Orten auch unter dem Namen, Schinken-Salat bekannt. Da sie an Geschmack und Nahrhaftigkeit manche andere Küchenpflanze übertrifft, verdiente sie allerdings in unsern Küchengärten durchgängig angebaut zu werden. Bei Mangel an gesunden und nährenden Küchengewächsen, können auch die im Freyen so häufig wachsenden Wurzeln, ehe sie Stengel treiben, im Frühjahr und Herbst ausgegraben und benutzt werden. Auch läßt sich diese Pflanze sehr leicht und schnell durch Samen vermehren, welcher im Frühjahr in etwas aufgelockertes Erdreich gebracht und einen halben Zoll tief mit Erde bedeckt wird, wo die Wurzeln in kommendem Späthjahr schon ausgegraben und den Winter über verspeist werden können. Auch kann man sie, den Winter über, im Sande in Kellern aufhalten, und im Frühjahr verspeißen.

***Onopordon acanthium* L.**

*Synonyms: Onopordum acanthifolium* K.Koch; *Onopordum acanthium* var. *acanthium*

**Original name (Gmelin 1817):** *Onopordon Acanthium*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 383. 384.-Schkur. Bot. Handbuch. tab. 230.

**German names and French names (Gmelin 1817):** Krebsdistel, Frauendistel, Weiße Wegdistel, Große Wegdistel, Eselsdistel, Eselsfurz, Gemeine Zellenblume; Grand Chardon aux Anes

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 121425** (Fig. 57)

**Botany and Ecology:** Capitula homogamous, homochromous, many-flowered, and unisexual, solitary or numerous, terminal, occasionally axillary. Involucre ovate, oblong-globose or globose; involucre bracts imbricate, lanceolate or cuneate, apically without or with long or short spines, appressed, divergent or strongly deflected, sometimes more or less uncinately, narrow or broad, coriaceous or stiff, more or less thick, hollow or flat, subglabrous, pubescent or glandular-hairy. Receptacle fleshy, deeply alveolate, alveoli membranous along margin and sinuately irregularly toothed. Corolla 5-fid, slightly open, saccate, purple, violet, pink, yellowish, or white. Filaments glabrous or weakly glandular, lacking simple hairs; apical appendages of anthers linearly-cuneate or subulate, basal appendages shortly caudate, undivided, cuneate, truncate or straight and narrower, sometimes weakly lobed. Style long; style branches 1/5-1/3 as long as style, usually folded and entirely or partly exerted from corolla. Achenes oblong or obovate, sometimes more or less compressed, indistinctly or distinctly 3-4-quetrous, with distinct or indistinct ribs, on sides with oblique or parallel transverse-wrinkles or tubercles, with many or few, longitudinal, thin veins and furrows, 4-7 mm long, dark brown or light- and dark-gray with darker, sometimes black spots, marbled; upper scar of attachment with thin edge, usually angular, with distinct or inconspicuous tubercle, hilum straight or slightly oblique, entirely or partly hidden under thick callose appendage; pappus fragile, falling off entirely, consisting of 2-3, occasionally many rows of equal bristles, of which, in many species, one row with longer and thicker bristles than others. All florets ciliolate, smooth, barbate or plumose above, connate in broader, angular, thick, waxy ring. Biennial, occasionally perennial, herbs, stemless or with erect, tall or short, solitary stem, simple or branched from middle or weakly branched only above, spiny-winged, with large, spinose, green or pubescent leaves. Ural, Caucasus, Altai, Middle Asia, in disturbed areas, deposits, fields, forest glades, in gorges, on steppe slopes, old fields and in crops as weed to 2100 m. (Borisova 1963).

**Contemporary uses:** In Middle Asia and the Altai used as expectorant, anti-asthmatic, and diuretic. Topically as bath and poultice for scabies, dermatoses, ulcers, lupus, rheumatism. In the Ural and Caucasus, the decoction serves to remedy problems of the kidney and urinary system, and for wound healing. The decoction is used to treat inflammation of the bladder and urinary system, bronchial asthma, pertussis, scrofula, hypostasis of various origins, common colds, hemorrhoids, also as

a blood cleanser, and for treating skin diseases, purulent wounds, ulcers, and furuncles. Romania: skin cancer, freckles, ulcerations, lupus, suppurative wounds, anti-cancer, anti-infective, vulnerary. Georgia: The young leaves are used as vegetable. the seed oil can be used like sunflower oil. Hungary: As children's snack. Czech Republic: Leaf buds as salad. Georgia: The plant yields a purple dye for wool and silk. Planted as ornamental. Fodder for camels and donkeys. Ukraine: for religious bouquets. (Bussmann et al. 2020m; Mehdiyeva et al. 2025h; Paniagua-Zambrana et al. 2025C).



Figure 57. *Onopordum acanthium* L. - KR 121425

**Uses 1817 (Gmelin 1817):** The young roots, before they produce stems, are tasty, nutritious, and provide a healthy meal. The tender stems can be peeled and boiled, making a tasty dish like asparagus. Likewise, the flower heads, which are fleshy and juicy, can be prepared like artichokes. The seeds can be used to make good fuel oil. Durande in Bibl. phys. oeconomique. Ann. 2. p. 121. This beautiful and important plant, which has so far been largely left to donkeys, who are excellent at it, and to a few physicians who have known its anti-cancer effects since ancient times, deserves to be used as food in times of scarcity. The seeds are welcome to birds. The flowers provide honey and wax to bees. Nature seems to use this plant to

transform stones and rubble from buildings into soil, as anyone can see for themselves in the ruins of fortresses, villages, and cities.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, fibrous, yellowish on the outside, white on the inside, thick, and long. The stem is 3-4-7 feet tall, erect, branched, winged, with broad, spiny, longitudinally decurrent wing leaves. The leaves are alternate, sessile, hairy on the stem, oval, pointed, with notched and serrated edges, the lower leaves very large, all gray-woolly, and spiny on the margins. The large, purple-red, rarely white flowers are borne solitarily, upright on the stem and branches. The calyx scales are strongly protruding, ending in a yellow spine at the tip, and are interwoven with white woolly hairs at the base. The corolla is hair-like and sessile. The receptacle is covered with chaff and cellular. Grows frequently around towns and villages along paths, hedges, fences, and on rubble heaps, and in large quantities on the ruins and rubble heaps of the destroyed fortresses near Altbreysach, Kehl, Philippsburg, and Mannheim. It blooms in July, August, and September. Its seeds ripen in September and October, and it is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel spindelförmig, faserig, aussen gelblich, innen weiß, dicklich, lang. Der Stengel 3 - 4 - 7 Fuß hoch, aufrecht, ästig, geflügelt, mit breiten dornigen, der Länge nach herablaufenden Flügelblättern. Die Blätter abwechselnd, aufsitzend, am Stengel herablaufend, eyrund, spitzig, gebuchtet-gezähnt, die untern sehr groß, sämmtlich grauwoilig, und am Rande dornig. Die großen purpurrothen, selten weißen Blumen, stehen einzeln, auf dem Stengel und den Aesten, aufrecht. Die Kelch-Schuppen stehen stark hervor, endigen sich in einen an der Spitze gelben Stachel, und sind am Grunde mit weißen Wollhaaren verwebt. Die Samenkronen haarförmig, aufsitzend. Der Fruchtboden mit Spreu bewachsen, zellenförmig. Wächst häufig um Städte und Dörfer an Wegen, Hecken, Zäunen, und auf den Schutthaufen, und in großer Menge auf den Ruinen und den Schutthaufen der zerstörten Vestungen bei Altbreysach, Kehl, Philippsburg, Mannheim. Blühet im Juli, August, September. Reifet ihre Samen im September, October, und gehört unter die zweyjährigen Gewächse. Die jungen Wurzeln sind, ehe sie Stengel treiben, schmackhaft, nährend, und geben eine gesunde Speise. Die zarten Stengel können geschält und abgekocht, als eine schmackhafte Speise wie Spargel zubereitet werden. Desgleichen können die Blumenböden, die fleischig und saftig sind, wie Artischocken zubereitet werden. Aus den Samen kann gutes Brennöl geschlagen werden. Durande in Bibl. phys. oeconomique. Ann. 2. p. 121. Diese schöne und wichtige Pflanze, die bisher größtentheils den Eseln, die sich trefflich dabei befinden, und einigen Aerzten, die ihre Wirkung gegen den Krebs von den ältesten Zeiten her kennen, überlassen ist, verdient sehr bei Mangel, auch als Nahrungsmittel benutzt zu werden. Die Samen sind den Vögeln willkommen. Die Blüthen geben den Bienen Honig und Wachs. Die Natur scheint sich dieser Pflanze zu bedienen, um Steine und Schutt von Gebäuden, in Erde umzuschaffen, wovon sich jeder, bei den Ruinen der Vestungen, Dörfer und Städte überzeugen kann.

### ***Orchis mascula* (L.) L.**

*Synonyms:* *Androrchis mascula* (L.) D.Tyteca & E.Klein; *Orchis mascula* f. *carnea* Mendonça & Vasc.; *Orchis mascula* var. *marizii* J.A.Guim.; *Orchis morio* f. *mascula* L.; *Orchis morio* var. *mascula* L.; *Orchis olbiensis* var. *balearica* (L.) Chodat; *Orchis pinetorum* Lacaite; *Orchis rectiflorus* St.-Lag.

**Original name (Gmelin 1817):** *Orchis mascula*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 534. 535. - Curtis. Flor. Londin. tab. 121.

**German names and French names (Gmelin 1817):** Männliches Knabenkraut, Salep, Männliche Ragwurzel, Güler; *Orchis male*, *Covillon de chien*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

**Botany and Ecology:** Perennial; tubers broadly ovaloid to subglobose; stem violet -speckled in lower part, rarely unspeckled, 20-50 cm long, leafy in lower part, higher up with 1 or 2 amplexicaul acuminate foliaceous sheaths; leaves commonly speckled with purplish-violet, 7-14 cm long, 1.5-3.5 cm broad; spike densely many-flowered, cylindric, 6-18 cm long and to 4-4.5 cm broad; bracts lilac -tinged, lanceolate, acuminate, 1 -nerved or rarely the lower ones obscurely 3 -nerved, about as long as or slightly shorter than ovary; flowers purple or pale violet; lip whitish at base with dark purplish-violet speckles; sepals oblong-ovate or ovate -lanceolate, acuminate or subobtuse; median sepal 3-nerved, 7-8 mm long; lateral sepals inequilateral, 2- or 3-nerved, 8-10 mm long, 3-3.5 mm broad; petals obtusish, 3-nerved, slightly shorter than the median sepal; lip minutely papillose above, broadly oval, 3-lobed, 7-12 mm long, 7.5-12 mm broad between the tips of lateral lobes; lateral lobes broad, obliquely ovate; median lobe commonly shallowly incised -refuse, semiquadrate, broader than the lateral lobes; spur horizontal or slightly ascending, obtuse, 1 — 1.5 cm long, lilac-tinged. (April)-May. Thickets and forest glades.

Grows from the lower to the middle mountain zone, sometimes to subalpine zone. Found in shrubs, forests, on forest edges and glades. Flowering and fruiting in May-June. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** All species are spasmolytic and tonic: The tubers are used against spasms, and as an anticonvulsant, and have tonic properties. The plants are a source of salep. All species are used to prepare soft drinks, and jelly is prepared from flour of boiled tuber. A concoction to improve appetite is prepared from the dried tuber. All species are decorative. (Mehdiyeva et al. 2017a; 2025a).

**Uses 1817 (Gmelin 1817):** The roots of this and some other Orchis species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** It has many similarities to the preceding species, from which it differs in its larger tubers, taller stems, broader leaves, and larger, more frequent flowers. Grows frequently in meadows here and there. Blooms in May and July and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch größere Knollen, einen höheren Stengel, breitere Blätter, und größere häufigere Blüten unterscheidet. Wächst hie und da häufig auf Wiesen. Blühet im May, Juli, und gehört zu den ausdauernden Pflanzen. Gebrauch und Nutzen sind dieselben, wie bei der vorhergehenden Art. Ferner können noch von folgenden bei uns vorkommenden Orchisarten die Wurzeln benutzt werden: Orchis militaris. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 539. 540. - Orchis furca. Gmel. I. c. p. 640. 541. Jacqu. Flor. Austr. tab. 307. Orchis moravica. Jacqu. - Gmel. I. c. p. 341. 342. Orchis latifolia. Linn. Sp. pl. Gmel. I. c. p. 653. 544. - Orchis maculata. Linn. Sp. pl. - Gmel. I. c. p. 544. 545. - Orchis Conopsea. Linn. Sp. pl. - Gmel. I. c. p. 546. 547.

#### ***Orchis militaris* L.**

*Synonyms:* *Orchis militaris* var. *nervata* (Marchand) Nyman; *Orchis tephrosanthos* var. *militaris* (L.) Loisel.

**Original name (Gmelin 1817):** Orchis mascula. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 534. 535. - Curtis. Flor. Londin. tab. 121.

**German names and French names (Gmelin 1817):** Männliches Knabenkraut, Salep, Männliche Ragwurz, Güler; Orchis male, Covillon de chien

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

#### **KR 166165**

**Botany and Ecology:** Plants 20-45 cm tall. Tubers ovoid, 1-1.5 cm, fleshy, entire. Stem with 2 tubular sheaths at base, 3-5-leaved. Leaves abaxially pale green, adaxially green, not spotted, oblong-elliptic to elliptic, 8-18 × 2.5-5 cm, apex obtuse. Inflorescence 4-10 × 0.3-0.5 cm, densely 5-15-flowered; floral bracts green sometimes tinged purplish red, ovate, 2-3 mm, much shorter than ovary, apex acuminate. Flowers scented, medium-sized; ovary green, tinged with violet, oblong, slightly arching, 1-1.5 cm including pedicel, glabrous. Sepals pinkish white, veined rose-purple on inner surfaces; dorsal sepal erect, ovate-lanceolate, concave, 9-13 × 3-4 mm, 3-veined, apex acuminate; lateral sepals erect, obliquely ovate-lanceolate, 9-13 × 3.5-4.5 mm, 3-veined, apex acuminate. Petals erect, connivent with dorsal sepal and forming a hood, pale purple to pink, linear, slightly shorter and narrower than dorsal sepal, 1-veined, apex acuminate; lip whitish in center with fine purplish red papillate spots, 1-1.4 cm, spurred at base, 4-lobed, lobes purplish red; basal lobes often erect, linear-falcate, ca. 8 × 1 mm, apex obtuse; mid-lobe much larger than basal lobes, linear-oblong to obovate, ca. 2 mm wide, apex divergently 2-lobed, with an apiculus between 2 lobules; lobules oblong-obovate, to 4 mm; spur pendulous, curving slightly forward, white or pink, cylindrical, 5-6 mm, much shorter than ovary, apex obtuse. Column obtuse; anther purplish; rostellum 3-lobed. Flowering. May-June, fruiting July-August (Wu et al. 1994-2013).

**Contemporary uses:** All species are spasmolytic and tonic: The tubers are used against spasms, and as an anticonvulsant, and have tonic properties. The plants are a source of salep. All species are used to prepare soft drinks, and jelly is prepared

from flour of boiled tuber. A concoction to improve appetite is prepared from the dried tuber. All species are decorative. (Mehdiyeva et al. 2017a; 2025a).

**Uses 1817 (Gmelin 1817):** The roots of this and some other Orchis species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** It has many similarities to the preceding species, from which it differs in its larger tubers, taller stems, broader leaves, and larger, more frequent flowers. Grows frequently in meadows here and there. Blooms in May and July and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch größere Knollen, einen höheren Stengel, breitere Blätter, und größere häufigere Blüthen unterscheidet. Wächst hie und da häufig auf Wiesen. Blühet im May, Juli, und gehört zu den ausdauernden Pflanzen. Gebrauch und Nutzen sind dieselben, wie bei der vorhergehenden Art. Ferner können noch von folgenden bei uns vorkommenden Orchisarten die Wurzeln benutzt werden: *Orchis militaris*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 539. 540. - *Orchis furca*. Gmel. I. c. p. 640. 541. Jacqu. Flor. Austr. tab. 307. *Orchis moravica*. Jacqu. - Gmel. I. c. p. 341. 342. *Orchis latifolia*. Linn. Sp. pl. Gmel. I. c. p. 653. 544. - *Orchis maculata*. Linn. Sp. pl. - Gmel. I. c. p. 544. 545. - *Orchis Conopsea*. Linn. Sp. pl. - Gmel. I. c. p. 546. 547.

#### ***Orchis purpurea* Huds.**

*Synonyms: Orchis militaris* subsp. *purpurea* (Huds.) Bonnier & Layens; *Orchis militaris* var. *fusca* (Jacq.) Tinant; *Orchis militaris* var. *purpurea* (Huds.) Huds; *Orchis purpurea* f. *vulgaris* Leimbach; *Orchis purpurea* var. *moravica* Leimbach

**Original name (Gmelin 1817):** *Orchis mascula*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 534. 535. - Curtis. Flor. Londin. tab. 121.

**German names and French names (Gmelin 1817):** Männliches Knabenkraut, Salep, Männliche Ragwurzel, Güler; *Orchis male*, *Covillon de chien*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Not threatened

#### **KR 144779**

**Botany and Ecology:** Perennial; tubers oblong-ovoid, to 4 cm long; stem 30-80 cm long, above the base to 1.2 cm thick, with 3-6 leaves in lower part, and higher up with a solitary long amplexicaul acuminate foliaceous sheath; leaves approximate, oblong- elliptic or elliptic -lanceolate, obtuse, slightly narrowed toward base, 6-14-(20) cm long, 3-6.5 cm broad; spike densely many-flowered, 5-20 cm long, 4-5.5 cm in diameter; bracts 1.5-3 mm long, ovate, almost translucent; flowers large, vanilla -scented; sepals elliptic -ovate, subobtuse to acuminate, 3-nerved, 9-13 mm long, 4.5-5 mm broad, united into a hood; hood ovate, dotted with blackish-purple or brownish-purple on a pale pink or greenish-white ground, sometimes blackish - purple almost throughout; petals commonly 8-9 mm long and 1 -1.5 mm broad, linear, obtuse, narrowed toward base, 1-nerved, contiguous with the margins of the median sepal; lip whitish or light pink with dark purple dots; lateral lobes arising at base, linear, truncate, (6) 7-10 mm long and 1 — 1.5 mm broad; median lobe large, obcordate, dentate, notched and shortly 2-lobulate, 1-1.5 cm broad; with a tooth to 2 mm long at sinus; apical lobules 4.5-6 mm broad; entire lip 1-1.4 cm long, the distance between the tips of lateral lobes 1.3-1.8 cm; spur 4 mm long, one-third to two-fifths the length of ovary, curved, obtuse. April-May. Mountain woods and forest glades. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** All species are spasmolytic and tonic: The tubers are used against spasms, and as an anticonvulsant, and have tonic properties. The plants are a source of salep. All species are used to prepare soft drinks, and jelly is prepared from flour of boiled tuber. A concoction to improve appetite is prepared from the dried tuber. All species are decorative. (Mehdiyeva et al. 2017a; 2025a).

**Uses 1817 (Gmelin 1817):** The roots of this and some other Orchis species produce the medicinally known and nutritious Salep. The best time to dig up these roots is after they have finished flowering. The freshly dug and washed roots are placed in boiling hot water for about half a minute, then taken out, and the fine outer skin is peeled off, then poured onto tin plates

and placed in a heated oven for eight to ten minutes, depending on the size of the roots, then taken out and left to stand there until they are so hard and brittle that they can be crushed into powder.

**Description and Ecology (Gmelin 1817):** It has many similarities to the preceding species, from which it differs in its larger tubers, taller stems, broader leaves, and larger, more frequent flowers. Grows frequently in meadows here and there. Blooms in May and July and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Sie hat viele Aehnlichkeit mit der vorhergehenden Art, von welcher sie sich durch größere Knollen, einen höheren Stengel, breitere Blätter, und größere häufigere Blüten unterscheidet. Wächst hie und da häufig auf Wiesen. Blühet im May, Juli, und gehört zu den ausdauernden Pflanzen. Gebrauch und Nutzen sind dieselben, wie bei der vorhergehenden Art. Ferner können noch von folgenden bei uns vorkommenden Orchisarten die Wurzeln benutzt werden: *Orchis militaris*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 539. 540. - *Orchis furca*. Gmel. I. c. p. 640. 541. Jacqu. Flor. Austr. tab. 307. *Orchis moravica*. Jacqu. - Gmel. I. c. p. 341. 342. *Orchis latifolia*. Linn. Sp. pl. Gmel. I. c. p. 653. 544. - *Orchis maculata*. Linn. Sp. pl. - Gmel. I. c. p. 544. 545. - *Orchis Conopsea*. Linn. Sp. pl. - Gmel. I. c. p. 546. 547.

### ***Persicaria bistorta* Samp.**

**Synonyms:** *Bistorta officinalis* Delarbre; *Bistorta abbreviata* Kom.; *Bistorta carnea* Kom.; *Bistorta elliptica* (Willd. ex Spreng.) V.V.Petrovsky, D.F.Murray & Elven; *Bistorta ensigera* (Juz.) Tzvelev; *Bistorta lapidosa* Kitag.; *Bistorta major* Gray; *Bistorta major* subsp. *carnea* (K.Koch) Soják; *Bistorta major* subsp. *cordifolia* (Turcz.) Soják; *Bistorta major* subsp. *elliptica* (Willd. ex Spreng.) Soják; *Bistorta major* subsp. *ensigera* (Juz.) Soják; *Bistorta major* subsp. *nitens* (Fisch. & C.A.Mey.) Soják; *Bistorta major* subsp. *plumosa* (Small) H.Hara; *Bistorta major* var. *ovata* Nakai ex H.Hara; *Bistorta major* var. *pacifica* (Petrov ex Kom.) H.Hara; *Bistorta nitens* Kom.; *Bistorta officinalis* Delarbre; *Bistorta officinalis* subsp. *japonica* (H.Hara) Yonek.; *Bistorta officinalis* subsp. *pacifica* (Petrov ex Kom.) Yonek.; *Bistorta pacifica* Kom.; *Bistorta pacifica* f. *velutina* Kitag.; *Bistorta pacifica* var. *tomentella* (Kom.) Tzvelev; *Bistorta plumosa* (Small) Greene; *Bistorta subauriculata* Kom.; *Bistorta vulgaris* Hill; *Bistorta vulgaris* var. *nitens* (Fisch. & C.A.Mey.) Nakai; *Bistorta vulgaris* var. *pacifica* (Petrov ex Kom.) Miyabe; *Colubrina intorta* Montandon; *Polygonum bistorta* L.; *Polygonum bistorta* subsp. *plumosum* (Small) Hultén; *Polygonum bistorta* var. *plumosum* (Small) B.Boivin; *Polygonum lapidosum* Kitag.; *Polygonum plumosum* Small

**Original name (Gmelin 1817):** *Polygonum Bistorta*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p. 165. - 167.

**German names and French names (Gmelin 1817):** Natterwurz, Krebswurz, Schlangenkraut, Drachenwurzel; Bistorte

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 189130** (Fig. 58)

**Botany and Ecology:** Perennial; rhizome shorter than in the preceding, tending to tuberiform; stem 25-75 cm (to 1 m) long, sulcate, 4-nodose, 3-angled; leaves oblong to oblong-ovate, more rarely cordate-lanceolate, more or less acuminate, glaucescent and prominently veined beneath, 12-22 cm long, 2-7 cm broad, the basal long-petioled and cuneate or subcordate at base, the middle ones subsessile or sessile and then amplexicaul, the uppermost small linear acutish, all sparsely pilose beneath; ocreae scarious, brownish, often 2-parted at summit; spike cylindric, compact, 2-5 cm long, 1-2 cm thick; bracts brownish, broad, 2-lobed at summit, the lobes point-tipped (sometimes with a third point in between); perianth roseate, deeply 5-parted; stamens longer than perianth; anthers violet or dark red; achene trigonous, lustrous, elongate, to 5mm long. Flowering June-August. Caucasus, subalpine and alpine meadows, the upper limits of the forest zone at altitudes of 1500-3500m. (Boborov and Komarov 1936).

**Contemporary uses:** Georgia: The extract is used for chronic constipation, the treatment of hemorrhoids, as diuretic for kidney disease and urolithiasis, diarrhea, colds and venereal diseases, and topically in the form of gargles for strengthening the gums, for gout, headache and for wound healing. The flowers are used for lung problems, the roots to cure for ling diseases and diarrhea. The roots are used to dye fabrics yellow. Used as insecticide, but especially the seeds toxic to livestock. Yields honey. In Pakistan the species is used topically for skin irritations and dermatitis. (Bussmann et al. 2025A; Paniagua-Zambrana et al. 2025D).

**Uses 1817 (Gmelin 1817):** The tender young leaves can be prepared and eaten like spinach in the spring, or as a side dish. The still-tender stems and leaves provide cattle and goats with pleasant and healthy food in April, May, and June. We have various variations of this plant in our higher mountain regions, with more or less curved roots, with larger and smaller leaves.

The roots have an astringent flavor, which they lose somewhat through drying. Kalm says that the flour made from them makes a tasty and healthy bread Gmelin found a variety of this plant in Siberia whose root was neither curved nor astringent, but had a pleasant flavor. The Russians and the Kamchadals enjoy eating the roots both raw and cooked, fresh and dried, with caviar, and even seek out and dig out the holes of field mice, which make winter stores of such roots. Presumably, this variation that Gmelin found in Siberia is also found in the wilder mountain regions of the Black Forest, where so many plants native to Siberia grow. It was worth the effort to experiment with the roots on bread in times of scarcity, as this plant grows so frequently.



Figure 58. *Persicaria bistorta* Samp. - KR 189130

**Description and Ecology (Gmelin 1817):** The root is woody, thick, curved two to three times, flesh-colored inside, brown outside, covered with fibers. The stem is 1-2-3-4 feet tall, upright, simple, round, smooth, and segmented. The segments are swollen above. The root leaves are frequent, descending into a long stalk, oyster-lanceolate, with somewhat bluntly notched edges, dark green above, smooth, and veined below, pale gray. The stem leaves surround the stem at the base, are heart-shaped or ovoid-lanceolate, pointed, and somewhat wavy. The leaf sheaths are dissected and brown above. The flowers are

borne in an elongated, ovoid-cylindrical, dense spike and have very short stalks. The calyx is five-divided and fleshy red, rarely white. The corolla is missing. Stamens number eight to ten, rarely seven. The seeds are triangular, brown, and surrounded by the calyx. This attractive, beautiful plant grows in abundance in moist mountain and valley meadows, on marshy, acidic ground in the Black Forest, the Odenwald, the Fürstenberg region of Baden, the Württemberg region, Alsace, and Switzerland, often covering large areas. It blooms in May, June, and July. Its seeds ripen in July, August, and September, and it is classified as a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel holzig, dick, zwey bis dreymal gekrümmt, innen fleischfarb, aussen braun, mit Fasern besetzt. Der Stengel 1 - 2 - 3 - 4 Fuß hoch, aufrecht, einfach, rund, glatt, gegliedert. Die Glieder oberhalb angeschwollen. Die Wurzelblätter häufig, in einen langen Stiel herablaufend, eyrund-lanzettförmig, am Rande etwas stumpf gekerbt, oberhalb dunkelgrün, glatt, unterhalb geadert, fahlgrau. Die Stengelblätter umgeben am Grunde den Stengel, sind herzförmig, oder eyförmig-lanzettförmig, zugespitzt, etwas wellenförmig. Die Blattscheiden oben zerschlizt, braun. Die Blüten stehen in einer ausgehenden, länglichen, eyförmig-walzenförmigen, dichten Aehre, und sind mit ganz kurzen Stielen versehen. Der Blumenkelch, fünfmal getheilt, fleischroth, seltener weiß. Die Blütenkrone fehlt. Staubfäden acht, bis zehn, seltener sieben. Der Same dreyeckig, braun, von dem Blütenkelch umgeben. Diese ansehnliche schöne Pflanze, wächst durchgängig häufig auf feuchten Berg- und Thalwiesen, auf sumpfigen sauern Gründen im Schwarzwalde, im Odenwalde, im Badischen Fürstenbergischen, Würtenbergischen, im Elsaß, und in der Schweiz in großer Menge, so daß sie oft ganz große Stellen bedeckt. Sie blühet im May, Juni. Juli. Reifet ihre Samen im Juli, August, September, und gehört unter die ausdauernden Gewächse. Die zarten jungen Blätter können im Frühjahr wie Spinat, und als ein Zugemüß bereitet und verspeist werden. Die noch zarten Stengel und Blätter geben im April, May und Juni, dem Rindvieh und den Ziegen eine angenehme und gesunde Nahrung. Wir haben von dieser Pflanze, in unsern höhern Gebirgsgegenden verschiedene Abänderungen mit mehr oder weniger gekrümmten Wurzeln, mit größern und kleinern Blättern. Die Wurzeln sind von einem zusammenziehenden Geschmacke, den sie durchs Trocknen etwas verlieren. Kalm sagt, das daraus bereitete Mehl, gebe ein schmackhaftes und gesundes Brod. Gmelin fand in Sibirien eine Spielart dieser Pflanze, deren Wurzel weder gekrümmt, noch von einem zusammenziehenden, sondern von einem angenehmen Geschmack war. Die Russen und die Kamtschadalen essen die Wurzeln sowohl roh als gekocht, auch frisch und getrocknet, mit Caviar sehr gerne, und suchen sogar die Löcher der Feldmäuse auf, die sich von solchen Wurzeln, Vorräthe für den Winter machen, und hohlen sie heraus. Vermuthlich ist diese Abänderung, die Gmelin in Sibirien gefunden hat, auch in den wildern Gebirgsgegenden, des Schwarzwaldes, wo so viele in Sibirien einheimische Pflanzen wachsen, anzutreffen. Es verlohnte sich der Mühe, in Zeiten des Mangels Versuche mit den Wurzeln auf Brod anzustellen, da diese Pflanze so häufig wächst.

#### ***Petrosedum rupestre* (L.) P.V.Heath**

*Synonyms: Petrosedum reflexum* (L.) Grulich; *Petrosedum rupestre* subsp. *reflexum* (L.) Velayos; *Sedum albescens* Haw.; *Sedum caesium* Boreau ex Pérard; *Sedum collinum* Willd.; *Sedum crassicaule* hort. ex Link; *Sedum cristatum* Schrad.; *Sedum fragile* Dumort.; *Sedum graniticum* Pérard; *Sedum minus* Haw.; *Sedum nutans* Haw.; *Sedum recurvatum* Willd.; *Sedum reflexum* L.; *Sedum rupestre* L., *Sedum rupestre* subsp. *reflexum* Hegi & E.Schmid; *Sedum septangulare* Haw.; *Sedum virens* Aiton; *Sedum virescens* Willd.

**Original name (Gmelin 1817):** *Sedum reflexum*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 276. 277.

**German names and French names (Gmelin 1817):** Zurückgebogenes Sedum, Gelbe fette Henne, Gelbe Mauerhenne, Tripmadam; Orpin reflechi, Tripemadam

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Fibrous-rooted perennial with much-branched, prostrate stems, forming loose mats, giving rise to many short sterile shoots and a few flowering shoots 15-35 cm; leaves lanceolate-linear, terete or subterete, apiculate, 5-12 × 1-2.5 mm; inflorescence nodding and subglobose in bud, concave in fruit; flowers (5-)7(-9)-merous.

**Contemporary uses:** None.

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be used as a salad. Therefore, the Dutch and French in particular tend to grow this plant in their kitchen gardens. Because of the dense turf it forms, it is particularly suitable for sloping sandy areas, which it also stabilizes. It must also be considered as an ornamental plant, which at the same time provides the bees with plenty of honey.

**Description and Ecology (Gmelin 1817):** The roots are branched, fibrous, creeping, and white. The stems are 6-8-12 inches tall, erect, round, smooth, often reddish underneath. The leaves are scattered, alternate, oblong-round, sessile, pointed, detached at the base, pale green, smooth, the lower ones recurved, slightly deciduous. The flowers are densely borne in an umbel that terminates the stem. The corollas are 6, 7, or 9 petaled, yellow, stamens 10, often 12, or 14, and the seed capsules are often 6, 7, 12, or 14. This plant grows very frequently on old walls, roofs, and slightly damp rocks, also on slightly damp sandy soil, along paths, especially on rocky hills, on old city walls, destroyed fortifications near Altbreisach, castles, Sponeck, and Phillipsburg, and on old terraces in vineyards, where it forms dense, widespread lawns. It blooms in July and August. Its seeds ripen in August and September, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig, kriechend, weiß. Die Stengel 6 - 8 - 12 Zoll hoch, aufrecht, rund, glatt, unten öfters röthlich. Die Blätter zerstreut, abwechselnd, länglichrund, aufsitzend, spitzig, am Grunde abgelöst, fahlgrün, glatt, die untern zurückgebogen, leicht abfallend. Die Blüthen stehen dicht in einer Afterdolde, welche den Stengel endigt. Die Blumenkronen 6 - 7 - 9 blätterig, gelb, Staubfäden 10 - oft 12 - 14, Samen-Capseln öfters 6 - 7 - 12 - 14. Diese Pflanze wächst sehr häufig an alten Mauern, Dächern, und etwas feuchten Felsen, auch auf etwas feuchtem Sandboden, längst den Wegen hin, vorzüglich auf steinigen Hügeln, an alten Stadtmauern, destruirten Festungswerken bei Altbreisach, Burgen, Sponeck, Phillipsburg, und auf alten Terrassen in den Weinbergen, wo sie dichte weit ausgebreitete Rasen bildet. Blühet im Juli, August. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter können als Salat verbraucht werden. Daher pflegen vorzüglich die Holländer und Franzosen diese Pflanze in ihren Küchengärten zu ziehen. Wegen dem dichten Rasen, den sie bildet, taugt sie vorzüglich, an abhängende sandige Stellen, welche sie zugleich bevestigt, auch muß sie als eine Zierpflanze, welche zugleich den Bienen viel Honig giebt, betrachtet werden.

#### ***Phalaris arundinacea* L.**

*Synonyms:* *Arundo colorata* Aiton; *Arundo riparia* Salisb.; *Baldingera arundinacea* (L.) Dumort.; *Baldingera arundinacea* f. *colorata* G.M.Sch.; *Baldingera arundinacea* f. *colorata* P.Gaertn., B.Mey. & Scherb.; *Baldingera arundinacea* f. *rotgesii* (Foucaud & Mandon ex Husn.) Foucaud & Mandon; *Baldingera arundinacea* f. *umbrosa* Peterm.; *Baldingera arundinacea* var. *alba* Tinant; *Baldingera arundinacea* var. *picta* (L.) Nyman;; *Baldingera arundinacea* var. *picta* (L.) Peterm.; *Baldingera arundinacea* var. *rotgesii* Husn.; *Baldingera arundinacea* var. *variegata* Coss. & Germ.; *Baldingera colorata* (Sibth.) G.Gaertn., B.Mey. & Scherb.; *Calamagrostis colorata* Sibth.; *Calamagrostis colorata* var. *variegata* Chevall.; *Calamagrostis variegata* With.; *Digraphis americana* Elliott ex G.Don; *Digraphis arundinacea* (L.) Trin.; *Digraphis arundinacea* var. *picta* (L.) T.Marsson; *Endallex arundinacea* Raf.; *Endallex arundinacea* Raf. ex B.D.Jacks.; *Phalaridantha arundinacea* (L.) St.-Lag.; *Phalaridantha arundinacea* var. *variegata* (Parn.) Cariot; *Phalaris americana* var. *picta* Eaton & Wright; *Phalaris arundinacea* f. *arundinacea*; *Phalaris arundinacea* f. *coarctata* (Prahl) Junge; *Phalaris arundinacea* f. *luteopicta* Voss.; *Phalaris arundinacea* f. *minor* Jansen & Wacht.; *Phalaris arundinacea* f. *pallens* Stebler ex Hegi; *Phalaris arundinacea* f. *pallida* A.F.Schwarz; *Phalaris arundinacea* f. *picta* (L.) B.P.R.Chéron; *Phalaris arundinacea* f. *ramifera* Junge; *Phalaris arundinacea* f. *ramosa* Gaudin; *Phalaris arundinacea* f. *thyrsoides* (Willk.) Paunero; *Phalaris arundinacea* f. *variegata* (With.) Druce; *Phalaris arundinacea* subsp. *hispanica* (Coincy) Kerguélen; *Phalaris arundinacea* subsp. *oehlerii* Pilg.; *Phalaris arundinacea* subsp. *picta* (L.) Arcang.; *Phalaris arundinacea* subsp. *rotgesii* (Husn.) Kerguélen; *Phalaris arundinacea* subsp. *typica* Paunero; *Phalaris arundinacea* var. *arundinacea*; *Phalaris arundinacea* var. *colorata* Hartm.; *Phalaris arundinacea* var. *genuina* Hack.; *Phalaris arundinacea* var. *glauca* Gray; *Phalaris arundinacea* var. *japonica* (Steud.) Hack.; *Phalaris arundinacea* var. *latifolia* Henrard ex Jansen; *Phalaris arundinacea* var. *leioclada* Maire; *Phalaris arundinacea* var. *picta* L.; *Phalaris arundinacea* var. *rotgesii* (Foucaud & Mandon ex Husn.) Litard. ex Briq.; *Phalaris arundinacea* var. *rotgesii* (Husn.) Litard.; *Phalaris arundinacea* var. *thyrsoides* Willk.; *Phalaris arundinacea* var. *variegata* (With.) Parn.; *Phalaris arundinacea* var. *vivipara* N.H.F.Desp.; *Phalaris caesia* Nees; *Phalaris colorata* P.Beauv.; *Phalaris hispanica* Coincy; *Phalaris japonica* Steud.; *Phalaris monspeliensis* Daveau; *Phalaris picta* (L.) Sloboda; *Phalaris rotgesii* (Husn.) Baldini; *Phalaris rotgesii* (Husn.) Litard.; *Phalaris tuberinea* Coville & Ciald.; *Phalaroides arundinacea* (L.) Rauschert; *Phalaroides arundinacea* subsp. *caesia* (Nees) Tzvelev; *Phalaroides arundinacea* subsp. *japonica* (Steud.) Tzvelev; *Phalaroides arundinacea* subsp. *oehlerii* (Pilg.) Valdés & H.Scholz; *Phalaroides arundinacea* subsp. *rotgesii* (Husn.) Valdés & H.Scholz; *Phalaroides arundinacea* var. *kuzenevae* Tzvelev; *Phalaroides arundinacea* var. *picta* (L.) Tzvelev; *Phalaroides caesia* (Nees) Holub; *Phalaroides hispanica* (Coincy) Holub; *Phalaroides japonica* (Steud.) Czerep.; *Phalaroides picta* (L.) Prob.; *Phalaroides rotgesii* (Husn.) Holub; *Typhoides arundinacea* (L.) Moench; *Typhoides arundinacea* f. *colorata* (Sibth.) Soó; *Typhoides arundinacea* f. *ramifera* (Junge) Soó; *Typhoides arundinacea* f. *schwarzii* Soó; *Typhoides arundinacea* f. *umbrosa* (Peterm.) Soó; *Typhoides arundinacea* subsp. *japonica* Tzvelev; *Typhoides arundinacea* subsp. *rotgesii* (Husn.) Gamisans; *Typhoides arundinacea* var. *japonica* (Steud.) Tzvelev

**Original name (Gmelin 1817):** Phalaris arundinacea. Linn. Sp. pl. - Gmel. Fl. Bad. I. p. 122. 123.

**German names and French names (Gmelin 1817):** Schilfiges Glanzgras, Rohr-Glanz-Gras; Phalaris roseau

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 52999** (Fig. 59)



Figure 59. *Phalaris arundinacea* L. - KR 52999

**Botany and Ecology:** Perennial, rhizomatous; rhizomes extensively spreading. Culms reedlike, erect, leafy, 0.6-1.5 m tall, 6-8-noded. Leaf sheaths glabrous, not inflated; leaf blades 10-35 cm × 10-18 mm, tapering to a fine apex; ligule 2-3 mm. Panicle contracted, linear-oblong in outline, lobed, interrupted, 8-15 cm; branches short, erect, densely spiculate. Spikelets oblong, laterally compressed, 4-6 mm; glumes narrowly lanceolate, glabrous or puberulous, pale green streaked darker green or purplish, keel scabrid, wingless or very narrowly winged upward, apex sharply acute; sterile lemmas equal, subulate, 1.5-1.8

mm, villous; fertile lemma broadly lanceolate, 3-4 mm, appressed-pubescent upward, shiny; palea boat-shaped, keels ciliate. Anthers 2.5-3 mm. Flowering and fruiting June-August. (Wu *et al.* 1994-2013 )

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** It can be mown three or four times, from spring to autumn, and provides cattle and horses with pleasant and healthy food, both fresh and dried. The more often it is mown, the more palatable and pleasant it becomes.

**Description and Ecology (Gmelin 1817):** The stalk is 3-4-5 feet tall, upright, smooth, and leafy. The leaves are flat, smooth, and rough towards the tip, with a white stripe running lengthwise through their center. The flower spike is upright, half a foot long, bulbous, and colorful in bloom, often reddish. The seeds are elongated, pointed, and shiny. This grass often grows in wet forest meadows, along ditches, rivers, and streams. It blooms in June and July, and its seeds ripen in August. It is a perennial grass.

**Original German text Gmelin (Gmelin 1817):** Der Halm ist 3 - 4 - 5 Fuß hoch, aufrecht stehend, glatt, blättrig. Die Blätter flach, glatt, gegen die Spitze rau anzufühlen, durch die Mitte derselben läuft der Länge nach ein weisser Streifen. Die Blüten-Rispe ist aufrecht, einen halben Fuß lang, bauchig, zur Blüthezeit bunt, oft röthlicht. Die Samen sind länglich, spitzig und glänzend. Dieses Gras wächst häufig auf nassen Waldwiesen, an Wassergräben, an Flüssen und Bächen, blühet im Juni, Juli, reifet seine Samen im August, und gehört unter die ausdauernden Gräser. Es kann drey bis viermal, vom Frühjahr bis in Herbst abgemähet werden, und giebt sowohl frisch als getrocknet dem Rindvieh, und den Pferden eine angenehme und gesunde Nahrung. Je öfter dasselbe abgemähet wird, um so schmackhafter und angenehmer wird es.

#### ***Phyteuma spicatum* L.**

**Synonyms:** *Phyteuma abelis* Sennen; *Phyteuma ambigens* Rouy; *Phyteuma angustifolium* Ledeb.; *Phyteuma bracteatum* Losa; *Phyteuma coeruleum* Dalla Torre & Sarnth.; *Phyteuma elongatum* Hegetschw.; *Phyteuma occidentale* (Rich.Schulz) G.H.Loos; *Phyteuma pyrenaicum* Rich.Schulz; *Phyteuma pyrenaicum* Sennen; *Phyteuma pyrenaicum* f. *glabrescens* Rich.Schulz; *Phyteuma pyrenaicum* f. *glabriusculum* Rich.Schulz; *Phyteuma pyrenaicum* f. *glabrum* Rich.Schulz; *Phyteuma pyrenaicum* f. *hirsutum* Rich.Schulz; *Phyteuma pyrenaicum* f. *nudum* Rich.Schulz; *Phyteuma pyrenaicum* f. *pilosiusculum* Rich.Schulz; *Phyteuma pyrenaicum* f. *pilosum* Rich.Schulz; *Phyteuma pyrenaicum* f. *pubescens* Rich.Schulz; *Phyteuma pyrenaicum* subsp. *betonicoides* Rich.Schulz; *Phyteuma pyrenaicum* subsp. *cordifolium* Rich.Schulz; *Phyteuma pyrenaicum* var. *brevibracteatum* Rich.Schulz; *Phyteuma pyrenaicum* var. *ebracteatum* Rich.Schulz; *Phyteuma pyrenaicum* var. *involutatum* Rich.Schulz; *Phyteuma rapunculus* Pers.; *Phyteuma spicatum* f. *bicrenatum* Rich.Schulz; *Phyteuma spicatum* f. *cordatum* Rich.Schulz; *Phyteuma spicatum* f. *crenatoserratum* Rich.Schulz; *Phyteuma spicatum* f. *crenatum* Rich.Schulz; *Phyteuma spicatum* f. *divaricatum* Rich.Schulz; *Phyteuma spicatum* f. *ebracteatum* Rich.Schulz; *Phyteuma spicatum* f. *fissum* Rich.Schulz; *Phyteuma spicatum* f. *grossidentatum* Rich.Schulz; *Phyteuma spicatum* f. *incisum* Rich.Schulz; *Phyteuma spicatum* f. *involutatum* Rich.Schulz; *Phyteuma spicatum* f. *macrodon* Rich.Schulz; *Phyteuma spicatum* f. *microdon* Rich.Schulz; *Phyteuma spicatum* subsp. *coeruleum* Rich.Schulz; *Phyteuma spicatum* subsp. *jurassicum* Rich.Schulz; *Phyteuma spicatum* subsp. *occidentale* Rich.Schulz; *Phyteuma spicatum* var. *alpinum* Rich.Schulz; *Phyteuma spicatum* var. *bracteatum* A.DC.; *Phyteuma spicatum* var. *coeruleum* Gremlí; *Phyteuma spicatum* var. *coeruleum* Gren. & Godr.; *Phyteuma spicatum* var. *coeruleum* Hegetschw.; *Phyteuma spicatum* var. *glabrum* Rich.Schulz; *Phyteuma spicatum* var. *halleri* Steud.; *Phyteuma spicatum* var. *jurassicum* (Rich.Schulz) Hayek & Hegi; *Phyteuma spicatum* var. *pilosum* Rich.Schulz; *Phyteuma spicatum* var. *pseudohalleri* Font Quer ex O.Bolòs & Vigo; *Phyteuma spicatum* var. *pyrenaicum* (Rich.Schulz) O.Bolòs & Vigo; *Phyteuma spicatum* var. *roseum* Degen & P.Rossi; *Phyteuma spicatum* var. *vulgare* Rich.Schulz; *Rapunculus albidus* E.H.L.Krause; *Rapunculus ovatus* Bubani; *Rapunculus spicatus* Mill.

**Original name (Gmelin 1817):** *Phyteuma spicata*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 484. 485.

**German names and French names (Gmelin 1817):** Aehren-Rapunzel, Waldrapunzel, Wilde-Rapunzel, Waldrübleinkraut; Raiponce à épi

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 133637** (Fig. 60)



Figure 60. *Phyteuma spicatum* L. - KR 133637

**Botany and Ecology:** Perennial; root thick, fleshy, cylindrical or terete -fusiform, usually constricted and throat- shaped beneath stem, brownish, hardly branching, ca. 5-10 cm long, 1 - 1.5 cm wide; stems straight, simple, glabrous, smooth, slightly angular and faceted or longitudinally striate and slightly sulcate, 50-60 cm high, usually less, leafy, sometimes up to 0.3—0.4 cm thick; leaves glabrous, the radical long-petioled, cordate, acute or obtuse, with blades 5-7 cm long and nearly as wide or narrower, biserrate -dentate; lower cauline leaves with much shorter petioles, not longer than blade, less deeply cordate; upper leaves sessile, linear-lanceolate, spreading, irregularly dentate. Inflorescence dense, spicate, oblong-ovate or cylindrical, 5-7(8) cm long, elongating after flowering, obtuse as if truncate at apex; bracts linear, mucronate, subentire; flowers white or somewhat yellowish, sometimes bluish but not dark blue; calyx ovate, 10 -nerved, teeth spreading, linearlanceolate, entire, as long as tube and much shorter than corolla; corolla with linear lobes, free below but connate above, later becoming almost free; filaments dilated, membranous, triangular, pubescent; anthers narrow, filiform; style exserted from corolla, pubescent from middle to apex, with 2 or 3 stigmas; capsule globular, yellowish, 10 -nerved, rather short, dehiscent at sides by two pores, with dry spreading relics of calyx teeth approximately up to middle; seeds small, ovate,

flattened, straw-colored. June-July. Broadleaved and mixed forests, mountains and lowlands. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** None.

**Uses 1817 (Gmelin 1817):** The roots are nourishing and tasty and provide healthy food. Livestock enjoys eating the leaves. Once established, it is difficult to eradicate due to its creeping roots.

**Description and Ecology (Gmelin 1817):** The root is somewhat spindle-shaped, long, creeping, and white. The stem is 1.5 to 2 feet tall, erect, angular, somewhat hairy, and branched. The branches are alternate. The lower leaves are long-stalked, heart-shaped, pointed, and serrate at the base; the upper leaves are alternate, sessile, oval-lanceolate, and somewhat hairy. The blue, bell-shaped flowers are borne in a raceme-like cluster, unilateral, scattered, and drooping. The calyx incisions are blunt, hairy, and recurved. It grows here and there frequently in fields, in hedgerows, woodlands, on dry hills, and in vineyards. It blooms in June, July, and August. Its seeds ripen in August and September, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel lang, walzenförmig, mit einigen rübenförmigen Anhängen versehen, inwendig weis, aussen gelblich. Der Stengel 1 - 2 - 3 Fuß hoch, einfach, aufrecht, eckig, glatt. Die Wurzelblätter lang gestielt, herzförmig, etwas stumpf zugespitzt, die oberen Stengelblätter eyförmig-zugespitzt, fast aufsitzend, am Rande ungleich gesägt, etwas glatt. Die Blütenähre ausgehend, aufrecht, oval-wälzenförmig. Die Blumen dicht beysammen, blau, violett, weis, zu Zeiten blaßgelb. Sie wächst sehr häufig auf etwas feuchten Wald- und andern Wiesen, in feuchten ebenen und Bergwaldungen, und am Rande derselben, blühet im May, Juni, Juli, reifet ihre Samen im Juli, August, und gehört zu den ausdauernden Gewächsen. Die Wurzeln und jungen Blätter geben einen milchweisen Saft, sind wohlschmeckend, nährend, und können als Gemüse und Salat zubereitet und verspeist werden. Man pflegt sie hin und wieder in den Gärten, als Küchenpflanze anzubauen. Diese Pflanze, welche so häufig in feuchten Gebirgsgegenden im Schwarzwalde, im Würtenbergischen, Fürstenbergischen und im Odenwalde vorkommt, verdient bey Mangel an Nahrungsmitteln, bestens benutzt zu werden, auch giebt sie dem Vieh ein gutes Futter.

***Platanthera bifolia* (L.) Rich.**

**Synonyms:** *Conopsidium sthenantherum* Wallr.; *Gymnadenia bifolia* (L.) G.Mey.; *Habenaria bifolia* (L.) R.Br.; *Lysias bifolia* (L.) Salisb.; *Orchis alba* Lam.; *Orchis bifolia* L.; *Orchis stenanthera* E.H.L.Krause; *Platanthera bifolia* f. *densiflora* (Drejer) Soó; *Platanthera bifolia* f. *latiflora* (Drejer) Asch. & Graebn.; *Platanthera bifolia* f. *pervia* (Peterm.) Soó; *Platanthera bifolia* f. *trifoliata* (Thielens) Paucă & A.Nyár.; *Platanthera bifolia* var. *latiflora* (Drejer) Kreutz; *Platanthera bifolia* var. *pervia* (Peterm.) Asch. & Graebn.; *Platanthera solstitialis* Boenn. ex Rchb.; *Platanthera solstitialis* var. *pervia* (Peterm.) Nyman; *Platanthera solstitialis* var. *trifoliata* Thielens; *Satyrium bifolium* (L.) Wahlenb.; *Sieberia bifolia* (L.) Spreng.

**Original name (Gmelin 1817):** *Orchis bifolia*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 528. 529. - Oeder. Flor. Danica. tab. 582.

**German names and French names (Gmelin 1817):** Zweyblättriges Knabenkraut, Weisse wohlriechende Stendelwurz, Zweyblättrige Ragwurz-Fliegenblume; *Orchis à deux feuilles*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Vulnerable, decline

**KR 144828**

**Botany and Ecology:** Plants 28-42 cm tall. Rootstock tuberous, ovoid-fusiform, tapering at base, 2.5-3 × 0.8-1.4 cm. Stem erect, with 1 or 2 tubular sheaths at base, 2-leaved. Leaves basal, subopposite, spatulate-elliptic, oblong, or elliptic, 9-12 × 1.8-3.5 cm, gradually contracted at base, apex obtuse. Peduncle slender to robust, with 2-4 scattered, lanceolate bracts; rachis 9-19 cm, laxly to subdensely 7-17-flowered; floral bracts lanceolate, 15-20 mm, basal ones exceeding ovary. Flowers fragrant, white, greenish white, or green; pedicel and ovary arcuate, cylindric, 14-15 mm. Dorsal sepal erect and forming a hood with petals, ovate to broadly ovate, cymbiform, 5.5-6 × 4-4.5 mm, glabrous, apex obtuse; lateral sepals spreading, ovate-lanceolate, oblique, 6-7 × 3.5-4 mm, glabrous, apex subacute. Petals linear-lanceolate, oblique, 5.5-6 × ca. 1 mm, apex acute; lip spreading, ligulate, 9-10 × 1-1.5 mm, thickened, entire, apex obtuse; spur pendulous, cylindric, slender, 20-25 × 1.5-1.8 mm, apex subacute. Column stout; staminodes conspicuous; anther locules slightly divergent; pollinia ellipsoid, with long caudicles and suborbicular viscidia; rostellum belt-shaped; stigma lobes confluent, concave, lying directly below rostellum. Flowering July-August, fruiting August-September. (Wu *et al.* 1994-2013)

**Contemporary uses:** None.

**Uses 1817 (Gmelin 1817):** The root is very nutritious, as are most of our Orchid species, and should be used to the fullest when nutrients are scarce.

**Description and Ecology (Gmelin 1817):** The tubers are in pairs, round and entire. (Bulbi testiculati). The stem is 1.5 - 2 feet tall, upright. Two, rarely three, ovoid, stalked, entire root leaves. Stem leaves are nonexistent, with small traces of them. The emerging flower spike is large, long, upright, oval-cylindrical. The flowers are white and fragrant. The flower spur is very long, thread-like, blunt, and oblique. This beautiful plant grows here and there in grassy, open woodlands, on the edges and along paths, in meadows, and especially in heath and juniper areas in the mountains. It blooms in May and June and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzelknollen zu zwey stehend, rundlich ganz. (Bulbi testiculati). Der Stengel 1½ - 2 Fuß hoch, aufrecht. Wurzelblätter zwey, seltener drey, eyförmig, gestielt, ganz. Stengelblätter keine, statt diesen kleine Spuren derselben. Die ausgehende Blüthenähre groß, lang, aufrecht, oval-walzenförmig. Die Blumen weiß, wohlriechend. Der Blüthensporn sehr lang, fadenförmig, stumpf und schief. Diese schöne Pflanze wächst hie und da in grasigen lichten Waldungen, am Rande und an den Wegen derselben, auf Wiesen, und vorzüglich in Heiden- und Wacholder-Gegenden auf den Gebirgen. Blühet im May, Juni, und gehört unter die ausdauernden Gewächse. Die Wurzel ist sehr nährend, wie es die meisten unserer Orchis-Arten sind, und sollte bei Mangel bestens benutzt werden.

### ***Portulaca oleracea* L.**

**Synonyms:** *Portulaca consanguinea* Schltld.; *Portulaca fosbergii* Poelln., *Portulaca fosbergii* var. *major* Poelln.; *Portulaca hortensis* Rupr.; *Portulaca intermedia* Link ex Schltld.; *Portulaca latifolia* Hornem.; *Portulaca marginata* Kunth; *Portulaca neglecta* Mack. & Bush; *Portulaca officinarum* Crantz; *Portulaca oleracea* f. *alba* Alef.; *Portulaca oleracea* f. *aurantia* Alef.; *Portulaca oleracea* f. *aurea* Alef.; *Portulaca oleracea* f. *caryophyllina* Alef.; *Portulaca oleracea* f. *gillesii* Alef.; *Portulaca oleracea* f. *haageana* Alef.; *Portulaca oleracea* f. *parvifolia* (Haw.) Alef.; *Portulaca oleracea* f. *rosea* Alef.; *Portulaca oleracea* f. *sativa* (DC.) Alef.; *Portulaca oleracea* f. *striata* Alef.; *Portulaca oleracea* f. *sulfurea* Alef.; *Portulaca oleracea* f. *violacea* Alef.; *Portulaca oleracea* subsp. *granulatostellulata* (Poelln.) Danin & H.G.Baker; *Portulaca oleracea* subsp. *oleracea* L.; *Portulaca oleracea* subsp. *sativa* (Haw.) Čelak.; *Portulaca oleracea* subsp. *stellata* Danin & H.G.Baker; *Portulaca oleracea* subsp. *sylvestris* (Garsault) Thell.; *Portulaca oleracea* var. *macrantha* Speg.; *Portulaca oleracea* var. *micrantha* Speg.; *Portulaca oleracea* var. *opposita* Poelln.; *Portulaca oleracea* var. *parvifolia* (Haw.) Griseb.; *Portulaca oleracea* var. *sativa* (Haw.) DC.; *Portulaca olitoria* Pall.; *Portulaca parvifolia* Haw.; *Portulaca pilosa* var. *marginata* (Kunth) Kuntze; *Portulaca retusa* Engelm., *Portulaca sativa* Haw.; *Portulaca stellata* (Danin & H.G.Baker) Ricceri & Arrigoni; *Portulaca suffruticosa* Thwaites; *Portulaca sylvestris* Friche-Joset & Montandon; *Portulaca sylvestris* Garsault

**Original name (Gmelin 1817):** *Portulaca oleracea*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p. 343. 344. Schkuhr. Bot. Handb. tab. 130.

**German names and French names (Gmelin 1817):** Wurzelkraut, Portulac; Portulac, Pourpier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, expanding

**Botany and Ecology:** Annual. The stem (7) 10-30 cm long, glabrous, fleshy, prostrate, mostly appressed to the soil or ascending, branched from base. The leaves are alternate, sessile, cuneately narrowing towards the base, fleshy. The flowers are solitary or in clusters of 2 or 3, in the stem crotches or in the leaf axils. The sepals are herbaceous, obtusely keeled. The petals (4-6) are free or connate at base, united with the calyx, obovate, and yellow. The stigmas are linear. The stamens 8-15, free or adnate at base to petals. The capsule is ovoid or globular, 5-8 mm long. The plant can be found in sand deposits on riverbanks, fields, weed-infested places around villages, and gardens. In ruderal habitats, near roads and cultivated fields. Up to middle mountain belt, on an elevation up to 1200 m. Flowering June to July, fruits from July to September. (Komarov and Shishkin 1936).

**Contemporary uses:** Used as a choleric, antipyretic, for hepatitis, nephritis, cystitis, intestinal ulcers, bloody diarrhea, intestinal infections. Traditional medicine usually used the green parts of the plant and its seeds to treat impotence, stroke, urinary tract infections, psoriasis, liver and stomach. The fresh juice has anthelmintic properties and quenches thirst. Drinking "milk" made from crushed seeds will help in healing tumors of the digestive tract. The intravenous injection of plant-derived preparations enhances the heart rhythm, narrows blood vessels and raises blood pressure. It is recommended to eat *Portulaca*

in the early stages of 2-type diabetes. Crushed seeds mixed with honey reduce the frequency of asthma attacks. A tincture is recommended as poultice for muscle cramps. Leaf juice soothes itching caused by insect bites. Fresh or marinated purslane regulate the blood platelet. Contains vitamin C, carotene, alkaloids, proteins and organic acids. Pulverized leaves of the plant and a decoction of seeds are used in diarrhea, treatment of dysentery and as antipyretic. Pulverized leaves used as poultice to treat bee stings and skin tumors. The plant is also used as general panacea to strengthen the organism. Iran: Since ancient times, this plant has been used as a vermifuge, laxative, antitussive, blood purifier, anti-thirst, and diuretic in Iranian folk medicine. Also, the leaves, stems and seeds of *P. oleracea* are used for healing burns, corn, and calluses, and the treatment of kidney stones and migraine. Well-known food plant, which is used fresh and marinated. Young plants are used cooked, as spice in soups and sauces, and like spinach with oil, vinegar, and garlic). The fruits have cooling properties and are used in food in raw in salads or boiled. Is one of the sources of vitamin C. Young shoots of *Portulaca oleracea* are used in the Caucasus to make mkhali/phkhali (a herb and walnut spread). The plant is used alone in Kartli and Kakheti, as well as in a mixture of various herbs. Leaves are used as food. The species is widely consumed in Eurasia, especially the Caucasus. Widely used in Phkhali. Iran: Common purslane is a favorite vegetable in many southern regions of Iran such as Sirjan, Shiraz, Darab, and Bandar Abbas, and sold in local markets. The seeds of *P. oleracea* are used to make sweets and Qovato (a traditional souvenir of Kerman province), and its leaves are used in pickles. According to local belief, common purslane put in the bed can help to avoid nightmares. A dye solution is prepared from the flowers to obtain violet and grey colors and is used for dyeing wool yarn as well as products made of wool. Sometimes eaten by livestock. Romania: Antitussive, tonic, bitter; cough, anorexia. In India the plant is used as blood purifier, for fever and headaches, in Africa for. Croatia: Boiled with onion as vegetable or eaten raw. Slovakia and Czech Republic: eaten as salad. Hungary: eaten; leaves as children's snack, seeds as famine food. Also eaten in Ethiopia, together with *Portulaca quadrifida*. Leaves and shoots are cooked and eaten as. ((Batsatsashvili et al. 2017h; Bussmann et al. 2020n; 2021; 2025B; aet al. 2024; Paniagua-Zambrana et al. 2020g; 2025E).

**Uses 1817 (Gmelin 1817):** The juicy, tender young leaves and stems can be eaten as a side dish or in salads. It is therefore occasionally cultivated in kitchen gardens, especially in France, where the stems and leaves become significantly larger, juicier, and more tender.

**Description and Ecology (Gmelin 1817):** The root is branched, fibrous, and white. The stems are 4-9 inches long, lying on the ground, rooting, round, succulent, thick, smooth, branched, often reddish. The leaves are alternate, sessile, clustered toward the tips of the stems, wedge-shaped, thick, succulent, smooth, and green. The flowers are terminal, sessile, solitary, or borne in clusters. The calyx is bifid, persistent, and compressed at the apex. The corolla is small, yellow, and has five petals. The leaves are erect, blunt, larger than the calyx, and fused at the base. 6-10-15 filaments. Often 5, less frequently 4 or 6 stamens. The seed capsule is multi-seeded, oval, unilocular, bivalved, dissected, and covered with the calyx. This plant often grows wild in gardens, fields, around towns and villages, and in vineyards. It blooms in July and August. Its seeds ripen in August and September, and it is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ästig, faserig, weiß. Die Stengel 4 - 9 Zoll lang, auf der Erde hinliegend, wurzelschlagend, rund, saftig, dick, glatt, ästig, öfters röthlich. Die Blätter abwechselnd, aufsitzend, gegen die Spitzen der Stengel gehäuft, keilförmig, dick, saftig, glatt, grün. Die Blüthen endigend, aufsitzend, einzeln, oder in Büscheln stehend. Der Blüthenkelch zweyzählig, bleibend, an der Spitze zusammengedrückt. Die Blumenkrone klein, gelb, fünfblättrig. Die Blätter aufrecht, stumpf, größer als der Kelch, und am Grunde verwachsen. Staubfäden 6 - 10 - 15. Staubwege öfters 5, seltener 4, 6. Die Samen-Kapsel vielsamig, eyrund, einfächerig, zweyklappig, umschnitten, mit dem Kelche bedeckt. Diese Pflanze wächst häufig wild in Gärten, Feldern, um Städte und Dörfer, und in den Weinbergen. Blühet im Juli, August. Reifet ihre Samen im August, September, und gehört unter die einjährigen Gewächse. Die saftigen zarten jungen Blätter und Stengel, können als Zugemüße und Salat verspeist werden. Sie wird daher hie und da in Küchengärten, vorzüglich in Frankreich angebauet, wodurch die Stengel und Blätter, ungleich größer, saftiger und zarter werden.

#### **Potamogeton natans L.**

**Synonyms:** *Buccaferrea natans* (L.) Bubani; *Potamogeton affinis* Boenn. ex Cham. & Schlecht.; *Potamogeton besseri* Steud.; *Potamogeton fluitans* subsp. *petiolaris* (Nyman) Cif. & Giacom.; *Potamogeton fluitans* var. *petiolatus* (Wolfg.) Nyman; *Potamogeton kirkii* Syme; *Potamogeton morongii* A.Benn.; *Potamogeton natans* f. *angustifolius* Regel; *Potamogeton natans* f. *fluviatilis* (Fr.) Hagstr.; *Potamogeton natans* f. *lancifolius* (Fieber) Rchb.; *Potamogeton natans* f. *ovalifolius* (Fieber) Rchb.; *Potamogeton natans* f. *rotundifolius* (Bréb.) Hagstr.; *Potamogeton natans* f. *terrestris* (Gray) Hagstr.; *Potamogeton natans* f. *vulgaris* Rchb.; *Potamogeton natans* subsp. *ellipticus* Gaudin; *Potamogeton natans* subsp. *explanatus* (Mert. & W.D.J.Koch) K.Richt.; *Potamogeton natans* subsp. *kirkii* (Syme) Nyman; *Potamogeton natans* subsp. *petiolaris* (Nyman) Arcang.;

*Potamogeton natans* subsp. *petiolatus* (Wolfg.) K.Richt.; *Potamogeton natans* subsp. *vulgaris* Gaudin; *Potamogeton natans* var. *acaulis* Wahlb.; *Potamogeton natans* var. *angustifolius* G.Mey.; *Potamogeton natans* var. *explanatus* Mert. & W.D.J.Koch; *Potamogeton natans* var. *fluviatilis* Fr.; *Potamogeton natans* var. *intermedius* Mert. & W.D.J.Koch; *Potamogeton natans* var. *lancifolius* Fieber; *Potamogeton natans* var. *major* W.D.J.Koch & Ziz; *Potamogeton natans* var. *media* W.D.J.Koch & Ziz; *Potamogeton natans* var. *minor* Hook.f.; *Potamogeton natans* var. *ovalifolius* Fieber; *Potamogeton natans* var. *petiolaris* Nyman; *Potamogeton natans* var. *petiolatus* (Wolfg.) Nyman; *Potamogeton natans* var. *prolixus* W.D.J.Koch; *Potamogeton natans* var. *pygmaeus* Gaudin; *Potamogeton natans* var. *rotundifolius* Bréb.; *Potamogeton natans* var. *subnatans* Wahlenb.; *Potamogeton natans* var. *terrestris* Gray; *Potamogeton natans* var. *vulgaris* Mert. & W.D.J.Koch; *Potamogeton paludosus* Bory ex Cham. & Schldl.; *Potamogeton petiolaris* C.Presl; *Potamogeton petiolatus* Wolfg.; *Potamogeton plantago* T.Bastard; *Potamogeton samariformis* Hagstr.; *Potamogeton sparganiifolius* Bab.; *Potamogeton uliginosus* Boenn. ex Cham. & Schlecht.; *Spirillus natans* (L.) Nieuwl.

**Original name (Gmelin 1817):** *Potamogeton natans*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 379. 380.

**German names and French names (Gmelin 1817):** Schwimmendes Samkraut; Epi d'eau flottant

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial, rhizomatous aquatic. Leaves mostly dimorphic; submerged leaves if present, reduced to narrowly linear, opaque phyllodes, up to 2 mm broad; floating leaves leathery, long-petioled with a discoloured joint at the top of the petiole, ovate to lanceolate, 5-9 cm long, 3.2-4.7 cm broad; petiole up to 6 cm long. Stipules free, 5-9 cm long, persistent, linear-lanceolate. Spikes c. 4.5 cm long. Fruitlets obovoid, 3.5-4 mm long, 2.5-3 mm broad (Ali & Qaiser 1995-2020).

**Contemporary uses:** Azerbaijan: A decoction of the leaves is taken orally for ordinary and bloody diarrhea, and fresh leaves are used for lichen and abscesses as an external cooling agent. The roots of the plant are eaten. (Mehdiyeva et al. 2025i).

**Uses 1817 (Gmelin 1817):** The entire plant is eagerly eaten by pigs and must be considered an excellent food and fattening agent for them and used to its full potential. The people living along the Jaik River use the root as food, but this would probably not be to the liking of the Rhinelander.

**Description and Ecology (Gmelin 1817):** The leaves float on the water, have long stalks, are alternate, the uppermost ones are opposite, are oblong and ovoid, and the margins are entire, venated, flatly spread, and smooth. The flower stalks end in a finger-long, cylindrical, reddish spike that stands above the water. The calyx is missing. Each corolla consists of four rounded, hollow, upright, reddish leaflets, which immediately fall off, leaving behind four rounded, pointed, bumpy, and compressed seeds. The plant grows in abundance in ditches, streams, ponds, swamps, lakes, and areas exposed to flooding, where it often completely covers the water. It is one of the most common aquatic plants in our Rhine, Main, Danube, and Neckar regions. It blooms in June and July, its seeds ripen in August and is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend, gegliedert und ästig. Die Stengel sehr lang, rund, gegliedert, glatt, oberhalb ästig. Die Blätter auf dem Wasser schwimmend, lang gestielt, abwechselnd, die obersten entgegengesetzt, länglich eiförmig, am Rande ganz, nervig, flach ausgebreitet, und glatt. Die Blumenstiele endigen sich in eine fingerslange, walzenförmige, röthliche, über dem Wasser stehende Aehre. Der Blumenkelch fehlt. Jede Blumenkrone besteht aus vier rundlichen, hohlen aufrechtstehenden röthlichen Blättchen, welche sogleich abfallen, und vier rundliche zugespitzte, höckerige, und zusammengedrückte Samen hinterlassen. Die Pflanze wächst in Menge, in Wassergräben, Bächen, Teichen, Sümpfen, Seen, und den Ueberschwemmungen ausgesetzten Gegenden, wo sie die Wasser nicht selten ganz überziehet, und gehört in unsern Rhein-, Main-, Donau- und Neckar-Gegenden unter die gemeinsten Wasserpflanzen. Sie blühet im Juni, Juli, reifet ihre Samen im August, und gehört zu den ausdauernden Gewächsen. Die ganze Pflanze wird von den Schweinen begierig gefressen, und muß als ein ganz vorzügliches Nahrungs- und Mastungsmittel derselben betrachtet und bestens benutzt werden. Die am Jaikflusse wohnenden Völker, gebrauchen die Wurzel derselben als Speiße, jedoch dürfte diese, dem Rheinländer nicht behagen.

### ***Prenanthes purpurea* L.**

**Synonyms:** *Chondrilla purpurea* Lam.; *Chondrilla tenuifolia* Lam.; *Prenanthes purpurea* subsp. *purpurea*; *Prenanthes purpurea* subsp. *tenuifolia* (L.) Arcang.; *Prenanthes purpurea* var. *angustifolia* W.D.J.Koch; *Prenanthes purpurea* var. *corsica* Rouy; *Prenanthes purpurea* var. *intermedia* Rouy; *Prenanthes purpurea* var. *querciformis* Murr; *Prenanthes purpurea* var. *tenuifolia*

(L.) St.-Lag.; *Prenanthes schlosseri* Heuff.; *Prenanthes tenuifolia* L.; *Prenanthes transsilvanica* Schur; *Prenanthes wolfiana* Schur

**Original name (Gmelin 1817):** *Prenanthes purpurea*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 298. 299. - Jacq. Flor. Austr. tab. 317.

**German names and French names (Gmelin 1817):** Purpurfarbige Prenanthe, Waldprenanthe, Wilder Purpur-Lattig, Waldlattig mit rothen Blumen; Prenanthe pourprée

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 120770** (Fig. 61); **120771** (Fig. 62)



Figure 61. *Prenanthes purpurea* L. - KR 120770



Figure 62. *Prenanthes purpurea* L. - KR 120771

**Botany and Ecology:** Perennial. Rhizome slender, woody. Stem 60-100(150) cm high, usually solitary, glabrous or subglabrous, paniculately branched above. Leaves thin, variable, usually lanceolate, oblong-elliptical or oblong-linear, acute, glaucous beneath, green above; lower leaves mostly on winged petiole, almost entire with slightly toothed margin to sinuate-toothed and lyrate-pinnatifid with large terminal lobe; middle and upper leaves sessile, semiamplexicaul, more or less entire, upper leaves smaller, with distinctly auriculate base; sometimes all or most leaves oblong-linear or linear-lanceolate to linear, entire or almost entire. Capitula cylindrical, 12-15 mm long and 3 mm wide, drooping, terminal on slender branches of lax panicle, sometimes up to 20-35 cm long; basal branches of panicle arising from axils of rather large upper leaves. Involucre two- or three-rowed; outer involucral bracts oblong-ovate, dark, with more or less dense, often papilliform pubescence; innermost bracts two to three times as long as outer, linear or oblong-lanceolate, greenish in lower part, usually dark violet above, bordered along edges, subobtuse, with short barbules of thin, light colored, hairs (under a hand lens!); florets in capitulum usually five; corolla purple or violet-purple, its lobes covered with papilliform hairs. Achenes 4.5-5 mm long, about 1 mm wide, oblong-linear, weakly compressed, dark brown, glabrous, with slightly raised ribs; pappus of

numerous white, slightly barbed (under high magnification!) bristles, 7.5-8 mm long. Flowering (June) July to August (September). Montane forests. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** Sometimes used as forage

**Uses 1817 (Gmelin 1817):** It provides good and plentiful fodder for cattle and pigs. This plant, which grows so frequently in the Black Forest, should be used as animal fodder. The flowers provide honey for bees. It is not yet known to our farmers.

**Description and Ecology (Gmelin 1817):** The root is spreading, branched, and fibrous. The stem is 2-3-5 feet tall, erect, round, smooth, and multi-branched above. The branches are spreading. The leaves are alternate, oblong, flat, pale green and smooth beneath; the lower leaves are slightly stalked and toothed; the upper leaves are stem-enclosing, less toothed, and sometimes entire. The flower spike is expanded and multi-flowered. The corolla consists of five, rarely four or six purple-red, rose-red, or more rarely white flowers. The seeds are heart-shaped. The corolla is sessile and hair-like. The receptacle is bare. Grows in large numbers in the higher forest regions, in sandstone, gneiss, and granite mountains in shady locations, in Baden, Württemberg, Switzerland, and the Vosges. Blooms in July and August. Its seeds ripen in August and September and are considered perennial plants.

**Original German text Gmelin (Gmelin 1817):** Purpurfarbige Prenanthe. Waldprenanthe. Wilder Purpur-Lattig. Waldlattig mit rothen Blumen. Prenanthe pourprée. -Die Wurzel ausgebreitet, ästig, faserig. Der Stengel 2 - 3 - 5 Fuß hoch, aufrecht, rund, glatt, oben vielästig. Die Aeste ausgebreitet. Die Blätter abwechselnd, länglich, flach, unten fahlgrün, glatt; die untern etwas gestielt, gezähnt; die obern stengelumfassend, weniger gezähnt, zu Zeiten ganz. Die Blüthenrispe ausgedehnt, vielblüthig. Die allgemeine Blumenkrone besteht aus fünf, seltener aus vier oder sechs purpurröthlichen, rosenrothen, seltener weißen Blümchen. Die Samen herzförmig. Die Samenkronen aufsitzend, haarförmig. Der Fruchtboden nackt. Wächst in den höheren Waldgegenden, in Sandstein-, Gneus- und Granitgebirgen an beschatteten Stellen, im Badischen, Württembergischen, in der Schweiz, und auf den Vogesen, in großer Menge. Blühet im Juli, August. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Sie giebt dem Rindvieh und den Schweinen gutes und reichliches Futter. Diese im Schwarzwalde so häufig wachsende Pflanze, sollte als Viehfutter bestens benutzt werden. Die Blüthen geben den Bienen Honig. Sie ist bisher unsern Landwirthen nicht bekannt.

#### ***Primula veris* L.**

*Synonyms:* *Primula brandisii* Wiesb.; *Primula coronaria* Salisb.; *Primula inflata* Lehm.; *Primula lasiopetala* Wallr.; *Primula officinalis* Hill; *Primula pistillaris* Hoffmanns.; *Primula pyrenaica* Miégev.; *Primula velenovskyi* Fritsch; *Primula veris* var. *officinalis* L.; *Primula* × *pannonica* A.Kern

**Original name (Gmelin 1817):** *Primula officinalis*. Gmel.Flor.Bad. I. p.439-441. *Primula veris officinalis*. Linn.Sp.pl.

**German names and French names (Gmelin 1817):** Wiesenschlüsselblume, Gebräuchliche Schlüsselblume, Wohlriechende Schlüsselblume; Primevere, Primerole

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Vulnerable, decline

**KR 188082** (Fig. 63)

**Botany and Ecology:** Perennial; rootstock oblique, with numerous whitish stringy roots; leaves including petiole 5-20 cm long, 2-6 cm broad, accrescent after flowering, ovate to ovate-oblong or obtuse at apex, abruptly passing into the petiole, crenate or irregularly erose-crenate, rugose, pubescent or glabrate and concave -veined above, pubescent or glabrous or slightly tomentose and convex-veined beneath; petioles shorter than blade, narrowly winged; scapes 10-30 cm long, usually slightly hairy; inflorescence commonly one-sided; involucral bracts 2-7 mm long, linear-lanceolate, acute, pubescent; pedicels 3-20 mm long, hairy; calyx 8-15 mm long, tubular -campanulate, angled, slightly pubescent, parted to 1/3 into triangular acute teeth, usually not inflated before anthesis; corolla bright yellow, spotted orange at the base of lobes, about equaling the calyx, the rather narrow limb incurved (not flat) up to 0.8-1.5 cm across, the obcordate lobes emarginate; style in long-styled flowers equaling the corolla tube, in short-styled flowers half as long; capsule ovoid, as long as the calyx; seeds 1.5 mm long, short-ovoid to subglobose, or irregularly cubic -angular, the surface blackish or brownish. Flowering April-June. Dry glades, margins of deciduous woods and, in the North, birch woods. (Shishkin & Boborov 1952).



Figure 63. *Primula veris* L. - KR 188082

**Contemporary uses:** Turkey: used for sarma. Georgia: leaves for Phkhali. Balkans: panacea, cough, intestinal problems in children, headache, antitussive, respiratory problems, improve blood circulation, antitussive, expectorant, bronchitis, stomach ulcers, increase appetite, cough, asthma, sore throat, improve general health, hypertension. Ukraine: cough. Hungary: cough, insomnia. Romania: Diuretic, depurative, emollient, urinary disorders, bronchitis; wounds, cutaneous haemorrhage, swellings, impetigo, eczema, emollient, calming, vulnerary, haemostatic, diaphoretic, antii-nfective. Hungary: flowers cooked for syrup. Eastern Europe: flowers as tea and as flavor for alcohol; Romania: tea. Ukraine: religious bouquets. Poland: as ornamental. (Bussmann et al. 2020C; Mehdiyeva et al. 2017b; Paniagua-Zambrana et al. 2025F).

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be eaten as vegetables and in salads in spring.

**Description and Ecology (Gmelin 1817):** This well-known plant grows here and there very frequently in sunny mountain meadows and grassy gardens, blooms in April and May, and ripens its seeds in June and July, and is a perennial.

**Original German text Gmelin (Gmelin 1817):** Diese bekannte Pflanze wächst hie und da sehr häufig auf sonnenreichen Bergwiesen und Grasgärten, blühet im April, May, reifet ihre Samen im Juni, Juli, und gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter, können im Frühjahr als Gemüse und Salat verspeist werden.

***Prunus avium* (L.) L.**

*Synonyms: Cerasus anglica* Poit. & Turpin; *Cerasus avicularis* Dulac; *Cerasus avium* var. *duracina* (L.) Lej. & Courtois; *Cerasus dulcis* G.Gaertn., B.Mey. & Scherb.; *Cerasus nigra* Mill.; *Cerasus nigricans* Borkh.; *Cerasus pallida* M.Roem.; *Cerasus varia* Borkh.; *Druparia avium* [Clairv.]; *Prunus avium* subsp. *juliana* (L.) Schübl. & G.Martens; *Prunus cerasus* var. *avium* L.; *Prunus cerasus* var. *bigarella* L.; *Prunus cerasus* var. *dulcis* L.; *Prunus cerasus* var. *duracina* L.; *Prunus cerasus* var. *juliana* L.; *Prunus duracina* Sweet; *Prunus nigricans* Ehrh.; *Prunus varia* Ehrh.

**Original name (Gmelin 1817):** *Prunus avium*. Linn. Sp. pl. - Gmel. Fl. Bad. II. p. 359-361.

**German names and French names (Gmelin 1817):** Der Waldkirschbaum, Süsse rothe und schwarze Kirschen, Kleine süsse Kirschen, Vogelkirsche; Merisier rouge et noir

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Tree, to 23(35) m high, producing no root suckers, with glabrous shoots and strict branches forming an ovoid crown; bark blackish, splitting transversely; leaves elongate-ovate or elliptic, with cuneate or orbicular base, abruptly tapering to a mucro, 16 cm long, 8 cm wide, at first usually densely hairy beneath, when adult glabrous above, over entire surface or only slightly pubescent along veins, to completely glabrous beneath, rarely glabrous; teeth biserrate, with terminal cartilaginous mucro; petioles 2-5 cm long, generally 2.5 cm, with two glands in upper part; stipules linearly glandular - dentate. Flowers in few-flowered umbels of leafless buds, inner scales of the latter recurved at flowering; pedicels glabrous, (2)2.5- 6 cm; hypanthia cyathiform; sepals obtuse, recurved, usually entire, often carmine red like scales of flower buds; corolla 2.5-- mm in diameter, white; fruit globose, in wild cherry ca. 1 cm long, dark red to nearly black, generally bitter (var. *amara* D. Sosn.) with soft juicy pulp; stone globose or ovoid, smooth. Flowering April-May, fruiting June. Ural, Caucasus, Altai, Middle Asia (Tien Shan), along the banks of rivers, forest edges, in mixed forests, up to the timberline. (Shishkin *et al.* 1941)

**Contemporary uses:** A bark decoction is used as a tonic and sedative, for headaches, heart diseases, gastrointestinal problems, the treatment of sexually transmitted diseases, malaria, respiratory infections, and spasms of the stomach. The leaf decoction serves for dysentery. A tincture can be used to treat rheumatism. Balkans: antihypertensive, improve blood circulation, antibacterial, digestive problems. Moldova: diuretic, kidney problems. Ukraine: kidney problems. Romania: diuretic, gallstones, colds. Hungary: kidney problems. Azerbaijan: The fruits, both fresh and dried, are used for diseases of the urinary tract, urolithiasis, to improve appetite, and as a dietary remedy for gastrointestinal diseases. Fruit juice is used to improve metabolism. Azerbaijan: The fruits are used fresh and dried; they are used to make jam and compotes. The fruits are eaten and used to produce alcohol. Turkey: leaves for sarma. Hungary: leaf as spice for pickles, fruits eaten raw and dried, brandy (*palinka*), sap as chewing gum. Slovakia: eaten raw. Poland: eaten raw. Ukraine: raw, fruit brandy. Eastern Europe: alcohol, pickled, wine. Italy: eaten as snack. Czech Republic: fruits eaten raw, added to cakes, syrup, marmalade. Romania: eaten as snack. Poland: tree sap sometimes drunk. The fruits are eaten raw. (Bussmann *et al.* 2020op; 2025D; Paniagua-Zambrana *et al.* 2025G).

**Uses 1817 (Gmelin 1817):** During years without wine and grain, this is the most excellent and profitable tree, at least in the Rhine, Main, and Neckar regions, as well as in the low mountain ranges and some of the higher mountain regions, on Lake Constance and in Switzerland. If not every year, then at least every two to three years, we can expect a bountiful harvest from it in these regions. In previous years, which were so unfavorable for viticulture and partly for fruit, grain, and potato cultivation, the wild cherry trees in many rural, mountain, and valley regions produced an extremely rich harvest, so that many people were well fed both with fresh and dried cherries. This greatly reduced bread, wine, and beer, and also produced a large amount of cherry brandy, which is comparable to Franzbrandt (Franz Brandt) and far surpasses both corn brandy and potato brandy in quality and pleasant taste. Although the cultivation of this wild cherry tree is favored in most suitable regions, it would still be worthwhile to multiply it as much as possible. Thus, several hundred more of these trees could and should be planted, especially in the low mountain regions, along roads and side paths, at the edges of forests where they are somewhat protected, and on common land. Since the ongoing war has destroyed many wild cherry trees, especially in the upper regions of the Grand Duchy, this suggestion deserves every consideration. Furthermore, these trees greatly

enhance a landscape, and how much they promote beekeeping, bird song, and timber production in a short time. In addition, the thickened gum or cherry resin exuded from the bird cherry and sour cherry trees, like the expensive gum arabic, can be used in medicine and, in cases of deficiency, can be eaten as a healthy food. Azerbaijan: A good honey plant that gives nectar and bee bread. Small strips of cherry bark are used for weaving baskets, and large layers of it, like the bark of *Fraxinus excelsior*, are used to make large beehives. From the bark, leaves and fruits, a coloring solution is made to obtain yellow and red. The solution is used for dyeing woolen yarn, as well as products from it. The wood is used for turning and furniture. The leaf powder is used in veterinary medicine for the treatment of slow healing wounds, as well as insecticide. The leaves can be used as fodder for reindeer, sheep, and goats. The wood is used for musical instruments. Balkans: wooden home goods, engravings, casks. Romania: Fodder for pigs; for smoking meat. Ukraine: in fruit baskets for feast of transfiguration. The stems are used in rituals for protection

**Original German text Gmelin (Gmelin 1817):** Bei Wein- und Getreide-Fehl Jahren ist dieses, wenigstens in den Rhein-, Main- und Neckargegenden, so wie in den Mittelgebirgs- und theils höher liegenden Berggegenden, am Bodensee und in der Schweiz, der vorzüglichste und einträglichste Baum. Wo nicht alle, doch alle zwey, bis drey Jahre, haben wir in besagten Gegenden, eine reichliche Ernde von ihm zu erwarten. In den vorigen, für den Weinbau und theils für den Obst-, Getreide- und Kartoffelbau, so ungünstigen Jahre, gaben in vielen Landes-, Berg- und Thalgegenden die Waldkirschenbäume einen äusserst reichen Ertrag, so daß sich sowohl von den frischen Kirschen, als von den gedörreten, viele Menschen gut nährten. Dadurch wurde Brod, Wein und Bier gar sehr gespart, und nebenher eine Menge Kirschegeist, welcher dem Franzbrandtwein zur Seite steht, und den Kornbrandtwein, den Kartoffelbrandtwein weit an Güte und angenehmen Geschmack übertrifft, daraus bereitet. So sehr der Anbau dieses Waldkirschenbaums, in den meisten dazu geeigneten Landesgegenden begünstigt ist, verlohnte sich dennoch der Mühe, ihn möglichst zu vervielfältigen. So könnten und sollten, vorzüglich in den Mittelgebirgsgegenden längst den Straßen, und Seitenwegen, am Rande der Waldungen, wo sie etwas geschützt sind, und auf den Allmenden, noch mehrere hundert laufend solcher Bäume, angepflanzt werden. Da durch die anhaltenden Kriegszeiten, so mancher Waldkirschenbaum, vorzüglich in den oberen Gegenden des Großherzogtums, vernichtet worden ist, dürfte dieser Vorschlag alle Beherzigung verdienen. Wie sehr wird nebenher eine Landschaft durch diese Bäume verschönert, wie sehr wird dadurch die Bienenzucht, und der Vogelsang, und der Holztertrag in kurzer Zeit befördert. Ausserdem kann das aus den Vogelkirschen- und Sauern-Kirschenbäumen ausschwitzende, verdickte Gummi oder Kirschenharz, wie das theuere Arabische Gummi, in der Heilkunde, benutzt, und zugleich im Mangel, als eine gesunde Nahrung verspeist werden.

#### ***Prunus cerasus* L.**

*Synonyms:* *Cerasus acida* (Ehrh.) Borkh.; *Cerasus austera* (L.) Borkh.; *Cerasus austera* Borkh.; *Cerasus brevipes* Poit. & Turpin; *Cerasus collina* Lej. & Courtois; *Cerasus communis* Poit. & Turpin; *Cerasus conglobata* Poit. & Turpin; *Cerasus fruticosa* Pall.; *Cerasus hortensis* Mill.; *Cerasus longipes* Poit. & Turpin; *Cerasus pendula* Lieg.; *Cerasus peracida* Poit. & Turpin; *Cerasus propera* Poit. & Turpin; *Cerasus recta* Lieg.; *Cerasus vulgaris* Mill.; *Druparia cerasus* [Clairv.]; *Prunus acida* Ehrh.; *Prunus acida* Ehrh.; *Prunus aestivalis* Salisb.; *Prunus austera* Ehrh.; *Prunus cerasa* Crantz; *Prunus cerasus* var. *austera* L.; *Prunus cerasus* var. *caproniana* L.; *Prunus pendula* (Lieg.) K.Koch; *Prunus recta* (Lieg.) K.Koch; *Prunus semperflorens* Ehrh.; *Prunus vulgaris* Schur

**Original name (Gmelin 1817):** *Prunus Cerasus*. Linn. - Gmel. Fl. Bad. II. p. 358. 359.

**German names and French names (Gmelin 1817):** Rothe und schwarze saure Kirschen, Amarellen, Weichseln; Cerasier rouge et noir

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but very rare in the region

**KR 226737** (Fig. 64)

**Botany and Ecology:** Small tree, sometimes producing root suckers; crown broad, sub-globular, branches rather short, rigid, strict, short shoots crowded at ends of numerous long terminal shoots, the latter glabrous, at first pale green, later red-brown; leaves broadly elliptic, rarely elongate-elliptic, acuminate or tapering to a short mucronate, base cuneate, dark or bright green above, shiny, lighter beneath, glabrous from the very beginning or sparingly pubescent when young, to 7(12) cm long, 4-5.5 cm wide, crenate-dentate; teeth with very short cartilaginous cusp, with 2-4 glands near base of lamina; petioles 1-2(3) cm, usually euglandulose, rarely with 1 or 2 glands; stipules linear, with sparse glandular marginal teeth, deciduous. Flowers in few, usually 2-4-flowered umbelliform inflorescences subtended by several small green leaves, bud scales erect at flowering; pedicels two to three times as long as campanulate hypanthium; sepals slightly shorter than

hypanthium, obtuse or acute, usually with glandular marginal teeth, curved upward; petals 10-13 mm long, white; fruit globose or flattened above, pale red with yellowish pulp and colorless juice, sour; stone not separating from pulp, globose, smooth. Flowering April-May, fruiting June-July. Widely cultivated. (Shishkin *et al.* 1941)



Figure 64. *Prunus cerasus* L. - KR 226737

**Contemporary uses:** Diuretic, cold. Albania: diuretic. Romania: diarrhea, diuretic. (Bussmann *et al.* 2020o; 2025D; Ouasti *et al.* 2024a).

**Uses 1817 (Gmelin 1817):** As is well known, we have many varieties of sour or tart cherries. Here, I am referring primarily to those known to us as Amarelles (red cherry) and Ceresier (black cherry). These should be planted and propagated in much greater quantities than before, especially around towns and villages, in the low mountain ranges suitable for them, next to, below, and above vineyards. Ripe, fresh, sour cherries, as well as dried ones, make a pleasant, cooling, and nourishing dish; the juice, when fermented with sugar, produces a popular and delicious wine, as well as an excellent cherry brandy. Other diverse preparations of Amarelles and Ceresier Noir for our kitchens are not to be mentioned. The amarelles are particularly

well-suited to cultivation on sunny, stony, very sloping hills, which are not currently planted with vineyards or forests, of which there are still plenty here and there, above and near the vineyards, especially in the Rhine, Main, and Neckar regions. By cultivating them, the very sloping soil would be excellently protected against heavy downpours and driving rain, and the washing away of the soil would be easily prevented. In this way, the vineyards and grain fields below are reliably protected against the often-detrimental flooding and landslides that have unfortunately been occurring so frequently for some years and are becoming more frequent with each passing year. The fruits are eaten and used for alcohol production (Bussmann *et al.* 2014, 2016a-c, 2017a-c; 2018; Bussmann 2017). (Batsatsashvili *et al.* 2017a,b; Khojimatov & Bussmann 2023; Bussmann *et al.* 2020a,b,c, 2021a,b). Croatia: raw, liqueur (Dolina & Luczaj 2014). Hungary: eaten raw. Eastern Europe: tea; alcohol, pickle, wine, vinega. Czech Republic: eaten raw, compote, alcohol, leaves with pickled cucumbers (Pawera *et al.* 2017). Romania: compote, jam, syrup, brandy, spice in pickle of *Cucumis sativus* (Papp *et al.* 2013). Poland: tree sap sometimes drunk. Balkans: wooden home goods, engravings, casks. Romania: for smoking meat Stryamets *et al.* 2020). Ukraine: in fruit baskets for feast of transfiguration.

**Original German text Gmelin (Gmelin 1817):** Von sauern oder säuerlichen Kirschen haben wir bekanntlich sehr viele Abänderungen. Hier verstehe ich vorzüglich diejenigen, die bei uns unter dem Namen Amarellen Ceresier rouge, und Weichseln Ceresier noir bekannt sind. Diese sollten noch in ungleich größerer Menge als bisher, vorzüglich um Städte und Dörfer, in den dazu geeigneten Mittelgebirgen, neben, unterhalb und oberhalb der Weinberge angepflanzt und vermehrt werden. Die reifen frischen sauern Kirschen sowohl, als die getrockneten, geben eine angenehme, kühlende und nährnde Speiße, der Saft giebt mit Zucker durch die Gährung einen beliebten und wohlschmeckenden Wein, auch einen trefflichen Kirschegeist. Anderer mannigfaltiger Zubereitungen der Amarellen und Weichseln für unsere Küchen nicht zu gedenken. Die Amarellen verdienten vorzüglich an sonnenreichen steinigen sehr abhängigen Hügeln, die zur Zeit nicht mit Weinbergen, oder Waldungen angepflanzt sind, deren sich hie und da noch eine Menge, oberhalb und neben den Weinbergen, vorzüglich in den Rhein-, Main- und Neckargegenden finden, bestens angebaut zu werden. Durch den Anbau derselben, würde das sehr abhängende Erdreich gegen starke Regengüsse, und Schlagregen trefflich geschützt, und das Herabschwemmen desselben, auf die einfachste Art verhindert. Dadurch werden zuverlässig, die unterhalb liegenden Weinberge, und Getreideäcker, gegen die ihnen oft so nachtheiligen Verschüttungen, und Erdschwemmungen, die leider seit geraumen Jahren, so oft statt finden, und sich mit jedem Jahre mehren müßen, gegen Schaden am besten geschützt.

#### ***Prunus domestica* L.**

*Synonyms:* *Druparia prunus* [Clairv.]; *Prunus communis* Huds.; *Prunus domestica* subsp. *domestica*; *Prunus domestica* subsp. *oeconomica* (Borkh.) C.K.Schneid.; *Prunus domestica* var. *domestica*; *Prunus oeconomica* Borkh.

**Original name (Gmelin 1817):** *Prunus domestica*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 361. 362.

**German names and French names (Gmelin 1817):** Zwetschenbaum, Gemeiner Zwetschenbaum; Prunier domestique

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Tree, 6-12 m high, unarmed or with slightly spiny branches; young shoots glabrous or densely hairy or tomentose-pubescent; leaves elliptic or ob-ovate, 4-10 cm long, 2,5-6 cm wide, obtuse or acutely crenate, delicately hairy be-neath. Flowers white or with greenish tinge, 15-25 mm in diameter; sepals pubescent inside; pedicels glabrous or sparsely hairy; fruit unusually heterogeneous in shape (from elongate, oval, ovoid to flattened-globose, usually with conspicuous lateral fur-row) as well as in color (from pale green to green, yellow, red, violet with glaucous bloom; stone free or not, ovoid, rather broad, slightly pitted, always glabrous. Flower-ing April-May, fruiting July-September. Widely cultivated. (Shishkin *et al.* 1941)

**Contemporary uses:** *Balkans:* hepatic disorders, anti-hemorrhoidal, anti-parasitic, constipation. *Hungary:* unspecified medicinal use. *Serbia:* toothache. *Albania:* wounds, sore throat, fever. *Romania:* laxative, carminative; alcohol for lack of appetite, high blood pressure, appendicitis, toothache, diarrhea. *The fruits are used for alcohol, eaten raw, and made into preserves Eastern Europe:* alcohol, pickle, wine, vinegar. *Italy:* eaten as snack. *Albania:* raw. jams, juice dried, raki. *Romania:* compote, jam, syrup, brandy. *Ukraine:* in fruit baskets for feast of transfiguration. *Romania:* for smoking meat (Bussmann *et al.* 2020o; 2025D; Paniagua-Zambrana *et al.* 2025G; Ousati *et al.* 2024).

**Uses 1817 (Gmelin 1817):** The great and diverse benefits of this abundant, healthy stone fruit are well known. What has just been said about wild cherries also applies to the use of plums: raw, dried, and cooked, they provide excellent and healthy

food, and are now frequently used in our region to make the very popular plum spirit (plum water). Since many plum trees, especially in the Rhine region and valley areas so suitable for them, have perished since the war years, their planting and propagation deserves to be particularly encouraged in suitable, somewhat sheltered and moist areas, such as grassy gardens, home gardens, stables, in and around villages and hamlets along the Rhine and in the valleys. The soil and climate here, in Alsace, Württemberg, and Franconia, are entirely suitable for this tree. On the other hand, it doesn't thrive in more southern regions, such as Italy, Spain, southern France, and even around Paris. Louis XIV, with great care, had plum trees transplanted from Alsace to the Paris region and made every effort to establish them there. But all previous efforts have been fruitless for Parisians, who get most of their fresh and dried plums from Alsace. Mixed with apples or pears, they produce a healthy, tasty wine through fermentation. From the kernels, once the skin is removed, one can make a sweet, mild, excellent oil that is similar to almond oil.

**Original German text Gmelin (Gmelin 1817):** Der große und mannichfaltige Nutzen dieses ergiebigen gesunden Steinobstes, ist hinreichend bekannt. Was von der Waldkirsche so eben gesagt wurde, findet auch über die Benutzung der Zwetschen statt: Sie geben roh, getrocknet und gekocht eine treffliche und gesunde Nahrung, und werden bei uns dermalen häufig auf den sehr beliebten Zwetschengeist (Zwetschenwasser) benutzt. Da sehr viele Zwetschenbäume, vorzüglich in den für sie so geeigneten Rheingegenden, und in den Thalgegenden, seit den Kriegsjahren zu Grunde gegangen sind, verdient, deren Anpflanzung und Vermehrung, in den dazu geeigneten etwas geschützten und feuchten Gegenden, in den Grasgärten, Hausgärten, an den Stallungen, in und bei den Dörfern und Flecken, längst dem Rheine hin und in den Thälern vorzüglich begünstigt zu werden. Boden und Clima sind diesem Baume bei uns, im Elsaß, im Württembergischen und in Francken, ganz angemessen. Hingegen kommt er in den südlichen Gegenden, als in Italien, Spanien, im südlichen Frankreich, ja schon um Paris nicht fort. Ludwig der 14te ließ mit vieler Umsicht Zwetschen-Bäume aus dem Elsaß, in die Gegend von Paris verpflanzen, und gab sich alle Mühe, dieselben dort einheimisch zu machen. Aber fruchtlos waren alle bisherigen Bemühungen für den Pariser, der seine frischen und getrockneten Zwetschen größtentheils aus dem Elsaß bekommt. Mit Aepfeln oder Birnen vermischt, geben sie durch die Gährung einen gesunden schmackhaften Wein. Aus den von dem Oberhäutchen befreiten Kernen, kann man ein süßes mildes treffliches Oehl bereiten, das dem Mandelöhle nahe kommt.

#### ***Prunus insititia* L.**

*Synonyms: Prunus insititia* subsp. *cerea* (L.) Schübl. & G.Martens; *Prunus insititia* subsp. *dumetorum* (Jord. & Fourr.) Nyman; *Prunus insititia* subsp. *juliana* (L.) Schübl. & G.Martens; *Prunus insititia* subsp. *turonensis* (Ser.) Schübl. & G.Martens; *Prunus insititia* subvar. *cineracea* (Lamotte) Asch. & Graebn.; *Prunus insititia* subvar. *desvauxii* (Boreau) Asch. & Graebn.; *Prunus insititia* subvar. *dumetorum* (Jord. & Fourr.) Asch. & Graebn.; *Prunus insititia* unr. *aucubifolia* Dippel; *Prunus insititia* var. *alba* Gray; *Prunus insititia* var. *cinerascens* (Lamotte) Nyman; *Prunus insititia* var. *glaberrima* Wirtg.; *Prunus insititia* var. *integerrima* Wirtg. ex Asch. & Graebn.; *Prunus insititia* var. *italica* (Borkh.) Neuman; *Prunus insititia* var. *juliana* (L.) D.Rivera; *Prunus insititia* var. *ovoidea* (G.Martens) P.Fourn.; *Prunus insititia* var. *pomariorum* (Boutigny) Asch. & Graebn.; *Prunus insititia* var. *rubra* Gray; *Prunus insititia* var. *rustica* Hartm.; *Prunus insititia* var. *subsylvestris* (Boutigny) Asch. & Graebn.; *Prunus insititia* var. *subsylvestris* Boutigny; *Prunus insititia* var. *villosa* Schur; *Prunus italica* Borkh.; *Prunus italica* var. *violacea* (Risso) D.Rivera; *Prunus juliana* (L.) Poir.; *Prunus nigra* Rchb.; *Prunus polymorpha* unr. *insititia* (L.) Griess.; *Prunus praecox* (L.) Poir.; *Prunus sativa* prol. *agrestis* (Jord. & Fourr.) Rouy & E.G.Camus; *Prunus sativa* prol. *cinerascens* (Lamotte) Rouy & E.G.Camus; *Prunus sativa* prol. *cinerescens* (Lamotte) Rouy & E.G.Camus; *Prunus sativa* prol. *desvauxii* (Boreau) Rouy & E.G.Camus; *Prunus sativa* prol. *discreta* Rouy & E.G.Camus; *Prunus sativa* prol. *dumetorum* (Jord. & Fourr.) Rouy & E.G.Camus; *Prunus sativa* subsp. *insititia* (L.) Rouy & E.G.Camus; *Prunus spinosa* var. *insititia* (L.) H.Groves & J.Groves

**Original name (Gmelin 1817):** *Prunus insititia*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p. 362. 363.

**German names and French names (Gmelin 1817):** Haferpflaumenbaum, Haberpflaume, Haberschlehen, Blaue kleine Herbstpflaumen; Prunier d'automne

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but very rare in the region

**Botany and Ecology:** With smaller, sour fruits, as well as pubescent shoots and spiny branches. Shishkin *et al.* 1941)

**Contemporary uses:** *The fruits are eaten and used for alcohol production. Hungary: brandy (palinka), preserves, syrup, jam, also dried, sap for chewing gum.* (Bussmann *et al.* 2020o; 2025D; Paniagua-Zambrana *et al.* 2025G).

**Uses 1817 (Gmelin 1817):** From pitted, semi-dried sweet wild cherries, plums, and especially from semi-dried, pitted prunes, which are pressed into a cake mold, one can make very nourishing, tasty, long-lasting cakes. These cakes are, if not preferable to, then at least comparable to the fig cakes made in southern France, Italy, and Spain, which are eaten daily there. Such cakes, which can be stored for years, could save many a loaf of bread and many other things, especially during grain shortages!

**Description and Ecology (Gmelin 1817):** Occurs as a hedge and, most commonly, as a sizeable tree in our area. The branches often have a single thorn. The leaves are alternate, stalked, oval, serrated, slightly curled, smooth above, finely hairy beneath. The flowers are white, stalked, and stalked. The stems are arranged in pairs. The plum is round, blackish-blue, covered with gray dew, and twice as large as the common blackthorn. Grows primarily in the Baden Oberland, in the Breisgau, in the mountain and valley regions, and in gardens in and around villages. It blooms in March and April, and its fruits ripen in October and November. The ripe fruits, as picked from the tree, have a bitter, astringent taste, which disappears after a few days when spread out on straw, where they then taste very juicy, pleasant, and sweet, and make an excellent food raw, cooked, or dried. Fermentation produces a pleasant spirit known here and there as oat-plum water, which is usually preferred to plum brandy, and some even to cherry brandy. The wood is beautifully marbled and is highly sought after by carpenters and turners. This tree generally bears the most fruit of all stone fruit trees and therefore deserves to be planted and propagated in mountain and valley regions where it thrives best, which can be easily achieved through seed and rootstock propagation.

**Original German text Gmelin (Gmelin 1817):** Kommt als Hecke und meistens bei uns als ansehnlicher Baum vor. Die ausgehenden Aeste sind oft mit einem einzelnen Dorne versehen. Die Blätter abwechselnd, gestielt, eyrund, gesägt, etwas zusammengerollt, oberhalb glatt, unterhalb feinhaarig. Die Blüten weiß, ausgehend, gestielt. Die Stiele paarweise stehend. Die Pflaume rund, schwarzblau, mit einem grauen Thau überzogen, noch einmal so groß als die gewöhnlichen Schlehen. Wächst vorzüglich in den Badischen Oberlanden, im Breisgau, in den Gebirgs- und Thalgegenden, in den Gärten in und bei den Dörfern, blühet im März, April, und reifet seine Früchten im October und November. Die reifen Früchte haben, so wie sie vom Baume abgenommen werden, einen herben zusammenziehenden Geschmack, der sich nach wenigen Tagen, wenn sie auf Stroh ausgebreitet werden, verliert, wo sie alsdann sehr saftreich, angenehm und süß schmecken, und eine treffliche Nahrung roh, gekocht, getrocknet geben. Aus ihnen wird durch die Gährung ein angenehmer Geist, der unter dem Nahmen Haberpflaumenwasser, hie und da bekannt ist, bereitet, welcher gewöhnlich dem Zwetschengeiste, ja von einigen sogar dem Kirschegeiste vorgezogen wird. Das Holz ist schön marmorirt, und wird von Schreibern und Drehern sehr gesucht. Dieser Baum trägt der Regel nach, unter allen Steinobstbäumen, die meisten Früchte, verdient daher in solchen Gebirgs- und Thalgegenden, wo er vorzüglich gedeihet, angepflanzt und vermehrt zu werden, welches durch Samen und Wurzelbrut auf die leichteste Art geschehen kann. Aus den ausgesteinten halbgetrockneten süßen Waldkirschen, aus den Zwetschen, und vorzüglich aus den halbgetrockneten ausgesteinten Haberpflaumen, welche in eine Kuchenform gepreßt werden, lassen sich sehr nährende, schmackhafte, haltbare Kuchen bereiten, die den Feigenkuchen, welche man im südlichen Frankreich, in Italien und Spanien bereitet, und die daselbst täglich verspeist werden, wo nicht vorzuziehen, doch wenigstens an die Seite gesetzt werden können. Durch solche Kuchen, die sich Jahre lang aufbewahren lassen, würde vorzüglich bei Getreidemangel, manches Stück Brod, und so manches andere erspart werden können!

***Prunus serotina* Ehrh.**

*Synonyms:* *Cerasus serotina* (Ehrh.) Loisel.; *Cerasus serotina* (Ehrh.) Poit. & Turpin; *Padus serotina* (Ehrh.) Borkh.; *Prunus serotina* f. *typica* Schwer.

**Original name (Gmelin 1817):** *Prunus serotina*. Ehrh. Beitr 3. p. 20. - Wildenow. arb. 239. tab 5. fig. 2. - Gmel. Flor. Bad. II. p. 351. - 354.

**German names and French names (Gmelin 1817):** Späthblühende Traubenkirsche, Nordamerikanische schwarze Traubenkirsche; Prunier en grappe de Virginie

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 44428** (Fig. 65); **44430** (Fig. 66)



Figure 65. *Prunus serotina* Ehrh. - KR 44428

**Botany and Ecology:** Shrubs or trees, not suckering, 4-40 m, not thorny. Twigs with terminal end buds, glabrous or hairy. Leaves deciduous; petiole 2-23(-30) mm, glabrous or sparsely to densely hairy, usually glandular distally or at petiole-blade junction, glands 1-6; blade usually narrowly elliptic, oblong-elliptic, or obovate, sometimes lanceolate, rarely ovate, 2-13.5 × 1.1-6.5 cm, base cuneate to rounded, margins crenulate-serrulate to serrate, teeth ?incurved or appressed?, sharp or blunt, glandular or callus-tipped, apex usually acute to acuminate, sometimes obtuse, rounded to emarginate in var. *alabamensis*, ?lateral veins 15-30 per side, flush abaxially?, abaxial surface usually densely hairy along midribs proximally, sometimes glabrous or sparsely hairy, adaxial glabrous. Inflorescences 18-55(-90)-flowered, racemes; central axes (25-)35-160 mm, leafy at bases. Pedicels 1-10 mm, glabrous or hairy. Flowers blooming after leaf emergence; hypanthium cupulate, 1.5-3 mm, glabrous externally; sepals erect-spreading to reflexed, semicircular, 0.5-1.5 mm, margins usually entire, rarely glandular-toothed, ?rarely ciliate?, surfaces glabrous; petals white, obovate to suborbiculate, 2-4 mm; ovaries glabrous. Drupes dark purple to nearly black, globose, 5-10(-25) mm, glabrous; hypanthium persistent; mesocarps fleshy; stones subglobose, not flattened. (Shishkin *et al.* 1941)



Figure 66. *Prunus serotina* Ehrh. - KR 44430

**Contemporary uses:** Fruits eaten.

**Uses 1817 (Gmelin 1817):** The ripe cherries produce a very strong, pleasant, and abundant cherry liquor. The tree grows very quickly, produces a hard, beautiful, reddish-brown wood sought after by carpenters and turners, and the blossoms provide bees with plenty of honey. This useful and beautiful tree deserves to be planted and propagated, especially in and near forests. In the low mountain regions, especially where roads and side paths run through forests or on their edges, these should be lined and beautified with these trees on both sides.

**Description and Ecology (Gmelin 1817):** A beautiful 30- to 40-foot-tall tree native to Virginia. The leaves are alternate, stalked, obovate-lanceolate, with simply serrated edges, smooth, glossy, dark green above, pale green beneath, with fine white hairs at the base of the midrib. The flowers are borne in racemes and terminate the branches. The calyx is single-leaved, five-lobed, and deciduous. The corolla is five-petaled and white. The unripe cherries are red; the ripe ones are black, juicy, glossy, round, and the size of a large pea. This beautiful and useful tree has been introduced for many years to the

Grand Ducal pleasure gardens, the Pheasant Garden, the environs of Carlsruhe, Gottsau, Scheibenhardt, on the Favorite, around Baden, and elsewhere. It blooms in May and June, and its cherries ripen in August and September.

**Original German text Gmelin (Gmelin 1817):** Ein schöner 30 - 40 Fuß hoher aus Virginien kommender Baum. Die Blätter abwechselnd, gestielt, verkehrt eiförmig-lanzettförmig, am Rande einfach gesägt, glatt, glänzend, oberhalb dunkelgrün, unterhalb blaßgrün, an der Mittelrippe am Grunde fein weißhaarig. Die Blüten stehen in Trauben und endigen die Aeste. Der Blütenkelch einblättrig, fünftheilig, abfallend. Die Blumenkrone fünfblättrig, weiß. Die unreifen Kirschen roth, die reifen schwarz, saftreich, glänzend, rund, von der Größe, einer großen Erbse. Dieser schöne und nutzbare Baum, ist schon seit vielen Jahren in den Großherzoglichen Lustgärten, im Fasanengarten, in den Umgebungen von Carlsruhe, Gottsau, Scheibenhardt, auf der Favorite, um Baden u. a. a. O. eingeführt. Blühet im May, Juni, und reifet seine Kirschen im August und September. Die reifen Kirschen geben einen sehr starken, angenehmen und reichlichen Kirschen-Geist. Der Baum wächst sehr schnell, giebt ein hartes schönes, rothbraunes, von Schreibern und Drehern gesuchtes Holz, und die Blüten den Bienen viel Honig. Dieser nützliche und schöne Baum, verdient vorzüglich in und neben den Waldungen, angepflanzt und vermehrt zu werden. In den Mittel-Gebirgsgegenden, vorzüglich da, wo die Straßen und Seitenwege durch Waldungen, oder am Rande derselben angelegt sind, sollten dieselben mit diesen Bäumen zu beiden Seiten besetzt und verschönert werden.

### *Prunus spinosa* L.

*Synonyms:* *Druparia spinosa* [Clairv.]; *Prunus acacia* Crantz; *Prunus acacia* Crantz ex Poir.; *Prunus acacia-germanica* Crantz; *Prunus domestica* var. *spinosa* (L.) Kuntze; *Prunus ericiflora* A.Sav.; *Prunus glomerata* A.Sav.

**Original name (Gmelin 1817):** *Prunus spinosa*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p. 363. - 365.

**German names and French names (Gmelin 1817):** Gemeiner Schlehdorn, Schlehdorn, Schwarzdorn, Schlehen; Prunier sauvage, Prunier epineux

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 44443** (Fig. 67); **98144** (Fig. 68)

**Botany and Ecology:** Distinctly branching very spiny shrub, rarely small tree, to 4-8 m high; young shoots short-pubescent, rarely glabrous, small; leaves elliptic, obovate, rarely oblong-obovate, (l)2-4(5) cm long, obtuse, cuneate at base, acute or crenate-serrate, when young, short, coarse-hairy, later partly glabrescent. Flowers blossoming before leaves, solitary, very rarely 2, small (l)l.4- 1.8cm in diameter, white or with greenish tinge; sepals not curved, with ciliate-margin; pedicels (3)5-6(15)mm long, strict, glabrous or sparingly pubescent, sometimes densely pubescent, gray; fruit black; with glaucous bloom, globose, ovoid, globose-conoid, fruit pulp green, sweet-sour, very bitter; drupe cylindrical-rugose, ovoid or oval-ovoid. March-May to July-August. Mostly in the forest-steppe zone, glades, forest edges, ravines, river valleys; rarely inside forest; 500- 1,200 m, in meadows in northern part of distribution area. In shrubs and fringe. Often forms small thickets. Up to middle mountain belt, on an elevation up to 1200 m. (Shishkin *et al.* 1941).

**Contemporary uses:** *Georgia:* Flowers, fruits, bark and roots are known in traditional medicine as a cure for nausea, toothache. *Balkans:* general strengthening, rheumatism, fever, constipation, diabetes, hepatic disorders, digestion, orexigenic, headache, hypertension. *Romania:* astringent, diuretic, sedative, digestive and urinary disorders, depurative, antiseptic, anti-inflammatory, analgesic, diuretic, diarrhea, dysentery, biliary dyskinesia, gut, convulsive cough, urinary system, cardiovascular disorders, diuretic, analgesic, dental disorders. *Georgia:* The leaves are sometimes used instead of tea. Compotes and jams are made from the fruit. Freshly picked fruits are rarely used for eating, they are enjoyed after the first frosts. The fruits are used for alcohol production. Leaves and shoots can be used for chive. *Hungary / Slovakia* eaten raw after frost, brandy (palinka). *Poland:* wine, juice, compotes, jams, raw. *Ukraine:* raw. *Eastern Europe:* alcohol, pickle, wine, vinegar. *Czech Republic:* eating raw after frosts, children's snack, used in fruit soups. *Albania:* snack after first frost. *Czech Republic:* alcohol. Brown-reddish wood is used in carving. It is a honey plant, planting as a green fence. *Bulgaria:* ritual use in weather forecasting, for brooms. (Batsatsashvili *et al.* 2025i; Bussmann *et al.* 2025D; Paniagua-Zambrana *et al.* 2025G).

**Uses 1817 (Gmelin 1817):** The very sour and astringent sloe fruits, when properly ripened in late autumn during warm days and several night frosts, become mildly juicy and tasty. They are preserved with sugar and vinegar, or boiled with dried plums, to which they impart a pleasant flavor. They are particularly recommended in our region for the preparation of a long-lasting and tasty cider. For this purpose, they are used fresh or dried and added before or after fermentation, which gives it a popular red color and a very pleasant flavor. The English make their rumpunk from them, a very popular and

pleasant drink, which they prepare from sloe juice with apple cider, arack, rum, or Franzbrandtwein. Sloes are especially useful in cider, and are also used in our kitchens, where they are stoned and dried, mixed with sweet fruit such as apples, pears, plums, and cherries in small portions, and boiled with them, to significantly improve the overly sweet flavor. They can also be used to make excellent vinegar.



Figure 67. *Prunus spinosa* L. - KR 44443

**Description and Ecology (Gmelin 1817):** A shrub, rarely a small tree. The branches are alternate, ending in a thorn at the tip. The leaves are alternate, stalked, elliptic-lanceolate, serrate, and finely hairy beneath. The flowers are white, stalked. The stalks are scattered and single-flowered. The stamens are 18, 20, and 24. The drupes are round, blackish-blue, the size of a small cherry. Grows here and there very frequently on roadside fences, in thickets, and on the eaves of forests, both in lowland areas and in valley and mountainous regions. It blooms before the leaves appear, in March and April, and its fruits ripen in late autumn.



Figure 68. *Prunus spinosa* L. - KR 98144

**Original German text Gmelin (Gmelin 1817):** Ein Strauch, seltener ein kleiner Baum. Die Aeste abwechselnd, an der Spitze mit einem Dorne endigend. Die Blätter abwechselnd, gestielt, eyrund-lanzettförmig, gesägt, unterhalb feinhaarig. Die Blüten weiß, gestielt. Die Stiele zerstreut, einblüthig. Staubfäden 18 - 20 - 24. Die Steinfrüchte rundlich, schwarzblau, von der Größe einer kleinen Kirsche. Wächst hie und da sehr häufig an den Zäunen der Wege, im Gebüsche, und an dem Traufe der Waldungen, sowohl in niedern verflächten, als in den Thal- und Gebirgsgegenden, blühet ehe die Blätter zum Vorschein kommen, im März und April, und reifet seine Früchten im späten Herbste. Die sehr sauern und zusammenziehenden Schlehenfrüchten, werden, wenn sie im späten Herbste bei warmen Tagen und mehreren Nachtfrösten gehörig reifen, milde saftig und schmackhaft. Sie werden mit Zucker und Essig eingemacht, oder mit gedörrten Zwetschen abgekocht, welchen sie einen angenehmen Geschmack mittheilen. Sie sind bei Bereitung eines haltbaren und schmackhaften Apfelweins, ganz vorzüglich in unsern Gegenden zu empfehlen. In dieser Absicht, bedient man sich ihrer, frisch oder gedörrt, und setzt sie demselben, vor oder nach der Gährung zu, wodurch er nebst einer beliebten rothen Farbe, einen sehr angenehmen Geschmack erhält. Die Engländer machen ihren Rumpunk daraus, ein sehr beliebtes und angenehmes Getränke, das sie aus

dem Schlehensaft mit Aepfelmoste, Arack, Rum, oder Franzbrandtwein bereiten. Die Schlehen sollte man vorzüglich beym Apfelwein bestens benutzen, desgleichen in unsern Küchen, wo sie ausgesteint und gedörret, mit süßem Obste, als Aepfeln, Birnen, Zwetschen und Kirschen in kleiner Gabe beygemengt und damit abgekocht, den zu süßen Geschmack wesentlich verbessern. Aus ihnen kann auch ein vorzüglich guter Essig bereitet werden.

***Pulmonaria officinalis* L.**

*Synonyms: Pulmonaria tridentina* Evers

**Original name (Gmelin 1817):** *Pulmonaria officinalis*. Linn. Sp. pl. - Gmel. Fl. Bad. I. p. 423. 424.

**German names and French names (Gmelin 1817):** Lungenkraut, Geflecktes Lungenkraut, Hirschkohlr; Herbe de coeur, Herbe aux poumons

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but very rare in the region

**KR 8646**

**Botany and Ecology:** Annual; rhizome rather thin, 4-5 mm thick, long, curved, obliquely creeping, with cordlike, long, adventitious roots, with scarious scales, dark brown; bundles (rosettes) of radical leaves with 3-5 leaves, their mature leaves with cordate-ovate blades and petioles longer than blade, the blade ca. 5-10 cm long, thin- acuminate, dark green above with white diffuse spots at margin or dark green sparsely covered with long coarse appressed bristles, pale beneath, with same bristles; stems 15-25 cm. high, rather weak, remotely spreading-bristly above, with additional small bristles and sparsely glandular-downy; covered at base with large brown scales; cauline leaves oblong, half as long, the lower two tapering to petiole at base, the upper two sessile, acute, pubescent as in radical leaves. Cymes paired, at apex of stem, nearly leafless, few-flowered, loose; pedicels erect or declinate, short, only the lowermost up to 10 mm long, short-bristly, finely but sparsely glandular-downy; calyx in fruit 10-15 mm long, narrowly campanulate, green or with blue tinge, teeth triangular-lanceolate, 2-3 mm long, acute; corolla blue-violet, tube slightly shorter than calyx, the limb campanulate, 7-10 mm across, longer than tube, tube glabrous inside under bundles of hairs at throat; nutlets 3.5-4mm high, with 2 acute narrow keels (ventral and dorsal), black, more or less downy. April. Oak and beech forests. (Yuzepchuk & Shishkin 1953).

**Contemporary uses:** *Balkans: antitussive, bronchitis. Romania: anti-inflammatory; respiratory and urinary disorders (cystitis); scrophulosis; chilblains, dandruff, breast fissure, tinea, emollient, anti-inflammatory, vulnerary, hemostatic, analgesic, anti-infective, diaphoretic. Hungary / Slovakia: flowers sucked as children's snack. Belarus / Eastern Europe: snack, nectar sucked. Slovenia: in omelets, as flavor for alcohol. Poland: as boiled vegetable. Italy: tea. Poland: ornamental.* (Paniagua-Zambrana et al. 2025H).

**Uses 1817 (Gmelin 1817):** The young, tender leaves, gathered in spring, provide a nourishing, tasty, and healthy food. It is grown primarily in gardens in England and Lower Germany and used as a vegetable.

**Description and Ecology (Gmelin 1817):** From the branchy root, several simple, seven- to ten-inch-long, upright, angular, rough-to-the-touch stems emerge. The root leaves are long-stalked, ovate, heart-shaped, entire at the margins and broader than those on the stem. The stem leaves are stalkless, ovate-lanceolate, half-encompassing the stem and entire at the margins. The flowers end the stem, stand upright, and are initially a beautiful purple-red, then blue. This plant grows abundantly here and there in moist forests, woodlands, and thickets, blooming in March, April, and May, and its seeds ripen in June and July. It is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Aus der ästigen Wurzel kommen mehrere, sieben bis zehn Zoll lange, aufrechtstehende, eckige, rauh anzufühlende, einfache Stengel. Die Wurzelblätter sind lang gestielt, eyrund, herzförmig, am Rande ganz und breiter als die am Stengel. Die Stengelblätter stiellos, eyrund-lanzettförmig, den Stengel zur Hälfte umfassend, am Rande ganz. Die Blüthen endigen den Stengel, stehen aufrecht, sind anfänglich schön purpurroth, dann blau. Diese Pflanze wächst hie und da in Menge, in feuchten Waldungen, Waldschlägen, und Gebüschchen, blühet im März, April, May, und reifet ihre Samen im Juni und Juli. Sie gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter, im Frühjahr gesammelt, geben eine nährende, schmackhafte und gesunde Speiße. Sie wird vorzüglich in England und in Niederdeutschland in Gärten angepflanzt, und als Gemüß benutzt.

***Pyrus communis* L.**

*Synonyms:* *Pyrus ambrosiaca* Poit. & Turpin; *Pyrus balansae* Decne.; *Pyrus communis* var. *pyraster* L.; *Pyrus communis* var. *sativa* DC.; *Pyrus communis* var. *sylvestris* DC.; *Pyrus pyraster* subsp. *achras* (Wallr.) Terpó; *Pyrus pyraster* var. *rossica* (A.D.Danilov) Tuz; *Pyrus rossica* A.D.Danilov; *Pyrus salviati* Poit. & Turpin; *Pyrus sativa* DC.; *Pyrus* × *amphigenea* Domin ex Dostálek

**Original name (Gmelin 1817):** *Pyrus communis*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 384. - 386. *Pyrus* *Pyraster* s. *sylvestris*. Joh. Bauhin. hist. plant. I. p. 57.

**German names and French names (Gmelin 1817):** Wilder Birnbaum, Holzbirnbaum; Poirier sauvage, Poirier des bois

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Tree to 20-30 m high, sometimes a shrub; branches with or without spines; buds and shoots glabrous, less often pubescent; petioles about as long as the leaf blade, 2-5-7 cm long, initially more or less pubescent, later glabrous; leaves 2-5-7 cm long, 1.5-2.5 cm broad, suborbicular or oval, rounded or obscurely cuneate at base, short-tapering, acuminate apex, entire or serrulate or crenate on whole or part of margin, initially white-arachnoid-pubescent, especially below, later quite glabrous or subglabrous, with a stronger pubescence, masking the teeth only along the veins and the leaf margin, lustrous green, lighter below, drying black; pedicels 3.5 cm long, pubescent or glabrous; flowers 2.5-3 cm in diameter; sepals triangular-lanceolate, densely pubescent like the ovary, erect; petals short-clawed, ca. 1.5 cm long, 1 cm broad; fruits pyriform or subglobose, very variable in size and shape, to 3-4 cm long, 1.5-2 cm broad, green, sometimes reddening, less often yellow. Flowering April-May. Ural, Caucasus, in forests, mostly on clearings. Widely cultivated. (Yuzepchuk 1939).

**Contemporary uses:** *Azerbaijan: In Traditional medicine of medieval Azerbaijan, a decoction of the flowers was used as a tonic for the heart, a depressing mood, a hemostatic and antidiarrheal agent. With inflammatory tumors of the eyes, a bandage with frayed flowers was applied. The leaves were applied to wounds as a wound healing agent. The resin of the tree was used as a strong abscess. Sweet pear fruits - as a thirst-quenching, digestion-improving agent, as well as for constipation, heart rhythm disturbances and inflammation of the bladder. The leaves are used as tea and coffee replacement. The fruits are eaten and used for alcohol production. The fruits are used fresh and processed (as sauces, jam, pastes, juices), dried, and also to produce fruit wine and vodka. Crushed fruits are added to flour for bread. The fruits contain sugars, citric acid, malic acid, carotene, vitamin C, pectins, and tan-nins. Fruits are used raw, boiled and for bakery. Jam and wine is made of fruits. The fruit was used to make winter preserves. The fruits are also used to make alcohol, syrup, and can be included in phkhali (a vegetable spread with walnuts). Azerbaijan: The fruits are used both fresh and dried (preparing compote). Many varieties planted throughout the Caucasus. Azerbaijan: Distaffs, spindles, spoons, as well as musical instruments tar and balaban are made from wood. Honey plant. A dyeing solution is made from the leaves and bark to obtain a yellow and beige color. The solution is used for dyeing woolen yarn, as well as products from it. The wood is used for carpentry. The bark yields brownish dyes for wool and silk. Fodder (shoots, leaves, fruits) for cattle and pigs. Pear has flexible and lustrous wood that is usually used for preparing precious goods. Musical instruments are made of this wood, which includes zurna (band), kamancha and saz (bow and strings). Wooden spoons, tubs and other household objects are made from pear. Considered to be moderate nectariferous plant, producing much nectar. A dye solution is prepared from bark and leaves to obtain yellow and beige colors. The solution is used for dyeing wool yarn as well as products made of wool. The wood serves for construction, and to make tough household utensils, e.g. mortars, and sometimes used as firewood. The wood is heavy, burns well, and its charcoal keeps the heat for a long time. Pear wood is used for joinery and turning work. Romania: unspecified medicinal use; digestive problems, diarrhea, vomiting. Serbia: mouth blisters and ulcers. Balkans: cardiotoxic, hepatic disorders, intestinal infections, antiparasitic. Ukraine: joint pain. Eastern Europe: added to the fermentation of tree saps. Bulgaria: pickled in vinegar or brine. Ukraine: fruit basket filling for feast of transfiguration. Balkans: weather forecasting wooden home goods, casks. (Bussmann et al. 2025E; Paniagua-Zambrana et al. 2025I).*

**Uses 1817 (Gmelin 1817):** Experience shows that these trees, even in years unfavorable for fruit production, bear abundant fruit. Although these fruits are hard, bitter, and astringent when picked from the tree, they soften within a few days and taste sour or sweet and pleasant. They are especially suitable for vinegar and brandy in years with poor fruit and wine production. A mild, fragrant oil is produced from the kernels of wild pears that remain after vinegar production, a use which is currently unknown to farmers in our region. Wood pears provide excellent and pleasant fattening for game, cattle, and pigs, and deserve our attention in this respect alone. The wood of old wood pear trunks is far preferable to that of all other pear species, takes an excellent stain, and is therefore highly sought after by carpenters and turners. Because of its many magnificent white blossoms and the pleasant green of its leaves, it is among the most outstanding ornaments of pleasure

grounds, gardens, paths, forest meadows, fields, and woodlands. Just 20 years ago, there were many old wood pear trees in our area, especially around villages, in fields, meadows, common lands, in woodlands, and on their edges. Among them, many were more or less hollow inside, providing shelter and proliferation for chimes, sparrows, redstarts, and other songbirds, so beneficial to fruit crops, which feed largely on harmful fruit and garden caterpillars and other insects. These trees were largely felled during this time, causing significant damage to meadows, fields, gardens, and fruit crops. Now, where do the farmer's frequent complaints come from that, despite all his efforts, he cannot obtain any fruit from his many cultivated and grafted fruit trees due to the caterpillar damage that becomes more and more prevalent every year? The quiet observer will probably be able to answer this question easily. This beautiful, well-known, and beneficial tree, the ancestor of so many pear trees ennobled by cultivation, grows in the Rhine, Main, Neckar, and other regions, especially on the edges of forests, in meadows, along roads, and in fields. It blooms in April and May, and ripens its fruit in late autumn.

**Original German text Gmelin (Gmelin 1817):** Dieser schöne, bekannte und wohlthätige Baum, der Stammvater der so vielen durch die Cultur veredelten Birnbäume, wächst in den Rhein-, Main-, Neckar- und andern Gegenden, vorzüglich am Rande der Waldungen, auf Wiesen, an Wegen und auf den Feldern, blühet im April, May, und reifet seine Früchten im Spätherbste. Die Erfahrung zeigt, daß diese Bäume, auch sogar in den für den Obstertrag ungünstigen Jahren, eine Menge Früchte tragen, welche zwar hart, herbe, und zusammenziehend sind, wie sie vom Baume abgenommen werden, dagegen aber in wenigen Tagen weich werden, und weinsäuerlich, oder süß und angenehm schmecken. Sie müssen vorzüglich bei Obst- und Weinfehljahren bestens auf Essig und Brandtwein benutzt werden. Aus den Kernen der wilden Birnen, die bey dem Essigbereiten übrig bleiben, wird ein mildes wohlschmeckendes Oehl bereitet, welche Benutzung in unsern Gegenden dem Landmanne zur Zeit noch nicht bekannt ist. Die Holzbirne geben dem Wilde, dem Rindvieh und den Schweinen eine treffliche und angenehme Mastung, und verdienen schon in dieser Hinsicht unsere Aufmerksamkeit. Das Holz von alten Holzbirnstämmen ist dem, aller übrigen Birnenarten weit vorzuziehen, nimmt eine treffliche Beitze an, und ist daher von Schreibern und Drehern vorzüglich gesucht. Er gehört wegen seinen vielen prachtvollen weissen Blüten, und dem angenehmen grün der Blätter, unter die vorzüglichsten Zierden der Lustanlagen, Gärten, Wege, Waldwiesen, Felder und Waldungen. Noch vor 20 Jahren, fanden sich eine Menge alter Holzbirnbäume, in unsern Gegenden, vorzüglich um Dörfer, auf Feldern, Wiesen, Allmenden, in Waldungen, und am Rande derselben. Unter ihnen waren viele, inwendig, mehr oder weniger hohl, worein vorzüglich die der Obst-Cultur so wohlthätigen Meißeln, Sperlinge, Rothschwänzchen und andere Singvögel, die sich größtentheils von schädlichen Obst- und Garten-Raupen und andern Insekten nähren, ihren Schutz fanden und sich vermehrten. Diese Bäume wurden größtentheils, während dieser Zeit umgehauen, wodurch der Wiesen-, Feld-, Garten- und Obst-Cultur ein auffalender Schade, zugefügt wurde. Nun woher die häufigen Klagen des Landmanns, daß er trotz aller Mühe, wegen des alle Jahre mehr überhandnehmenden Raupenfraßes, keinen Obstertrag von seinen vielen angebauten und veredelten Obstbäumen erhalten könne! Diese Frage wird der stille Beobachter wohl leicht beantworten können.

#### ***Quercus robur* L.**

*Synonyms: Quercus accessiva* Gand.; *Quercus accomodata* Gand.; *Quercus acutiloba* Borbás; *Quercus afghanistanensis* hort. ex K.Koch; *Quercus alligata* Gand.; *Quercus amoenifolia* Gand.; *Quercus appenina* var. *cylindracea* (Guss. ex Parl.) Nyman; *Quercus appenina* var. *rumelica* (Griseb. & Schenk) Nyman; *Quercus apula* Gand.; *Quercus arenaria* Borbás; *Quercus argentea* Morogues; *Quercus assimilis* Gand.; *Quercus asturica* Gand.; *Quercus atosanguinea* hort.; *Quercus aurea* hort. ex K.Koch; *Quercus australis* A.Kern.; *Quercus banatica* Gand.; *Quercus batavica* Gand.; *Quercus bavaria* Gand.; *Quercus belgica* Gand.; *Quercus borealis* var. *pilosa* (Schur) Simonk.; *Quercus brutia* subsp. *haas* (Kotschy) O.Schwarz; *Quercus castanoides* Vuk.; *Quercus commiserata* Gand.; *Quercus concordia* hort. ex K.Koch; *Quercus croatica* Gand.; *Quercus cunisecta* Borbás; *Quercus cupressoides* hort.; *Quercus cupulatus* Gilib.; *Quercus danubialis* Gand.; *Quercus discredens* Gand.; *Quercus emarginulata* Gand.; *Quercus esthonica* Gand.; *Quercus ettingeri* Vuk.; *Quercus femina* Mill.; *Quercus filicifolia* hort. ex A.DC.; *Quercus foemida* Mill.; *Quercus frutetorum* Gand.; *Quercus germanica* f. *puberula* Lasch; *Quercus germanica* var. *longipedunculata* Lasch; *Quercus germanica* var. *macrobalana* Lasch; *Quercus germanica* var. *pinnatifida* Lasch; *Quercus grecescui* Gand.; *Quercus haerens* Gand.; *Quercus hentzei* Petz.; *Quercus hispanica* Willk.; *Quercus hodginsii* Lodd.; *Quercus hohenackeri* Gand.; *Quercus immodica* Gand.; *Quercus implicata* Gand.; *Quercus kunzei* Gand.; *Quercus laciniata* Lodd.; *Quercus lanuginosa* Beck; *Quercus lentula* Gand.; *Quercus longaevea* Salisb.; *Quercus longipedunculata* Cariot & St.-Lag.; *Quercus louettii* Dippel; *Quercus lucorum* Vuk.; *Quercus ludens* Gand.; *Quercus lugdunensis* Gand.; *Quercus macroloba* Gand.; *Quercus madritensis* Gand.; *Quercus malacophylla* var. *asterotricha* Borbás; *Quercus microcarpa* Morogues; *Quercus montivaga* Gand.; *Quercus natalis* Gand.; *Quercus nescensis* Gand.; *Quercus ochracea* Morogues; *Quercus oelandica* Gand.; *Quercus pectinata* hort. ex K.Koch; *Quercus pedunculata* Hoffm.; *Quercus pedunculata* f. *ettingeri* (Vuk.) Vuk.; *Quercus pedunculata* f. *extensa* Schur; *Quercus pedunculata* f. *patellulata* Vuk.; *Quercus pedunculata* f. *tardissima* Simonk.; *Quercus pedunculata*

subsp. *pilosa* (Schur) Nyman; *Quercus pedunculata* var. *acutifolia* Bechst.; *Quercus pedunculata* var. *australis* Heuff.; *Quercus pedunculata* var. *borealis* Heuff.; *Quercus pedunculata* var. *brachybalanus* Schur; *Quercus pedunculata* var. *brevipes* (Simonk.) Heuff.; *Quercus pedunculata* var. *coriacea* Bechst.; *Quercus pedunculata* var. *crassiuscula* Borbás; *Quercus pedunculata* var. *cuneifolia* Vuk.; *Quercus pedunculata* var. *cylindrocarpa* Borbás; *Quercus pedunculata* var. *dauvesseipendula* de Vos; *Quercus pedunculata* var. *fastigiata* (Lam.) Loudon; *Quercus pedunculata* var. *glaberrima* Schur; *Quercus pedunculata* var. *globulata* Schur; *Quercus pedunculata* var. *haas* (Kotschy) Boiss.; *Quercus pedunculata* var. *leptobalanus* Bolle; *Quercus pedunculata* var. *macrobalanus* Schur; *Quercus pedunculata* var. *malacophylla* Schur; *Quercus pedunculata* var. *megabalana* Schur; *Quercus pedunculata* var. *microbalanus* Heuff.; *Quercus pedunculata* var. *opaca* Schur; *Quercus pedunculata* var. *pachycarpa* Debeaux; *Quercus pedunculata* var. *pendula-heterophylla* Lavallée; *Quercus pedunculata* var. *pendula-libani* H.Jaeger; *Quercus pedunculata* var. *pilosa* Schur; *Quercus pedunculata* var. *pseudopedunculata* (Vuk.) Nyman; *Quercus pedunculata* var. *pseudosessilis* Schur; *Quercus pedunculata* var. *salicifolia-pendula* G.Kirchn.; *Quercus pedunculata* var. *sphaerobalanus* Schur; *Quercus pedunculata* var. *stenocarpa* Vuk.; *Quercus pedunculata* var. *subglobosa* Schur; *Quercus pedunculata* var. *tricuspidata* Janka; *Quercus pedunculata* var. *tubulosa* Schur; *Quercus pendulina* var. *filipendula* (Schloss. & Vuk.) Nyman; *Quercus petropolitana* Gand.; *Quercus pilosa* (Schur) Simonk.; *Quercus pilosula* Gand.; *Quercus plebeia* Gand.; *Quercus pluriceps* Gand.; *Quercus pseudopeduncula* Vuk.; *Quercus pyrenaica* Steven; *Quercus quaerens* Gand.; *Quercus robur* f. *macrobalanus* (Schur) F.M.Vázquez; *Quercus robur* f. *microbalanus* (Heuff.) F.M.Vázquez; *Quercus robur* f. *slavonica* Gáyer; *Quercus robur* subsp. *estremadurensis* A.Camus; *Quercus robur* subsp. *fastigiata* (Lam.) A.Camus; *Quercus robur* subsp. *pedunculata* (Hoffm.) A.DC.; *Quercus robur* subsp. *pilosa* (Schur) Gajic & Erdesi; *Quercus robur* var. *acutifolia* (Bechst.) Asch. & Graebn.; *Quercus robur* var. *acutiloba* Lasch; *Quercus robur* var. *angustifolia* Lasch; *Quercus robur* var. *australis* (Heuff.) Simonk.; *Quercus robur* var. *brachybalana* (Schur) Gürke; *Quercus robur* var. *brevipedunculata* Asch. & Graebn.; *Quercus robur* var. *brevipes* Simonk.; *Quercus robur* var. *brevipetiolata* Medw.; *Quercus robur* var. *brevisecta* Borbás; *Quercus robur* var. *chartacea* Schur ex A.Camus; *Quercus robur* var. *coriacea* (Bechst.) Asch. & Graebn.; *Quercus robur* var. *cuneifolia* Vuk.; *Quercus robur* var. *duplicatosinuata* Beck; *Quercus robur* var. *ettingeri* (Vuk.) Asch. & Graebn.; *Quercus robur* var. *extensa* (Schur) Asch. & Graebn.; *Quercus robur* var. *farinosa* (Vuk.) Gürke; *Quercus robur* var. *fastigiata* (Lam.) Spach; *Quercus robur* var. *glaberrima* (Schur) Gürke; *Quercus robur* var. *globulata* (Schur) Gürke; *Quercus robur* var. *haas* (Kotschy) A.DC.; *Quercus robur* var. *inaequiloba* Asch. & Graebn.; *Quercus robur* var. *jankae* A.Camus; *Quercus robur* var. *laciniata* (Lodd.) A.DC.; *Quercus robur* var. *latiloba* Lasch; *Quercus robur* var. *leptocarpa* Vuk.; *Quercus robur* var. *longiloba* Lasch ex A.Camus; *Quercus robur* var. *macrobalanus* (Schur) Asch. & Graebn.; *Quercus robur* var. *malacophylla* (Schur) Gürke; *Quercus robur* var. *microbalanus* (Heuff.) Schur; *Quercus robur* var. *olsonii* A.Camus; *Quercus robur* var. *opaca* (Schur) Gürke; *Quercus robur* var. *pachycarpa* (Debeaux) A.Camus; *Quercus robur* var. *paleacea* (Desf.) A.Camus; *Quercus robur* var. *pauciloba* Lasch; *Quercus robur* var. *pedunculata* (Hoffm.) Hook.f.; *Quercus robur* var. *pendula* Neill; *Quercus robur* var. *pilifera* Zapal.; *Quercus robur* var. *platylepis* Asch. & Graebn.; *Quercus robur* var. *puberula* (Lasch) Bec; *Quercus robur* var. *repanda* Lasch; *Quercus robur* var. *robusta* Lasch; *Quercus robur* var. *sphaerobalana* Schur; *Quercus robur* var. *stenocarpa* Beck; *Quercus robur* var. *subglobosa* Schur; *Quercus robur* var. *tenuifolia* Asch. & Graebn.; *Quercus robur* var. *tricuspidata* (Janka) Gürke; *Quercus robur* var. *tubulosa* (Schur) Gürke; *Quercus robur* var. *xylolepis* Vuk.; *Quercus rossica* Gand.; *Quercus rostanii* Gand.; *Quercus salicifolia* hort. ex Steud.; *Quercus scandica* Gand.; *Quercus schlosseriana* Gand.; *Quercus scotica* Gand.; *Quercus scythica* Gand.; *Quercus semipinnata* Gand.; *Quercus sessiliflora* var. *condensata* (Schur) Nyman; *Quercus sessiliflora* var. *microcarpa* (Lapeyr.) Nyman; *Quercus sessiliflora* var. *pedemontana* (Colla) Nyman; *Quercus similata* Gand.; *Quercus stilbophylla* Gand.; *Quercus tanaicensis* Gand.; *Quercus tephrochlamys* Gand.; *Quercus tholeyroniana* Gand.; *Quercus tomentosa* Ehrh. ex A.DC.; *Quercus transiens* A.Reyn.; *Quercus tristis* Gand.; *Quercus urbica* Gand.; *Quercus vallicola* Gand.; *Quercus verecunda* Gand.; *Quercus versatilis* Gand.; *Quercus vialis* Gand.; *Quercus volhynica* Gand.; *Quercus vulgaris* Bubani; *Quercus wolgensis* Gand.

**Original name (Gmelin 1817):** *Quercus Robur*. Linn. Sp. pl. - Gmel. Flor. Baderns. II. p. 697. 698 und: *Chêne pedonculé*. *Quercus pedunculata*. Gmel. I. c. p. 698. 699. *Quercus femina*. Roth. Flor. Germ. III. p. 488.

**German names and French names (Gmelin 1817):** Steineiche, Klebeiche, Wintereiche, Gemeine Eiche, Loheiche, und Stieleiche, Sommereiche; *Chêne commune* und *Chêne pedonculé*

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 202937** (Fig. 69); **202938** (Fig. 70)



Figure 69. *Quercus robur* L. - KR 202937

**Botany and Ecology:** A tree to 40-50m; trunk forming several stout branches below the top; shoots glabrous; annotinous branchlets reddish-brown; buds ovoid to subglobose; leaves crowded at the ends of shoots; petioles 0.5 -1 cm long; leaves 7 -15 and sometimes 20 -30 cm long, 4 -7 cm broad, more or less elongate -obovate, cordate and distinctly auricled at base, with an obtuse and rather elongate terminal lobe and 4-6 (8) rather long obtuse or rarely subacuminate unequal straight or curved lateral lobes, the sinuses between them to 1/3 -1/5 the breadth of the blade; the lobes entire or rarely with 1-3 large teeth; upper surface lustrous green, glabrous; lower surface paler, at first pubescent, at length glabrous with few hairs along the veins; lateral veins ending in the lobes remote, not very prominent beneath; intermediate veins less pronounced, sometimes reaching the margin of the blade; pistillate flowers and fruits solitary or 2 or 3 together on a peduncle to 6 -8 cm long; cup cupuliform, ca. 1 cm tall, sometimes small saucer -shaped and ca. 0.5 cm tall, 1.5-2 cm in diameter; scales of cup slightly convex or almost flat, rather broadly ovate, sometimes transversely extended, gray-pubescent, short-tipped; acorn 1.5-3.5 cm long, enclosed to between one-third and one-half its length, at first sparingly tomentose, becoming glabrous,

brownish-yellow, with more or less distinct brown striation. April -May. Forming woods on sandy-loam, loam, podzolic, and chernozem soils in the steppe zone, in ravines and gullies of mountain slopes. (Boborov & Komarov 1936).



Figure 70. *Quercus robur* L. - KR 202938

**Contemporary uses:** Belarus: bark as bath for diabetes, bruises, diarrhea, gingival diseases, panacea, periodontitis, hypertension, wounds, warts. Romania: astringent, antibacterial, anti-inflammatory, cicatrizing, digestive, skin disorders, leukorrhea, metrorrhagia, chilblains, burns, hyperhidrosis, hemorrhage, stomatitis, gingivitis, alopecia, abscess, eczema, astringent, hemostatic, vulnerary, antiperspirant, anti-infective, hair tonic. Serbia: painful mouth. Belarus: acorns dried and ground as flour additive, coffee substitute, flavor for alcohol and kvass, flavor for fermented birch sap, for lacto-fermented cucumbers. Hungary: leaves as a spice for pickled cucumbers, fruits as famine food. Czech Republic: spirits, flower buds ground into flour during famine. Slovakia: raw as famine food and children's snack. Ukraine: famine food. Belarus: acorns fodder for cows and other animals, bark diarrhea in cows and pigs, calves. Balkans: wooden home goods, casks, traditional weather and harvest forecasting. Ukraine: leaves in cucumber pickles. Belarus: leaves under bread for baking. (Paniagua-Zambrana et al. 2025K).

**Uses 1817 (Gmelin 1817):** Although they provide excellent fattening for pigs, they are nevertheless not suitable as food for humans unless absolutely necessary due to their astringent, unpleasant taste. However, in cases of real scarcity, people have often resorted to acorns. Their unpleasant taste can largely be eliminated by the following treatment: peel the ripe, fresh acorns, boil them in common well water, or lime water, or a weak lye of ash, sweeten them several times with fresh water, chop them up, and grind them to a paste, where they can then be cooked with meat broth, butter, bacon, or milk to make porridge, or dried and ground, mixed with grain flour, and baked into bread. For this purpose, pedunculated acorns are preferable to our sticky acorns. Since several acorn species, some of which grow in more southern regions, such as the spear oak, small oak, *Quercus Esculus*. Linn. Sp. pl. - The cerise oak, *Quercus Cerris*. Linn. Sp. pl. - In several regions along the Rhine and Neckar, and especially where chestnut trees are found, as our experiments have amply demonstrated, they thrive if planted in suitable locations. Their fruits taste more pleasant and are eaten in Italy, southern France, Spain, and Portugal. Likewise, several North American acorns, especially the chestnut oak, white oak, *Quercus prinus*. Linn. Sp. pl. - the white Virginia oak, *Quercus alba*. Linn. Sp. pl., which, according to experiments conducted with them, are easy to propagate in the Rhine, Neckar, and Main regions, deserve to be planted. Their fruits have a sweet taste and are eaten in America.

**Description and Ecology (Gmelin 1817):** In the former, the acorns are stalkless and clustered together. In the latter, however, they are grown on long stalks, clustered in groups of one to three. We find several variations of them in our oak forests, with larger and smaller, rounder and longer acorns.

**Original German text Gmelin (Gmelin 1817):** Bei ersterer stehen die Eicheln stiellos und gedrängt beisammen. Bei letzterer hingegen stehen sie auf langen Stielen, zu ein bis drey beisammen. Wir finden in unsern Eichwäldungen mehrere Abänderungen derselben, mit größern und kleinern, rundern und längern Eicheln. Ob sie gleich den Schweinen eine treffliche Mastung geben, sind sie dennoch, wegen ihrem zusammenziehenden unangenehmen Geschmacks, wo es nicht die Noth fordert, als Speise für Menschen nicht anzuwenden. Jedoch hat man bei wirklichem Mangel seine Zuflucht schon öfters zu den Eicheln genommen. Der unangenehme Geschmack kann ihnen größtentheils durch folgende Behandlung benommen werden: Man schälet die reifen frischen Eicheln, kocht sie in gemeinem Brunnenwasser, oder Kalchwasser, oder einer schwachen Lauge von Asche, süßt sie mehreremal mit hinzugegossenem frischen Wasser ab, schneidet sie klein, und reibt sie zu einem Muße, da sie denn mit Fleischbrühe, Butter, Speck, oder Milch als Grütze gekocht, oder getrocknet und gemahlen, mit Getreidemehl vermischt, zu Brod gebacken werden können. Hierzu sind die Stieleicheln unsern Klebeicheln vorzuziehen. Da mehrere Eichelarten, welche theils in südlichen Gegenden wachsen, als die Speißeiche, kleine Eiche, *Quercus Esculus*. Linn. Sp. pl. - Die Cerreiche, *Quercus Cerris*. Linn. Sp. pl. - in mehreren Gegenden am Rheine und Neckar, und vorzüglich da, wo Kastanienbäume angetroffen werden, wie unsere Versuche satzsam gezeigt haben, trefflich gedeihen, sollten dieselben, an den dazu geeigneten Stellen, angepflanzt werden. Ihre Früchten schmecken angenehmer, und werden in Italien, im südlichen Frankreich, in Spanien und Portugal verspeist. Desgleichen verdienen noch mehrere Nordamerikanische Eicheln, und zwar vorzüglich die Kastanieneiche, Weißliche, *Quercus Prinus*. Linn. Sp. pl. - Die weisse Virginische Eiche, *Quercus alba*. Linn. Sp. pl. welche nach den damit angestellten Versuchen, in den Rhein-, Neckar- und Maingegenden, leicht fortzubringen sind, bestens angepflanzt zu werden. Die Früchten derselben haben einen süßen Geschmack, und werden in Amerika verspeist.

### ***Ranunculus ficaria* L.**

**Synonyms:** *Caltha hiranói* Tamura; *Chelidonium minus* Garsault; *Ficaria aperta* Schur; *Ficaria boryi* Heldr. ex Nyman; *Ficaria bulbifera* (Á.Löve & D.Löve) Holub; *Ficaria communis* Dum.Cours.; *Ficaria degenii* Harv.; *Ficaria ficaria* H.Karst.; *Ficaria peloponnesiaca* Nyman; *Ficaria polypetala* Gilib.; *Ficaria ranunculiflora* Moench ex St.-Lag.; *Ficaria ranunculoides* Roth; *Ficaria roberti* F.W.Schultz; *Ficaria rotundifolia* Schur; *Ficaria verna* Huds., *Ficaria verna* f. *divergens* (F.Schultz) Soó; *Ficaria verna* f. *dolichopetala* (Zapał.) Soó; *Ficaria verna* f. *marmorata* Priszter; *Ficaria verna* f. *polypetala* (Zapał.) Soó; *Ficaria verna* subsp. *bulbifera* Á.Löve & D.Löve; *Ficaria vulgaris* J.St.-Hil.; *Ranunculus ficaria* subsp. *bulbilifer* Lambinon; *Ranunculus ficaria* var. *bulbifera* Albert; *Ranunculus vernus* f. *divergens* F.W.Schultz

**Original name (Gmelin 1817):** *Ranunculus Ficaria*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p. 536. 537.

**German names and French names (Gmelin 1817):** Feigwarzenkraut, Kleines Schöllkraut, Scharbokskraut, Schmalzsternblume, Schmirgelkraut; Eclair mineur, Herbe aux Hémorrhoides

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 98145** (Fig. 71)



Figure 71. *Ranunculus ficaria* L. - KR 98145

**Botany and Ecology:** Perennial, 15-30 cm high, glabrous, with a developed leafy slender weak ascending simple or branched few-flowered stem and a bundle of ovoid or ovoid-oblong tuberous roots. Leaves rounded-cordate or triangular-cordate, to 2- 5 cm in diameter, the lower with large or notch-like angular crenate margin, long-petioled, the upper short-petioled, angularly cordate or lobate notched; leaf blade somewhat fleshy, mostly broadly cordate -notched at base, with separated lobes, lustrous or glossy green above. In most plants tubercle-like proliferating bulbils develop in the axils of leaves. Flowers 2.5- 3.5 cm in diameter; petals 8-10, yellow, glossy, elongate-elliptic or oblong-obovate, 10-18mm long, 4-7 mm broad. Fruitlets more or less rounded-obovate, pubescent, inflated at apex, tapering toward base, with a very short slightly acuminate or subobtusate beak. Flowering April-May. Moist soil in meadows and steppe depressions, forest margins, more rarely broadleaf forests, scrub, parks, sometimes in fields, mainly in the meadow-forest zone. (Shishkin & Boborov 1937).

**Contemporary uses:** Turkey: digestion, hemorrhoids, skin diseases. Georgia: used in phkhali. Hungary: astringent, trophic, anti-inflammatory, hemorrhoids, varicose veins, hair and skin disorders. Romania: scurvy, alopecia, eczema, varicose veins, tonic, hair tonic. Lebanon: diarrhea, colon inflammation. Spain: burns. Hungary: consumed mainly raw, as spring salad; roasted in speck lard, cooked in soup and as vegetable. Italy: salad. Estonia: salad. Slovakia: bulbils as famine food, small amounts added to dishes as seasoning, tea. Poland: potherb and soup; young leaves boiled or raw. Ukraine: leaves as boiled side-dish. Italy: in minestrone soup. Italy: veterinary. (Aliiev Muradalievich et al. 2025; Paniagua-Zambrana et al. 2025L).

**Uses 1817 (Gmelin 1817):** The tender young leaves are very mild, somewhat unappealing, and are eaten in many places in early spring as a tasty vegetable and salad. The plant provides a pleasant and good source of food for cattle, especially in spring. The roots are very sharp, especially before the flowers appear, and are also called earth barley or heaven barley because of their peculiar shape, because the common people otherwise believed that they had fallen from the sky when exposed to persistent rain.

**Description and Ecology (Gmelin 1817):** The root consists of small, elongated, clustered, whitish, fleshy tubers. The stem is finger- to hand-high, sometimes longer, prostrate, then somewhat erect, weak, simple, and smooth. The leaves have long stalks, alternate, rarely opposite, heart-shaped, rounded, entire, or angularly notched, smooth, glossy above, often marked with a blackish spot in the center. The flowers are stalked and stalked. The stalks are single-flowered. The calyx is trifoliate, deciduous, and yellowish. The corolla has 8, 10, or 12 leaves, lanceolate, entire, somewhat blunt, and spreading, with a honey pit at the base covered with small scales, yellow and glossy. Grows very frequently in shady, somewhat damp places, under hedges, along paths, at the edges of woodlands, in grassy areas and orchards, and also in vineyards. It blooms in March, April, and May, and its seeds ripen in June and July, making it a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel aus kleinen länglichen gehäufteten weißlichen fleischigen Knollen zusammengesetzt. Der Stengel finger- bis handhoch, auch länger, niederliegend, dann etwas aufrecht, schwach, einfach, glatt. Die Blätter lang gestielt, abwechselnd, seltener gegenüberstehend, herzförmig, rundlich, ganz, oder eckig ausgebuchtet, glatt, oberhalb glänzend, in der Mitte öfters mit einem schwärzlichen Flecken bezeichnet. Die Blüten ausgehend, gestielt. Die Stiele einblütig. Der Blumenkelch dreiblättrig, abfallend, gelblich. Die Blumenkrone 8 - 10 - 12 blättrig, lanzettförmig, ganz, etwas stumpf, ausgebreitet, am Grunde mit einem Honigrübchen, welches mit einem kleinen Schuppchen bedeckt ist, gelb, glänzend. Wächst sehr häufig an schattigen etwas feuchten Orten, unter den Hecken, an Wegen, am Rande der Waldungen, in Gras- und Obstgärten, auch in den Weinbergen. Blühet im März, April, May, reifet seine Samen im Juni, Juli, und gehört unter die ausdauernden Gewächse. Die zarten jungen Blätter, sind sehr milde, etwas wenig reizend, und werden an vielen Orten, im ersten Frühjahr, als schmackhaftes Gemüse und Salat verspeist. Die Pflanze giebt vorzüglich im Frühjahr, dem Rindvieh eine angenehme und gute Nahrung. Die Wurzeln sind vorzüglich vor dem Ausbruche der Blumen sehr scharf, und werden wegen ihrer besonderen Gestalt auch Erdgerste, Himmelsgerste genannt, weil der Pöbel sonst glaubte, daß sie, wenn sie von einem anhaltenden Regen entblößt worden waren, vom Himmel gefallen wären.

### **Raphanus raphanistrum L.**

**Synonyms:** *Brassica heleniana* Burch. ex Loudon; *Crucifera raphanistrum* E.H.L.Krause, *Durandea unilocularis* Delarbre; *Raphanistrum arvense* Wallr. *Raphanistrum fugax* Nyman; *Raphanistrum innocuum* Moench; *Raphanistrum lampsana* Gaertn.; *Raphanistrum microcarpum* Nyman; *Raphanistrum raphanistrum* H.Karst.; *Raphanistrum segetale* Henckel; *Raphanistrum segetum* Baumg.; *Raphanistrum silvestre* Asch.; *Raphanistrum vulgare* Gray; *Raphanus articulatus* Stokes; *Raphanus fugax* C.Presl; *Raphanus infestus* Salisb.; *Raphanus landroides* Rouy & Foucaud; *Raphanus longistylus* St.-Lag.; *Raphanus microcarpus* Lange; *Raphanus raphanellus* Schr. ex Colla; *Raphanus raphanistrum* f. *carneus* Thell.; *Raphanus raphanistrum* f. *raphanistrum*; *Raphanus segetum* Clavaud; *Raphanus sylvestris* Lam.; *Raphanus syylosus* Dulac; *Rapistrum arvense* All.; *Rapistrum raphanistrum* Crantz, *Sinapis raphanistrum* Gueldenst. ex Ledeb.

**Original name (Gmelin 1817):** *Raphanus Raphanistrum*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 103. 104.

**German names and French names (Gmelin 1817):** Hederich, Ackerrettich, Häderich, Heiderich, Heidenrettig, Weißer Hederich, Ackerhederich, Ackerkohl; Radis sauvage, Raifort sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 129018** (Fig. 72)



Figure 72. *Raphanus raphanistrum* L. - KR 129018

**Botany and Ecology:** Annual or biennial; root thickened, edible, annual (red radish) or biennial (white radish), rarely thin (Chinese radish), red, white, violet, pink, black; lower leaves lyrate-pinnatifid, with large terminal lobe, lateral lobes 2-6-paired, rarely leaves subentire. Petals white, pink, or violet; siliques broad, slightly inflated, glabrous or hirsute, soft at base, spongy inside, obscurely concave above but not jointed, breaking in irregular portions, mostly longitudinally; beak generally stout, usually half as long as silique. Grown everywhere where kitchen gardens are cultivated. The thin rooted form (Chinese radish) is very rare in western Europe. Unknown in its wild state. Ural, Caucasus and Central Middle Asia, as weed in crops, on fallow land, near settlements. Cultivated in all parts of Europe, in the temperate zones of Asia and North America and Australia. Originated on the shores of the Mediterranean. *Raphanus raphanistrum* is the most likely ancestor of polymorphic *Raphanus sativus*. The area of maximum diversity of radish lies between the eastern Mediterranean and the Caspian Sea, which is probably the original gene center for this species. Radish was cultivated already in ancient times in the

Mediterranean, from where it spread to China in about 500 BC and to Japan in about 700 AD. The variability diminishes gradually from the Caspian Sea to China, and even more towards Japan. It is also a crop that has been cultivated since ancient times in the oases of the Sahara and in Mali. Radish can now be found as a cultigen throughout the world in many different forms, from small leafy annuals to biennials with large fleshy roots. The cultivars with relatively small roots (small radish) are most important in temperate climates of the world and only of limited importance in Africa, mostly in francophone countries amongst people originating from Europe. Radish is grown mainly for its thickened fleshy root. Small radishes are pungent and used as appetizer when eaten fresh and for adding color to dishes. Oriental radish (to which Chinese radish, Japanese radish and mooli belong) is crisp with a mild flavor (Bobrov and Bush 1939).

**Contemporary uses:** *The extract is used for the treatment of skin lesions and disorders of the stomach. The oil is used for rheumatism and sciatica, to treat hepatic disorders, bronchitis and coughs. Georgia: Kidney problems. The leaves are used for phkhali (herb pie), the roots are eaten as salad. The roots are thinly peeled, sliced or diced and put into soups and sauces or cooked with meat. They can be preserved in salt. Oriental radish can also be eaten fresh, mixed with other vegetables such as tomato. Also the leaves are eaten as salad or spinach. Seedlings known as radish sprouts are used as greens for appetizers in the same way as cress (Lepidium sativum L.) or cooked as spinach. Rat-tailed radish is grown for the immature crisp, fleshy fruits, consumed raw, cooked or pickled, but the roots are not edible. Used as vegetable and oil plant. The green plant material serves as fodder before the plants flower. Once flowering and fruiting the species is toxic to livestock. Morocco: the plant is used for diabetes and rheumatism problems; Syria: the underground parts and the aerial parts decoction are used for cancer, renal diseases, digestive and rheumatism problems, the roots juice or decoction are used orally or externally for rheumatism, cancer, and as diuretic, the dried roots is used for liver diseases, the leaves and stems decoction of as diuretic; Palestine: the seeds powder boiled in water and used for kidney stones; Lebanon: the whole plant decoction is used as anti-rheumatic and anti-neuralgic. In Turkey, it is consumed as a vegetable.* (Ouasti et al. 2024b).

**Uses 1817 (Gmelin 1817):** The young, tender roots and leaves of this plant can be prepared and eaten as a healthy and tasty vegetable. The fresh plant provides healthy and plentiful food for cattle and pigs, which eat it eagerly, in March, April, May, and even later. The seeds produce a mild, tasty oil, almost as abundantly as rapeseed. In many regions, especially during wet years, it is a cursed weed for farmers, often covering entire fields and suppressing grain. In this case, it is ideal for cattle and pigs when fodder is scarce, and its seeds are used on oil. In the lower-lying, sandy, and clayey regions, it usually grows with white flowers, often covering entire stretches in our Rhine region. In the rugged, rocky mountainous regions, especially around Villingen, Donaueschingen, Engen, Geißingen, Stockach, Möskirch, and other similar limestone areas, as well as in the Württemberg and Siegmarshausen regions, it is frequently found with yellow flowers.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, thin, fibrous, and white. The stem is 1-2 feet tall, erect, rounded, somewhat angular, often reddish at the base, hairy, occasionally somewhat smooth, and branched. The branches are alternate. The leaves are alternate; the lower ones are stalked, semi-pinnate, and notched; the upper ones are almost sessile, leyrion-shaped, serrate-cut, and somewhat hairy. The flower clusters terminate the stem and branches. The calyx is four-petaled, the leaflets inclined toward each other, two of which are bulbous at the base. The corolla is four-petaled, white, pale flesh-colored, marked with violet or blackish veins, or yellow. The pod is erect, round, pointed, segmented, smooth, with a compressed beak at the apex. Grows abundantly in the Rhine, Neckar, Main, and Danube regions, in sandy, clayey, low-lying, and clayey and limestone marl areas on low mountain ranges and hills, in cultivated fields, and here and there on fallow land. It blooms in May, June, July, August, and September. Its seeds ripen in July, August, September, and November, and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel spindel-walzenförmig, dünn, faserig, weiß. Der Stengel 1 - 2 Fuß hoch, aufrecht, rundlich, etwas eckig, am Grunde oft röthlich, rauhaarig, zu Zeiten etwas glatt, ästig. Die Aeste abwechselnd. Die Blätter abwechselnd, die untern gestielt, halbgefiedert, ausgebuchtet gezähnt; die obern fast aufsitzend, leyerförmig, eingeschnitten gesägt, etwas rauhaarig. Die Blüthentrauben endigen den Stengel und die Aeste. Der Blüthenkelch vierblättrig, die Blättchen gegen einander geneigt, wovon 2 am Grunde bauchig. Die Blumenkrone vierblättrig, weiß, hell fleischfarben, mit violetten oder schwärzlichen Adern bezeichnet, oder gelb. Die Schote aufrecht, rund, zugespitzt, gegliedert, glatt, an der Spitze mit einem zusammengedrückten Schnabel versehen. Wächst in den Rhein-, Neckar-, Main- und Donau-Gegenden, in sandigen, leimigen, niedrigliegenden, und in thonigen, und Kalkmergelgegenden auf den Mittelgebirgen, und Hügeln, in den Saatfeldern, und auf Brachäckern hie und da in Menge. Blühet im May, Juni, Juli, August, September. Reifet seine Samen im Juli, August, September bis November, und gehört unter die einjährigen Pflanzen. Die jungen zarten Wurzeln und Blätter dieser Pflanze, können als ein gesundes und schmackhaftes Gemüse, zubereitet und verspeist werden. Die frische Pflanze giebt im März, April, May, und noch späterhin, dem Rindvieh und den Schweinen, welche sie begierig fressen, gesunde und reichliche Nahrung. Die Samen geben ein mildes schmackhaftes Oehl, und zwar beinahe eben so reichlich als der Rübsamen. Sie ist in vielen Gegenden, und vorzüglich bei nassen Jahrgängen, ein dem

Landwirthe verwünschtes Unkraut, welches nicht selten ganze Saatfluren überzieht, und das Getreide unterdrückt. Auf diesen Fall, verdient sie, bei Futtermangel, bestens für das Rindvieh und die Schweine, und ihre Samen auf Oehl benutzt zu werden. In den tiefer liegenden, sandigen und leimigen Gegenden, kommt sie gewöhnlich mit weisser Blüthe vor, womit sie oft in unsern Rheingegenden ganze Strecken überzieht. In den rauhen steinigen Gebirgsgegenden, vorzüglich um Villingen, Donaueschingen, Engen, Geißingen, Stockach, Möskirch und andern ähnlichen Kalkgegenden, im Württembergischen und Siegmaringischen wird sie häufig mit gelben Blüten angetroffen.

### ***Robinia pseudoacacia* L.**

**Synonyms:** *Aeschynomene pseudoacacia* Roxb. ex DC.; *Pseudacacia vulgaris* Tourn. ex Greene; *Pseudo-acacia vulgaris* Medik.; *Robinia acacia* L.; *Robinia amorphifolia* K.Koch; *Robinia angulata* K.Koch; *Robinia aurea* K.Koch; *Robinia bessoniana* K.Koch; *Robinia bullata* K.Koch; *Robinia camusetii* Leroy ex K.Koch; *Robinia coluteoides* K.Koch; *Robinia cornigera* K.Koch; *Robinia crispa* K.Koch; *Robinia cylindrica* K.Koch; *Robinia decaisneana* Verl.; *Robinia dissecta* Verl.; *Robinia echinata* Mill.; *Robinia edwardsiifolia* Verl.; *Robinia fastigiata* Verl.; *Robinia fragilis* Salisb.; *Robinia inermis* Jacq.; *Robinia inermis* var. *rehderi* Ed.Otto; *Robinia jaspidea* Verl.; *Robinia latisiliqua* Verl.; *Robinia linearis* K.Koch; *Robinia ludoviciana* Raf.; *Robinia monophyllus* K.Koch; *Robinia patula* Verl.; *Robinia pendula* Ortega; *Robinia pendulina* Sweet; *Robinia pinnata* Steud.; *Robinia pringlei* Rose; *Robinia procera* Lodd. ex G.Don; *Robinia pseudacacia* L.; *Robinia pseudoacacia* f. *amorphifolia* (Loudon) Rehder; *Robinia pseudoacacia* f. *atropurpurea* Dippel; *Robinia pseudoacacia* f. *aurea* (G.Kirchn.) Rehder; *Robinia pseudoacacia* f. *bessoniana* (G.Nicholson) Voss; *Robinia pseudoacacia* f. *coluteoides* (Neumann) Rehder; *Robinia pseudoacacia* f. *crispa* (DC.) Rehder; *Robinia pseudoacacia* f. *decaisneana* (Carrière) Voss; *Robinia pseudoacacia* f. *dissecta* (Mottet) Rehder; *Robinia pseudoacacia* f. *erecta* Rehder; *Robinia pseudoacacia* f. *inermis* (DC.) Rehder; *Robinia pseudoacacia* f. *linearis* (G.Kirchn.) Rehder; *Robinia pseudoacacia* f. *microphylla* (Lodd. ex Loudon) Rehder; *Robinia pseudoacacia* f. *myrtifolia* (K.Koch ex C.K.Schneid.) Rehder; *Robinia pseudoacacia* f. *oswaldiae* Oswald; *Robinia pseudoacacia* f. *purpurea* Dippel; *Robinia pseudoacacia* f. *pyramidalis* (Pápin) Rehder; *Robinia pseudoacacia* f. *rehderi* (Ed.Otto) C.K.Schneid.; *Robinia pseudoacacia* f. *rozymskiana* (Späth ex C.K.Schneid.) Rehder; *Robinia pseudoacacia* f. *semperflorens* (Carrière) Voss; *Robinia pseudoacacia* f. *stricta* (Loudon) Rehder; *Robinia pseudoacacia* f. *tortuosa* (DC.) Rehder; *Robinia pseudoacacia* f. *ulriciana* (Reut. ex Hartwig) Rehder; *Robinia pseudoacacia* f. *umbraculifera* (DC.) Rehder; *Robinia pseudoacacia* f. *unifoliata* (Talou) Rehder; *Robinia pseudoacacia* subsp. *crispa* (DC.) Arcang.; *Robinia pseudoacacia* subsp. *inermis* (Jacq.) Arcang.; *Robinia pseudoacacia* subsp. *tortuosa* (Hoffmanns.) Arcang.; *Robinia pseudoacacia* subsp. *umbraculifera* (Loudon) Arcang.; *Robinia pseudoacacia* var. *amorphifolia* Loudon; *Robinia pseudoacacia* var. *angustifolia* Lej.; *Robinia pseudoacacia* var. *aurea* G.Kirchn.; *Robinia pseudoacacia* var. *bessoniana* G.Nicholson; *Robinia pseudoacacia* var. *coluteoides* Neumann; *Robinia pseudoacacia* var. *crispa* DC.; *Robinia pseudoacacia* var. *decaisneana* Carrière; *Robinia pseudoacacia* var. *dissecta* Mottet; *Robinia pseudoacacia* var. *inermis* DC.; *Robinia pseudoacacia* var. *linearis* G.Kirchn.; *Robinia pseudoacacia* var. *microphylla* Lodd. ex Loudon; *Robinia pseudoacacia* var. *myrtifolia* K.Koch ex C.K.Schneid.; *Robinia pseudoacacia* var. *pseudoacacia* L.; *Robinia pseudoacacia* var. *rectissima* Raber; *Robinia pseudoacacia* var. *rozymskiana* Späth ex C.K.Schneid.; *Robinia pseudoacacia* var. *semperflorens* Carrière; *Robinia pseudoacacia* var. *sophorifolia* Lodd. ex Loudon; *Robinia pseudoacacia* var. *stricta* Loudon; *Robinia pseudoacacia* var. *tortuosa* DC.; *Robinia pseudoacacia* var. *umbraculifera* (DC.) DC.; *Robinia pseudoacacia* var. *unifoliata* Talou; *Robinia pseudoacacia* var. *vulgaris* Lej.; *Robinia pyramidalis* Verl.; *Robinia spectabilis* Dum.Cours.; *Robinia stricta* Hoffmanns.; *Robinia tortuosa* Hoffmanns.; *Robinia undulata* K.Koch; *Robinia uterhartii* Poit.

**Original name (Gmelin 1817):** *Robinia Pseud-Acacia*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 200. 201.

**German names and French names (Gmelin 1817):** Unächter Acacienbaum, Gemeine Robinie, Falscher Acacienbaum; Faux Acacia, Arbre des Cabarets

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened, invasive introduction

### **KR 208972**

**Botany and Ecology:** Tree to 30-35m high, with brown bark; stipular spines stout, to 1.5 cm long; leaves imparipinnate, 11-24 cm long; leaflets 9-21, oblong-oval, 1.5-4.5 cm long and 7-20 mm broad, obtuse, mucronulate, the petiolules 1-2 mm long; flowers numerous, large, fragrant, on rather long pubescent pedicels; racemes rather loose, drooping, to 17 cm long, shorter than leaves; corolla white or pinkish; calyx 7mm long and 5mm broad, densely covered with short rufescent hairs; standard 1.5-1.8 cm long and 1,3-1,5 cm broad, about equaling wings and keel; wings oblong, with small obtuse auricles; obtuse; style filiform, hairy at sum-mit; pod stipitate, 4-12 cm long and 1-1.4 cm broad, oblong-linear, flat, with a curved beak; seeds

oblong ovaloid, 5mm long and 3 mm broad, brown with black spots, smooth, dull. Flowering May-June. (Komarov and Shishkin 1948).

**Contemporary uses:** *Georgia:* The flowers can be eaten. The young shoots are pickled. The flowers yield honey of superior quality. The excellent wood is used for carpentry and turnery, also for posts, and as outstanding fuel. Used to make utensils and tools. The flowers yield a yellow dye. *Armenia:* Cultivated for greening in cities and towns, as well in protective forest belts near roads and railways; escaped from the culture, invasive species. Used for timber and fuel. *Romania:* anti-inflammatory, cicatrizing, emollient, analgesic, antiseptic, laxative, gastritis, gastric ulcer, asthma, cough, dental neuralgia, leucorrhoea, constipation. *Balkans:* cough. *Romania:* tea, desert. *Eastern Europe:* Flowers to make alcohol. *Ukraine:* flowers sold for making jam, as snack; *Czech Republic:* flowers fried, added to pancakes. *Slovakia:* flowers fried and as children's snack. *Poland / Hungary:* flowers eaten and sucked as snack. *Europe:* in gastronomy. *Romania:* wood for floors. *Eastern Europe:* home utensils, casks. (Bussmann et al. 2020q; 2025F; Paniagua-Zambrana et al. 2025M).

**Uses 1817 (Gmelin 1817):** The young, tender leaves, with which these trees are so commonly found, are eaten by cattle, horses, and sheep, providing them with good nutrition, both fresh and dried. They should therefore be used when fodder is scarce. In this respect alone, this tree deserves to be cultivated and propagated in sunny, suitable locations. Several other species of locust trees, especially the beautiful *Robinia inermis* and *viscosa*, which have recently been introduced to most English pleasure grounds and gardens, deserve to be propagated, as their leaves provide a very rich and pleasant fodder for livestock. Likewise, *Robinia caragana*, the Siberian pea tree, which thrives here, bears numerous seeds, which are boiled and eaten in Siberia, like our common peas.

**Description and Ecology (Gmelin 1817):** This tree, native to North America, has long been introduced to our Rhine, Main, and Neckar regions as an excellent ornament in pleasure grounds, gardens, along walks, in forests, in vineyards, in and around towns and villages, and occasionally as a fence. The leaves are unevenly pinnate, smooth, and pleasantly green. The numerous white flowers are borne in hanging clusters and have a pleasant fragrance. The pods are elongated, compressed, and drooping. The seeds are kidney-shaped.

**Original German text Gmelin (Gmelin 1817):** Dieser aus Nordamerika abstammende Baum, ist längst in unsern Rhein-, Main- und Neckargegenden als vorzügliche Zierde in den Lustanlagen, in Gärten, an Spaziergängen, an Waldungen, an den Weinbergen, in und um Städte und Dörfer, auch hie und da als Umzäunung eingeführt. Die Blätter sind ungleich gefiedert, glatt, und angenehm grün. Die vielen weißen Blüten stehen in hängenden Trauben, und sind von angenehmen Geruche. Die Hülsen länglich, zusammengedrückt, herabhängend. Die Samen nierenförmig. Die jungen zarten Blätter, womit diese Bäume so häufig versehen sind, werden von dem Rindvieh, den Pferden und den Schaafen gefressen, und geben ihnen frisch und getrocknet eine gute Nahrung. Sie sollten daher bei Futtermangel benutzt werden. Schon in dieser Hinsicht verdient dieser Baum, an sonnenreichen dazu geeigneten Stellen, angebaut und vermehrt zu werden. Noch mehrere Robinien-Arten, und vorzüglich die schöne *Robinia inermis* und *viscosa*, welche ohnlängst in den meisten englischen Lustanlagen und Gärten, bei uns eingeführt sind, verdienen wohl vermehrt zu werden, indem ihre Blätter ein sehr ergiebiges und angenehmes Viehfutter geben. Desgleichen *Robinia Caragana*, der sibirische Erbsenbaum, welcher bei uns trefflich gedeihet, eine Menge Samen trägt, welche in Sibirien, so wie unsere gewöhnlichen Erbsen abgekocht und verspeist werden.

### ***Rubus vulgaris* agg.**

**Synonyms:** *Rubus communis* Bayer; *Rubus commutatus* G.Braun; *Rubus fruticosus* L. ex Dierb.; *Rubus fruticosus* var. *vulgaris* (Weihe & Nees) Br.; *Rubus nitidus* T.B.Salter; *Rubus pilosus* var. *vulgaris* (Weihe & Nees) Dumort.; *Rubus pubescens* var. *vulgaris* (Weihe & Nees) Karsch; *Rubus sanctus* var. *vulgaris* (Weihe & Nees) Kuntze; *Rubus villicaulis* subsp. *vulgaris* (Weihe & Nees) Čelak.; *Rubus villicaulis* var. *minor* Walpert; *Rubus vulgaris* f. *commutatus* (G.Braun) H.E.Weber; *Rubus vulgaris* f. *cuneatus* Braeucker; *Rubus vulgaris* f. *elatior* G.Braun; *Rubus vulgaris* f. *ramosissimus* G.Braun; *Rubus vulgaris* f. *viridis* (Weihe & Nees) Braeucker; *Rubus vulgaris* subsp. *viridis* (Weihe & Nees) Focke; *Rubus vulgaris* var. *elatior* G.Braun ex Utsch; *Rubus vulgaris* var. *micranthus* G.Braun ex Utsch; *Rubus vulgaris* var. *viridis* Weihe & Nees

**Original name (Gmelin 1817):** *Rubus fruticosus*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 435. 436.

**German names and French names (Gmelin 1817):** Brombeerstrauch, Brombeerstaude, Große schwarze Brombeeren, Rahmbeeren; Ronce commune, Cathrinette des bois.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Shrub, 50-150 cm high; annotinous shoots arcuately spreading, branched and rooting in the fall at summit, cylindrical, with glaucous bloom, usually glabrous; prickles numerous, unequal in size and shape, small, straight or curved, partly setiform, often with stalked glands; leaves ternate; stipules broadly lanceolate; petioles pubescent, aculeate, indistinctly canaliculate above; leaflets pale green, with coarse, irregular and often incised teeth, remotely pilose at both sides; terminal leaflet nearly two times longer than its petiole, ovate-rhombic, acute, sometimes 3-lobed, lateral leaflets very short -petioled, often 2-lobed. Flower-bearing branches rather long, spreading, with rather numerous prickles and glands; inflorescence branches often long and slender; flowers rather large; sepals green, pilose, often glandular, appressed to fruit; petals broadly elliptic, white; stamens nearly as long as style; ovaries glabrous; fruit often abortive, large, black, covered with a glaucous dull bloom; drupelets few, large, flattened, with uncinately curved. Flowering June-July, fruiting August. Caucasus, forests, ravines, among shrubs, clearings, banks of rivers and streams, forest and inundated meadows, gardens, orchards, roadsides, hedges. (Shishkin *et al.* 1949). (Bussmann, Paniagua-Zambrana *et al.* 2021; Khaniya, Bhattarai *et al.* 2021; Paniagua Zambrana, Bussmann *et al.* 2020; Bussmann, Batsatsashvili *et al.* 2020a,b).

**Contemporary uses:** Hungary: eaten raw, wine, brandy (*palinka*). Ukraine: raw snack, jam; raw, compote, flavor for alcohol, juice, syrup, tea. Bosnia: raw, jam. Eastern Europe: wine, alcohol. The leaves serve as tea surrogate, the fruits are eaten fresh and cooked for jams, syrup, and distilled for alcohol. The flowers and fruits are eaten; the leaves are used as tea. Dagestan: The berries are eaten as a treat. Currently, for the inhabitants of the foothills of Dagestan, it is the main wild berry from which compote is brewed. The fruit extract is used as violet and red-violet, blue, purple, brownish-violet, and dark pink color dye for wool. The leaves yield a brown dye, the flowers a yellow dye. Fodder for cattle, chicken. Planted as ornamental. The leaves are used in baking to cover the base of the stove. Balkans: anti-anaemic, improve blood circulation, anti-hypertensive, wound healing, anti-diabetic, antimycotic, diarrhea, kidney infections, oral cavity infections, antihypertensive, antiparasitic, antitussive, sore throat, cough, kidneys. Romania: psoriasis, stomatitis, gingivitis, leukorrhea, anal fissures, astringent, haemostatic, anti-infective, depurative; astringent, diarrhea, bronchitis, urinary disorders, gingivitis, stomatitis, leukorrhea, hemorrhoids, psoriasis, emollient, antiseptic, pulmonary problems, laryngo-pharyngeal disorders. (Bussmann *et al.* 2020r; 2025G; Khaniya *et al.* 2021; Mehieu *et al.* 2024; Paniagua-Zambrana *et al.* 2025N).

**Uses 1817 (Gmelin 1817):** The fresh, ripe berries have a pleasant, sweet-sour flavor and are eaten as a healthy food. Fermentation produces a pleasant, healthy wine-like beverage, excellent vinegar, and brandy, and is particularly useful in times of wine shortages and poor wine production. The flowers provide honey and wax for bees.

**Description and Ecology (Gmelin 1817):** A shrub 3 to 10 feet tall, often rising above hedges and covering them. Stems and branches are angular, furrowed, and prickly. The leaves are alternate, five lower leaves, three upper leaves, finger-shaped, elliptic-pointed, serrated at the edges, green, and soft-haired. The leaf stalks are prickly. The leaf bases are lanceolate, hairy at the edges. The flowers end in an umbel. The calyx is five-lobed. The segments are elliptic, pointed, recurved, rough, and finely hairy. The corolla has five petals, is blunt, white, or bright red, and longer than the calyx. The berries are composed of small, round, black, glossy, and juicy berries. Grows in the Rhine, Main, Neckar, and Danube regions, along hedges and paths, and in low and high forests, and in large quantities in the Black Forest and the Odenwald, especially in woodlands and pine forests. It blooms in June and July, and its berries ripen in September, October, and November.

**Original German text Gmelin (Gmelin 1817):** Ein 3 - 10 und mehrere Fuß hoher Strauch, welcher sich öfters über die Hecken erhebt und selbige überzieht. Stengel und Aeste sind eckig, gefurcht und stachelig. Die Blätter abwechselnd, die untern zu fünf, die obern zu drey, fingerförmig zusammengesetzt, eyrund-zugespitzt, am Rande gesägt, grün und weichhaarig. Die Blattstiele stachelig. Die Blattansätze lanzettförmig, am Rande behaart. Die Blüthen endigen sich in eine Doldentraube. Der Blüthenkelch fünfmal eingeschnitten. Die Abschnitte eyrund, spitzig, zurückgeschlagen, rauh, feinhaarig. Die Blumenkrone fünfblättrig, stumpf, weiß, oder hellroth, länger als der Kelch. Die Beeren aus einzelnen kleinen Beeren zusammengesetzt, rund, schwarz, glänzend, saftig. Wächst in den Rhein-, Main-, Neckar- und Donau-Gegenden an Hecken, Wegen, in niedern und höheren Waldungen durchgängig häufig, und in großer Menge im Schwarzwalde und im Odenwalde, vorzüglich in Waldschlägen, und Tannenwaldungen. Blühet im Juni, Juli, und reifet seine Beeren im September, October, November. Die frischen reifen Beeren sind von angenehmen süßlich-säuerlichen Geschmacke, und werden als gesunde Nahrung verspeist. Sie geben durch die Gährung ein angenehmes gesundes weiniges Getränk, sehr guten Essig und Brandtewein, und sollten vorzüglich bei Mangel, und bei Weinmißjahren bestens benutzt werden. Die Blüthen geben den Bienen Honig und Wachs.

### ***Sagittaria sagittifolia* L.**

**Synonyms:** *Alisma sagittaria* Stokes; *Sagitta aquatica* Pline St.Lager; *Sagitta major* Scop.; *Sagitta palustris* Bubani; *Sagittaria acuminata* Sm.; *Sagittaria aquatica* Lam.; *Sagittaria bulbosa* Donn; *Sagittaria gigantea* hort. ex E.Vilm.; *Sagittaria*

*heterophylla* Schreb.; *Sagittaria lancifolia* hort. ex E.Vilm., *Sagittaria minor* Mill.; *Sagittaria monoeca* Gilib.; *Sagittaria sagittifolia* var. *aequiloba* Schur; *Sagittaria sagittifolia* var. *angustata* Tinant; *Sagittaria sagittifolia* var. *bollei* Asch. & Graebn.; *Sagittaria sagittifolia* var. *divaricata* Schur; *Sagittaria sagittifolia* var. *heterophylla* (Schreb.) Schur; *Sagittaria sagittifolia* var. *stratiotes* Bolle; *Sagittaria sagittifolia* var. *vallisneriifolia* Coss. & Germ.; *Sagittaria tenuior* Gand.; *Sagittaria vulgaris* Gueldenst.; *Vallisneria bulbosa* Poir.

**Original name (Gmelin 1817):** *Sagittaria sagittifolia*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 694. 695. - Oeder. Flor. Dan. tab. 172.

**German names and French names (Gmelin 1817):** Pfeilkraut, Gemeines Pfeilkraut, Großes Pfeilkraut; Fléchier aquatique, Queve d'Hirondelle

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 200209** (Fig. 73); **200219** (Fig. 74)

**Botany and Ecology:** Perennial; rootstock short, fibrous, emitting long stolons, these forming in fall acorn-shaped tubers at their ends; leaf rosettes varying greatly in shape, may be classified in 3 types: submersed, sessile, linear, obtuse, translucent, parallel-nerved, to 80 cm long, 3–20 mm broad; floating, longpetioled, the blade 3.5–14 cm long, 2.5–7.5 cm broad, oblong-lanceolate, ovate or elliptic, with a deep sinus at base and 2 short approximate lobes; emersed, the sagittate-triangular base 6.5–15 (–25) cm long and (0.5–) 4–12 (–22) cm broad, the divergent lanceolate or linear lobes about as long as the blade; often present only leaves of one or two types; scape 20–100 cm long, simple or slightly branched, stoutish, 3-angled, as long as or shorter than the leaves; flowers in numerous whorls of 3, of these the lowest (rarely 2 lowest) pistillate; pistillate pedicels half as long as those of the staminate flowers in upper whorls; sepals broadly ovate, 6–7 mm long; petals to 1.5 cm long, white, with a violet claw; stamens 2–3 mm long, the filament as long as the anthers; anthers violet (very rarely yellow); fruiting heads short-stalked or sessile; fruits large, ca. 4–5.5 mm in diameter, obliquely and broadly obovoid to irregularly globose, with broadly rounded equal margins and an almost straight beak. (Iljin 1934).

**Contemporary uses:** In Jammu used to treat skin allergies. Leaves to treat snakebite. Fresh leaves mixed with cheese, or to roll sarma. In Hungary used as famine food. Roots as bread ingredient and eaten cooked or raw as snack. Leaves and rhizome eaten in Nepal as vegetable. Root cooked or ground into flour. (Paniagua-Zambrana et al. 2025O).

**Uses 1817 (Gmelin 1817):** Therefore, this plant is frequently cultivated in China. Osbeck says during his trip to China that he saw arrowhead, with its elongated tubers, cultivated in the same fields as the sedge and the Indian water lily (*Nymphaea nelumbo*). It resembled the European arrowhead, but was larger, which presumably resulted from cultivation. The roots of the Chinese species are the size of a clenched fist and elongated. Osbeck adds that we Europeans alter the properties of the soil by draining water and other means until the soil is suitable for our few types of grain. The Chinese, on the other hand, use so many plants for their sustenance that they can hardly have a type of soil in which some plants cannot thrive. Therefore, this nation does not cultivate the field according to the seed, but rather selects the seed according to the nature of the field. The well-known, great plant expert, economist, and naturalist Schreber offers suggestions on how this plant could be cultivated profitably in swampy areas, as its roots are healthier and tastier than the common ground pears (potatoes) (see his preface to Osbeck's Travels). When the Kalmucks go swan hunting in the spring, they do not take any food supplies with them, because they rely solely on the abundance of roots of this plant, which they find in the swamps and eat raw and cooked, see Pallas Mongolische Völkerschaften Th. I. p. 130. It would be worthwhile to conduct further comprehensive experiments here with this plant, which is so beneficial to the Indians. We have considerable marshy areas along the Rhine that are quite suitable for their cultivation, and which could perhaps be brought to bear in abundance. I would particularly choose several locations on the Middle Rhine between Basel and Mainz, and especially the area around Altbreysach, Daxland, Schreck, Linckenheim, and Hochstedt.

**Description and Ecology (Gmelin 1817):** The root is long-fibered, white. The fibers end in a bluish-yellow-striped, white-internally tuber, the size of a bean or small acorn. The stem is simple, leafless, 1.5 - 3 feet tall, erect, furrowed, and naked. The root leaves are long-stalked, arrow-shaped, entire, smooth, and light green. The flowers are whorled and stalked. The whorls are trifoliate. The calyx is trifoliate. The corolla is trifoliate, larger than the calyx, white, reddish beneath, with purple-red anthers. Grows in swamps, ponds, standing water, and ditches in the Rhine, Neckar, Main, and Danube regions. Especially common in low-lying areas along the Rhine that are subject to frequent flooding. Blooms in July. Its seeds ripen in August and September and are considered perennial plants.



Figure 73. *Sagittaria sagittifolia* L. - KR 200209

**Original German text Gmelin (Gmelin 1817):** Die Wurzel langfaserig, weiß. Die Fasern sich in einen blaulichen gelbgestreiften inwendig weissen Knollen von der Größe einer Bohne oder kleinen Eichel endigend. Der Stengel einfach, blätterlos,  $1\frac{1}{2}$  - 3 Fuß hoch, aufrecht, gefurcht, nackt. Die Wurzelblätter lang gestielt, pfeilförmig, ganz, glatt, hellgrün. Die Blüten quirlförmig, gestielt. Die Quirle dreyblüthig. Der Blütenkelch dreyblättrig. Die Blumenkrone dreyblättrig, größer als der Kelch, weiß, unten röthlich, mit purpurrothen Staubbeutel. Wächst in Sümpfen, Teichen, stehenden Wassern und Wassergräben in den Rhein-, Neckar-, Main- und Donaugegenden. Vorzüglich häufig in niedern öfteren Ueberschwemmungen ausgesetzten Gegenden längs dem Rheine hin. Blühet im Juli. Reifet seine Samen im August, September, und gehört unter die ausdauernden Pflanzen. Die Knollen sind mehlig, nährend, schmecken wie Kastanien. Daher wird diese Pflanze häufig in China angebauet. Osbeck sagt in seiner Reise nach China, er habe gesehen, daß das Pfeilkraut mit länglichen Knollen, auf den nämlichen Feldern, mit dem Reiß und der indianischen Seerose (*Nymphaea Nelumbo*) gebauet worden sey. Sie glich dem europäischen Pfeilkraut, war aber größer, welches vermuthlich von der Cultur herrührte. Die Wurzeln von der chinesischen Art, sind einer geballten Faust groß und länglicht. Wir Europäer setzt Osbeck dazu, verändern die Eigenschaften des Bodens, durch das Ableiten des Wassers, und andere Künste so lange, bis der Boden zu unsern wenigen Arten von

Getreide geschickt gemacht wird. Die Chinesen hingegen bedienen sich so vieler Pflanzen, zu ihrem Unterhalt, daß sie kaum eine Art von Boden haben können, auf welcher nicht einige Pflanzen fortkommen sollten. Es bebauet daher diese Nation das Feld nicht nach dem Samen, sondern wählet den Samen nach Beschaffenheit des Feldes. Der bekannte große Pflanzenkenner, Oekonom und Naturforscher Schreber theilet Vorschläge mit, wie man diese Pflanze mit Nutzen in sumpfigen Gegenden anbauen könnte, da ihre Wurzeln gesunder und wohlschmeckender sind, als die bei uns gewöhnlichen Grundbirn (Kartoffeln) s. dessen Vorrede zu Osbecks Reise - Wenn die Kalmucken im Frühling auf die Schwanenjagd gehen, so nehmen sie keinen Vorrath von Nahrungsmitteln mit sich, weil sie sich bloß allein auf die Menge der Wurzeln dieser Pflanze verlassen, welche sie in den Sümpfen finden, und roh und gekocht essen, s. Pallas Mongolische Völkerschaften Th. I. S. 130. Es verlohnte sich der Mühe, weitere umfassende Versuche, bei uns, mit dieser den Indianern so wohlthätigen Pflanze anzustellen. Wir haben beträchtliche zu ihrem Anbau ganz geeignete Sumpfgenden längs dem Rheine hin, die vielleicht dadurch, in einen reichlichen Ertrag gebracht werden könnten. Dazu würde ich vorzüglich mehrere Stellen am Mittelrheine zwischen Basel und Mainz, und vorzüglich die Gegend um Altbreysach, Daxland, Schreck, Linckenheim, Hochstedt, wählen.



Figure 74. *Sagittaria sagittifolia* L. - KR 200219

***Sarcodon imbricatus* (L.) P. Karst.**

**Synonyms:** *Hydnum imbricatum* L.; *Phaeodon imbricatus* (L.) J. Schröt.; *Fungus imbricatus* (L.) Paulet; *Hydnum subsquamosum* Batsch; *Hydnum aspratium* Berk.; *Sarcodon aspratium* (Berk.) S. Ito; *Phaeodon aspratium* (Berk.) Henn.; *Hydnum badium* Pers.; *Hydnum cervinum* Pers.; *Hydnum squamosum* Schaeff.; *Hydnum carnosum* Batsch; *Sarcodon squamosus* (Schaeff.) P. Karst.; *Hydnum repandum* var. *squamosum* Fr.; *Hydnum squarrosum* Nees; *Fungus subsquamosus* Paulet; *Scutigera subsquamosus* (Batsch) Paulet; *Sarcodon subsquamosus* (Batsch) P. Karst.; *Phaeodon subsquamosus* (Batsch) J. Schröt.; *Hydnum infundibulum* Sw.; *Bankera infundibulum* (Sw.) Pouzar; *Hydnum adpressum* Lloyd; *Hydnum badium* var. *subsquamosum* (Batsch) Pers.; *Sarcodon imbricatum* (L.) P. Karst.

**Original name (Gmelin 1817):** *Hydnum squamosum*. Bulliard. tab. 409. - *Hydnum imbricatum*. Linn. Sp. pl. - Schaeff. Fung. tab. 140. und tab 273.

**German names and French names (Gmelin 1817):** Schuppiger Stachelschwamm, Braune Hirschzunge; Hydne écailléux

**Contemporary uses:** *Edible when fresh.* (Jorjadze et al. 2025n).

**Uses 1817 (Gmelin 1817):** Occasionally eaten.

**Description and Ecology (Gmelin 1817):** Grows solitarily. The stem is cylindrical, thick, swollen at the base, erect, pale brown. The bulge and ring are missing. The cap is domed, broad, thick, sometimes more or less depressed in the center, pale brown, brownish ash-colored, covered with raised, pointed blackish-brown scales. The spines on the underside of the cap are closely packed, very pointed, and slightly separated from the flesh, light brown, sometimes turning ash-gray. The flesh is dense and white. Grows in September and October on the ground in coniferous forests.

**Original German text Gmelin (Gmelin 1817):** Einzeln stehend. Der Strunck walzenförmig, dick, am Grunde aufgeschwollen, aufrecht, blaßbraun. Wulst und Ring fehlen. Der Hut gewölbt, breit, dick, in der Mitte zu Zeiten mehr oder weniger eingedrückt, blaßbraun, bräunlich aschfarben, mit erhabenen, zugespitzten schwärzlich braunen Schuppen besetzt. Die Stacheln auf der untern Seite des Hutes dicht beisammen, sehr spitzig, sondern sich leicht von dem Fleische ab, lichtbraun, zu Zeiten ins aschgraue gehend. Das Fleisch dicht, weiß. Wächst im September, October auf der Erde, in Nadelholzwaldungen. Wird hie und da verspeist.

***Scirpus sylvaticus* L.**

**Synonyms:** *Cyperus sylvaticus* (L.) Missbach & E.H.L.Krause; *Nemocharis sylvatica* (L.) Beurl.; *Schoenus sylvaticus* (L.) Bernh.; *Scirpus gramineus* Neck.; *Scirpus latifolius* Gilib.; *Scirpus sylvaticus* f. *angustifolius* Podp.; *Scirpus sylvaticus* f. *jungei* Soó; *Scirpus sylvaticus* subsp. *digynus* (Boeckeler) T.Koyama; *Scirpus sylvaticus* var. *compactus* C.Klinggr.; *Scirpus sylvaticus* var. *digynus* Boeckeler; *Scirpus sylvaticus* var. *dissitiflorus* Sond.; *Scirpus sylvaticus* var. *jechlii* Opiz ex Nyman; *Scirpus sylvaticus* var. *laxus* Čelak.; *Scirpus sylvaticus* var. *sylvaticus*; *Seidlia jechlii* Opiz ex Nyman; *Seidlia radicans* Opiz; *Seidlia sylvatica* (L.) Opiz; *Taphrogon sylvaticum* (L.) Montandon

**Original name (Gmelin 1817):** *Scirpus sylvaticus*. Linn. Sp. pl. - Gmel. Fl. Bad. I. p. 109.

**German names and French names (Gmelin 1817):** Waldbinse, Waldbinsengras, Waldsemse, Löchel; Scirpe des bois

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 47973** (Fig. 75)

**Botany and Ecology:** Perennial, with a short branching rhizome giving rise to leafy shoots; culms 40-120 cm tall, leafy, obtusely 3 -angled, glabrous, prominently scabrous on the angles below the inflorescence; leaves broadly linear, to 2 cm broad, long, flat, scabrous on the margins and midrib. Inflorescence 10-20 cm long, ovoid, either rather compact with short branches or loose with long branches, subtended by 3-4 involucre leaves; spikelets 3-5 in glomerules ovoid, subobtuse, 3-4 mm long; scales oblong-ovate, acuminate -tipped, blackish; perianth-bristles 6, retrorsely barbed, equaling or slightly exceeding the achene; achene obovoid, ca. 1 mm long, short-pointed. May- July. Wet meadows, bogs, coppices, forests, and shores. (Flora of Azerbaijan 1950-1961).



Figure 75. *Scirpus sylvaticus* L. - KR 47973

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** When young and freshly fed in spring, it provides cattle and horses with a pleasant and healthy diet. This and several other grasses that commonly grow in marshy and flooded areas can be fed fresh, with some chopped straw, to cattle and horses in early spring.

**Description and Ecology (Gmelin 1817):** The stalk is 1.5 - 2.5 feet tall, upright, triangular, leafy, and smooth. The flower umbel is leafy and trifoliate. The spikelets are ovoid and crowded, and the seeds are bluntly triangular, surrounded at the base by 4 - 6 short bristles. This grass is common along ditches, in marshy, damp, and flood-prone pastures, meadows, and woodlands. It blooms in May and June, ripens its seeds in July and August, and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Der Halm ist 1½ - 2½ Fuß hoch, aufrecht, dreiseitig, blättrig, glatt. Die Blüthendolde blättrig, dreyfach zusammengesetzt. Die Aehrchen eyförmig, gedrängt, der Samen stumpf dreyeckig, am Grunde mit 4 - 6 kurzen Borsten umgeben. Dieses Gras kommt häufig an Wassergräben, in sumpfigen, feuchten, den

Ueberschwemmungen ausgesetzten Weiden, Wiesen, und Waldungen vor, blühet im May und Juni, reifet seine Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Es giebt jung im Frühjahr, frisch gefüttert, dem Rindvieh und den Pferden eine angenehme und gesunde Nahrung. Dieses und noch mehrere in sumpfigen und überschwemmten Gegenden häufig wachsenden Gräser, können im ersten Frühjahre, frisch, mit etwas klein geschnittenem Stroh, dem Rindvieh und den Pferden verfüttert werden.

### ***Silene vulgaris* (Moench) Garcke**

**Synonyms:** *Behen alpinus* (Lam.) Guşul.; *Behen angustifolius* Schott ex Steud.; *Behen antelopum* E.H.L.Krause; *Behen fabarius* Link; *Behen glareosus* Fourr.; *Behen oleraceum* E.H.L.Krause; *Behen puberulus* Fourr.; *Behen trachiatus* Fourr.; *Behen vesicarius* Fourr.; *Behen vulgaris* Moench; *Behenantha behen* (L.) Ikonn.; *Behenantha cserei* Schur; *Behenantha glaucescens* Schur; *Behenantha inflata* Schur; *Behenantha saponariifolia* Schur; *Cucubalus alpinus* Lam.; *Cucubalus angustissimus* Nocca & Balb.; *Cucubalus antelopum* Vest; *Cucubalus behen* L.; *Cucubalus inflatus* Salisb.; *Cucubalus latifolius* Mill.; *Cucubalus littoralis* Vis.; *Cucubalus marginatus* Schult.; *Cucubalus montanus* Vest; *Cucubalus personii* Spreng. ex Steud.; *Cucubalus rotundifolius* Steud.; *Cucubalus saponariifolius* Moench ex Steud.; *Cucubalus scaber* Fisch. ex Regel; *Cucubalus venosus* Gilib.; *Cucubalus viridis* Lam.; *Elisanthe zawadskii* (Herbich) Fuss; *Oberna behen* (L.) Ikonn.; *Silene behen* var. *cucubalus* (Wibel) Kuntze; *Silene cucubalus* Wibel; *Silene inflata* Sm.; *Silene inflata* var. *pubescens* DC.; *Silene inflata* var. *vulgaris* Turcz.; *Silene latifolia* Britten & Rendle; *Silene latifolia* var. *pubescens* Farw.; *Silene saponariifolia* Schott ex Rchb.; *Silene venosa* Asch., *Silene vulgaris* f. *latifolia* (Mill.) C.Vaczy; *Silene vulgaris* subsp. *vulgaris* (Moench) Garcke, *Silene wallichiana* Klotzsch; *Silene zawadskii* hort. ex Fenzl; *Viscago behen* Hornem.

**Original name (Gmelin 1817):** *Cucubalus Behen*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 247. 248.

**German names and French names (Gmelin 1817):** Gemeiner weisser Behen, Weisser Wiederstoß, Gliedweich, Schaumröslein, Wildes Saifenkraut, Schachtkraut, Kernkraut, Körnerig; Been blanc, Carnillet

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 163555** (Fig. 76)

**Botany and Ecology:** Perennial, glabrous herb. Stem erect. Leaves elliptic-lanceolate, apex acuto to or acuminate. Inflorescence a terminal panicle, dichotomously branched, bracteate. Flowers with inflated calyx, vesicular, with a multi striate surface and venulose, lobes triangular and acute; petals bipartite with a tuberculate base. Fruit dry, splitting open when ripe. Europe, northwestern Africa, Asia. *Oberna wallichiana* is typical of dry meadows, banks, wasteland and lawns. It protects itself from drying out with a bluish green covering of wax, and its roots reach down deep into the ground. The layer of air inside the calyx insulates the flower's more delicate inner parts from heat. The flower's petals can lose their water content during the day and wilt, but in the evening they return to normal and start to secrete a pleasant, clove-like fragrance. It is visited by night butterflies, but its nectar also attracts small beetles, flower flies and bees. (Flora of Azerbaijan, 1950-1961; Komarov and Shishkin 1936).

**Contemporary uses:** *Azerbaijan: used for wound healing: The juice of the plant is used externally in the treatment of different wounds and sores. Georgia: phkhali. Azerbaijan: Young shoots of have the taste of asparagus and are used in food raw and marinated; boiled leaves are used like spinach. Pakistan: respiratory disorders, eczema, constipation; skin problems, stomachache. Turkey: urinary infections, diaphoretic, stomach problems. India: ophthalmia. Pakistan: anthelmintic, kidney problems. Morocco: digestive and urinary system problems. India: wounds, itches, constipation, bronchitis, asthma. Algeria: constipation, intestine problems. Silene vulgaris is often used for wound healing: The juice of the plant is used externally in the treatment of different wounds and sores. Croatia: wounds. Pazija. Italy: raw, boiled, fried, soups; soups, omelettes, boiled; fried for omelettes and pasta. Filling for salty pies (byrek); soups. Vegetable. Europe / Poland: vegetable. Belarus: soups. Turkey: vegetable, fried. Lebanon: young shoots and leaves eaten raw or cooked. Spain: vegetable. Pakistan / India: cooked vegetable. Cyprus: eaten raw and cooked.* (Bussmann et al. 2025H; Paniagua-Zambrana et al. 2025P).

**Uses 1817 (Gmelin 1817):** The young, tender leaves produce a very tasty vegetable in spring. The English grow it in their kitchen gardens and primarily use the young root shoots to make an extremely tasty salad. In this respect, it certainly deserves to be introduced into our kitchen gardens as well, as when planted in loose, slightly rich garden soil, it produces a large number of such root shoots, which can be dug out from time to time.



Figure 76. *Silene vulgaris* (Moench) Garcke - KR 163555

**Description and Ecology (Gmelin 1817):** The root is white, branched, and fibrous. The stem is 1-2 feet tall, prostrate at the base, then erect, round, segmented, finely hairy beneath, bifid above, smooth. The leaves are sessile, opposite, fused together at the base, elliptic-lanceolate, pointed, entire at the margins, pale green. The flowers terminate in the stem and branches. The pedicels are single-flowered, slightly drooping. The calyx is oval or almost spherical, inflated, smooth, attractively reticulate, veined, and five-toothed. The corolla has five petals. The leaflets are deeply bifid, white, sometimes turning pale red. The seed capsule is almost round, multi-seeded. It varies with broader and narrower leaves. Grows in slightly dry meadows, in grassy orchards, in grain fields, fallow fields, in vineyards, and along grassy paths, consistently common. It blooms in May, June, and July. Its seeds ripen in July and August, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weiß, ästig und faserig. Der Stengel 1 - 2 Fuß hoch, am Grunde niederliegend, alsdann aufrecht, rund, gegliedert, unterhalb feinhaarig, oben zweygetheilt, glatt. Die Blätter aufsitzend, gegenüberstehend, am Grunde mit einander verwachsen, ey-lanzettförmig, zugespitzt, am Rande ganz, fahlgrün. Die Blüten endigen den Stengel und die Aeste. Die Blütenstiele einblumig, etwas vorwärts hangend. Der Blütenkelch eyrund, oder

beynahe kugelrund, aufgeblasen, glatt, niedlich netzförmig, aderig, fünfzählig. Die Blumenkrone fünfblättrig. Die Blättchen tief zweytheilig, weiß, zu Zeiten ins blaßrothe gehend. Die Samen-Capsel fast rund, vielsamig. Sie ändert mit breitem und schmälern Blättern ab. Wächst auf etwas trockenen Wiesen, in Gras- und Obstgärten, auf Getreideäckern, Brachäckern, in Weinbergen, an grasigen Wegen, durchgängig häufig. Blühet im May, Juni, Juli. Reifet ihre Samen im Juli, August, und gehört zu den ausdauernden Gewächsen. Die jungen zarten Blätter, geben im Frühjahr, ein sehr schmackhaftes Gemüse. Die Engländer ziehen sie in ihren Küchengärten, und benutzen vorzüglich die jungen Wurzelsprossen zu einem äusserst schmackhaften Salat. Sie verdiente in dieser Hinsicht, allerdings auch in unsern Küchengärten eingeführt zu werden, indem sie im lockern etwas fetten Gartenlande gepflanzt, eine große Menge solcher Wurzelsprossen treibt, welche von Zeit zu Zeit, abgestochen werden können.

### ***Sinapis arvensis* L.**

*Synonyms:* *Brassica arvensis* (L.) Rabenh.; *Brassica arvensis* var. *orientalis* (L.) Farw.; *Brassica arvensis* var. *schkuhriana* Thell. in Schinz & R.Keller; *Brassica barbareifolia* Ball; *Brassica kabera* (DC.) Wheeler; *Brassica kabera* var. *orientalis* (L.) Scoggan; *Brassica kabera* var. *pinnatifida* (Stokes) L.C.Wheeler; *Brassica kabera* var. *schkuhriana* (Rchb.) L.C.Wheeler; *Brassica kabera* var. *stricta* (Celakovsky) Shinnery; *Brassica sinapis* Vis.; *Brassica sinapistrum* Boiss; *Brassica sinapistrum* var. *orientalis* Samp.; *Brassica sinapistrum* var. *schkuhriana* (Rchb.) Samp.; *Brassica xinjiangensis* Y.Z.Lan & T.Y.Cheo; *Crucifera sinapistra* E.H.L.Kraus; *Napus agriasinapis* K.F.Schimp. & Spenn.; *Raphanus arvensis* Crantz; *Raphanus orientalis* Crantz; *Rhaphospermum arvense* Andr. ex Besser; *Rhaphospermum orientale* Andr.; *Sinapis arvensis* f. *orientalis* (L.) D.Löve & J.-P.Bernard; *Sinapis arvensis* subsp. *arvensis*; *Sinapis arvensis* var. *arvensis*; *Sinapis arvensis* var. *leiocarpa* Gaudin; *Sinapis arvensis* var. *nilotica* O.E.Schulz; *Sinapis arvensis* var. *orientalis* (L.) Koch & Ziz; *Sinapis arvensis* var. *orientalis* (L.) W.D.J.Koch & Ziz; *Sinapis arvensis* var. *pinnatifida* Stokes; *Sinapis arvensis* var. *schkuhriana* (Rchb.) Hagenb.; *Sinapis kabera* DC.; *Sinapis orientalis* L.; *Sinapis polymorpha* Geners. ex Schult.; *Sinapis retrohispidia* Boreau; *Sinapis schkuhriana* Rchb.; *Sinapis villosa* Mérat; *Sinapistrum arvense* Spach

**Original name (Gmelin 1817):** *Sinapis arvensis*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 199. 100.

**German names and French names (Gmelin 1817):** Ackersenf, Wilder Senf, Feldsenf, Triller, Falscher Hederich, Gelber Hederich; Moutard des champs.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 131136** (Fig. 77)

**Botany and Ecology:** Annual; stem 10-100 cm high, branching, usually covered with spreading simple hairs; reddish violet spots often in axils of branches; lower leaves lyrate -pinnatifid, all leaves hairy, rarely glabrescent, upper leaves sessile, oblong-ovate, acuminate at apex. Sepals 4-7 mm long; petals 9-11mm long, claw narrow, somewhat shorter than limb; siliques 18-33 mm long (excluding beak), cylindrical or tetragonous; pedicels short and rather stout, 3-7 mm long, 1-2 mm thick, directed at an acute angle from axis, sometimes sub-appressed to stem; valves 3 -nerved, firm, torulose, prolonged into an tetragonous beak, 1-2 cm long, often 1 -seeded; seeds dark brown or nearly black. May-June. Ural, Caucasus, Altai and Central Middle Asia, excluding the Pamirs, as weed in crops, near roads, also grown in kitchen gardens. (Boborov and Bush 1939).

**Contemporary uses:** The seeds are used as diuretic and for scurvy. Its young leaves are eaten as a salad or like spinach. Source of mustard. The oil extracted from the seeds is edible. *mdogvi მდოგვი Sinapis arvensis* L. is eaten raw in Khevi. In Khevi, pickles are made from local plants: *saskhep'ia სასხეპია Chaerophyllum bulbosum* L., *diq'i დიცი Heracleum ssp.*, *mdogi მდოგვი Sinapis arvensis* L. Shoots of *saskhep'ia სასხეპია Chaerophyllum bulbosum* L., are cut in thin pieces and salted in a jar or barrel, seasoned with pepper and caraway, poured with a spring water. The shoots of *დიცი Heracleum ssp.* are peeled, cut and put in a jar layer-by-layer, salt placed between the layers, the upper layer was topped with *mzhavela მჟაველა Rumex acetosa* L. ფოთლებს, *mk'vliavi მკვლიავი Carum carvi* L. and finally water was added. *Mdogi მდოგვი Sinapis arvensis* L. pickles do not last long. *Ghandzili ღანძილი (Allium victorialis* L.) and *mdogi მდოგვი* are put in salted but not boiling water and seasoned with caraway. In Tusheti many herbaceous plants are used as food and are kept for winter, either dried or pickled, to make mixed *mkhali* and sauces, and to accompany the main dishes, including *kumeli ქუმელი q'va ყვა*. It is used all-year round, is made of roasted *keri კერი (barley)* grains.



with walnuts and vinegar. Some plants are used to make khinkali in Tusheti. For example, *giera* გიერა *Sinapis arvensis* L. is cut, mixed with cottage cheese, put in the dough and boiled. Before eating, khinkali is bitten to open slightly and put a butter on it, or butter is placed on the top. In Tusheti *ch'imi* ჭიმი *Chaerophyllum bulbosum* L., *giera* გიერა *Brassica campestris* subsp. *oleifera* (DC.) Schübl. & Mart., *machigt'ara* მახიგტარა *Campanula rapunculoides* L., *khap'ara* ხაპარა (ვარდკაჭაჭა) *Cichorium intybus* L., *diq'i* დიყი *Heracleum* ssp., *shup'q'a* შუპყა *Heracleum asperum* M. Bieb., *ap'q'i* აპყი *Heracleum leskovii* Grossh., *dutsi* დუცი *Angelica tatiana* Bordz, *giera* გიერა *Sinapis arvensis* L., *jortk'uda* ჯორთკუდა (wild estragon) *Artemisia vulgaris* L., *mariamdzmara* მარიამძმარა *Ligusticum alatum* (M.Bieb.) Spreng., and *kharnuq'a* ხარნუყა *Lactuca serriola* L. are eaten raw and also dipped in sour milk. These herbaceous plants for dipping (*sats'ebaci*, *sats'ebi* "chatseba" means "dip" in Georgian) are harvested and a bowl with curd "shegdebul ze" „შეგდებულ ზე" is filled; then leaves and young shoots from the mentioned herbaceous plants are plucked, dipped in the curd and eaten. Now relatively rarely grown. The leaves are used for *pkhkhali* (herb pie) and are also pickled. The seeds serve as spice. The plant is poisonous to livestock when fruiting. Excellent honey and pollen plant. Seed oil can be used for lighting. (Belkasmi et al. 2024c; Busmann et al. 2020s; 2025l).

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be eaten as a tasty and healthy vegetable. The young, tender plants are eagerly eaten by cattle and pigs when green, providing them with good nutrition. A good fuel oil can be pressed from the seeds; 100 pounds yield 30 pounds of oil. Since this plant is found in grain fields in various parts of the country and the surrounding areas, often in such incredible quantities, as is particularly the case in the Odenwald, in Fürstenberg in the Baar region, around Villingen, and several other similar areas, where it gilds entire large areas during its flowering season, it should be used during periods of scarcity, especially for humans and animals. As hated as it is among grain crops among farmers, it becomes equally important during periods of poor growth and scarcity.

**Description and Ecology (Gmelin 1817):** The root is somewhat spindle-shaped, fibrous, and white. The stem is 1-2 feet tall, round, furrowed and striated, hairy, and branched. The leaves are alternate, the lower ones stalked, the upper ones somewhat sessile, serrated, the lowest somewhat pinnate, and all hairy. The flower clusters terminate in the stem and branches. The calyx is four-leaved, very distinct, and yellowish. The corolla is four-leaved, yellow, larger than the calyx. The pod is round, moderately long, somewhat angular, smooth or hairy, ending in a compressed, smooth, somewhat square beak. The seeds are round, black. Grows frequently in grain fields, among crops, especially on stony, calcareous, and marl-lime soils, both in lowland and mountainous regions. Blooms in May and June. Its seeds ripen in July and August, and it is considered an annual plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel etwas spindelförmig, faserig, weiß. Der Stengel 1 - 2 Fuß hoch, rund, gefurcht und gestreift, rauhaarig, ästig. Die Blätter abwechselnd, die untern gestielt, die obern etwas aufsitzend, buchtenartig gezahnt, die untersten etwas gefiedert, und sämmtlich rauhaarig. Die Blüthentrauben endigen den Stengel und die Aeste. Der Blumenkelch vierblättrig, sehr abstehend, gelblich. Die Blumenkrone vierblättrig, gelb, größer als der Kelch. Die Schote rundlich, mäßig lang, etwas eckig, glatt oder rauhaarig, sich in einen zusammengedrückten glatten etwas viereckigen Schnabel endigend. Die Saamen rundlich, schwarz. Wächst häufig auf Getreideäckern, unter der Saat, vorzüglich auf leetigen steinigen und Kalkmergel- Böden, sowohl in niedern, als in Gebirgsgegenden. Blühet im May, Juni. Reifet seine Samen im Juli, August, und gehört unter die einjährigen Pflanzen. Die jungen zarten Blätter können als schmackhaftes und gesundes Gemüse verspeist werden. Die jungen zarten Pflanzen werden von dem Rindvieh und den Schweinen, grün, begierig gefressen, und geben ihnen eine gute Nahrung. Aus den Samen läßt sich ein gutes Brennöl pressen; aus 100 Pfund erhält man 30 Pfund Oehl. Da diese Pflanze in verschiedenen Landes- und den angränzenden Gegenden, oft in so unglaublicher Menge, auf den Getreideäckern vorkommt, wie der Fall vorzüglich am Odenwalde, im Fürstenbergischen in der Baar, um Villingen und mehreren andern ähnlichen Gegenden ist, wo sie ganze große Strecken zur Blüthezeit vergoldet, sollte sie bei Mangel, bestens für Menschen und Thiere benutzt werden. So verhaßt sie den Landwirthen unter dem Getreide ist, so wichtig wird sie, bei Mißwachs und Mangel.

### ***Sium sisarum* L.**

**Synonyms:** *Apium sisarum* Caest.; *Berula lancifolia* Besser; *Carum sisarum* Baill.; *Pimpinella sisaroidea* (DC.) Manden.; *Pimpinella sisarum* Jess.; *Selinum sisarum* E.H.L.Krause; *Seseli sisarum* Crantz; *Sisarum sisaroideum* (DC.) Schischk.; *Sium brevifolium* hort. ex DC.; *Sium lancifolium* M.Bieb.; *Sium podolicum* Besser ex Rchb.; *Sium podolicum* hort. ex G.Don; *Sium sisaroideum* DC; *Sium sisarum* subsp. *sisaroideum* (DC.) Soó; *Sium sisarum* var. *lancifolium* Thell.; *Sium sisarum* var. *vulgare* Alef.

**Original name (Gmelin 1817):** *Sium Sisarum*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 672. 673. Schkuhr. Bot. Handb, tab. 63

**German names and French names (Gmelin 1817):** Zuckerwurzel; Chervi

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): No data

**KR 150320** (Fig. 78)



Figure 78. *Sium sisarum* L. - KR 150320

**Botany and Ecology:** Plant 50-100 cm. Root fibrous. Stems erect with creeping underground shoots. Leaves 1-pinnate; leaflets 2-4 pairs, ovate-lanceolate, 2-7 × 1-3 cm, margins serrate-dentate. Upper leaves smaller, leaflets lanceolate. Umbels 3-5 cm across; peduncles elongate; bracts 5-7, lanceolate-linear, 0.5-2 cm, margins white scarious; rays 10-15, 1.5-2.5 cm; bracteoles similar to bracts; umbellules ca. 20-flowered; pedicels 2-5 mm. Calyx teeth triangular, minute, ca. 0.2 mm. Fruit ovoid, ca. 4 × 2.5 mm. Flowering and fruiting July-August. (Wu *et al.* 1994-2013).

**Contemporary uses:** Root sometimes used as coffee substitute.

**Uses 1817 (Gmelin 1817):** This plant probably originated in China and was cultivated in large quantities several centuries ago, especially in the Rhine region, and from there it spread to Italy and Spain, where it is still known to this day under the name Chirivia Tudesca (German sugar root). According to Pliny's account, Book 19, Chapter 5, Emperor Tiberius already had it brought from the Rhine region to Italy. It is rarely planted in gardens here and there, blooms in July, August, and September, and its seeds ripen in September and October, and is considered a perennial plant. Since these roots are among the most excellent and healthy foods, the plant should be carefully cultivated, especially in low-lying gardens and fields along the Rhine, Main, and Neckar during wet seasons. Cultivation and rapid propagation are best achieved through the root fibers. The roots are dug up for consumption before they produce stems. They are freed from the tough nerves, or marrow, and eaten raw with salt, pepper, vinegar, and oil, or prepared as a side dish or in soups. The herb provides good nutrition for pigs and cows. Margraf obtained 3 shillings of pure sugar from ½ pound of roots. Fermentation produces an excellent brandy. In wet years, several kitchen gardens and fields, especially in the Rhine, Main, and Neckar regions, are often flooded for a time, which causes most cultivated culinary plants to perish. This, however, is not the case with sugar beet, which prefers moist and wet soil. In fact, it grows larger and tastier as a result.

**Description and Ecology (Gmelin 1817):** The root is elongated, spindle-shaped, and consists of several fleshy, knotty, uneven, white appendages, the thickness of a little finger, through which a hard nerve runs in the middle. The stem is 2-2.5 feet tall, erect, round, furrowed, smooth, and branched at the top. The leaves are pinnate, those nearest the flowers numbering three. The general involucre is multi-leaved, recurved, and shorter than the umbel. The particular involucre is multi-leaved. The flowers are white. The seeds are egg-shaped, raised on one side and flat and striped on the other.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel ist länglich, spindelförmig, besteht aus mehreren fleischigen, knotigen, unebenen, eines kleinen Fingers dicken, weißen Anhängseln, durch welche in der Mitte ein harter Nerve läuft. Der Stengel 2 - 2½ Fuß hoch, aufrecht, rund, gefurcht, glatt, oben ästig. Die Blätter gefiedert, die zunächst an den Blüten stehenden, zu drey an der Zahl. Der allgemeine Umschlag vielblättrig, zurückgebogen, kürzer als die Dolde. Der besondere Umschlag vielblättrig. Die Blüten weiß. Die Samen eyförmig, auf der einen Seite erhaben, auf der anderen eben und gestreift. Diese Pflanze kommt ursprünglich vermuthlich aus China, und wurde schon vor mehreren Jahrhunderten vorzüglich in den Rheingegenden in Menge angepflanzt, und kam von da nach Italien und Spanien, ist daher letztern noch bis auf diese Stunde unter dem Namen Chirivia Tudesca (Teutsche Zuckerwurzel) bekannt. Schon Kaiser Tiberius ließ sie von den Rheingegenden nach Plinius Angabe, Buch 19. Capit. 5. nach Italien bringen. Sie wird hie und da jedoch selten in Gärten gepflanzt, blühet im Juli, August, September. Reifet ihre Samen im September, October, und gehört unter die ausdauernden Gewächse. Da diese Wurzeln unter die ganz vorzüglichsten und gesunden Nahrungsmittel gehören, sollte die Pflanze vorzüglich in den tiefer liegenden Gärten und Aeckern am Rhein, Main, und Neckar in nassen Jahrgängen, sorgfältig angebaut werden. Der Anbau und die schnelle Vermehrung geschieht am besten durch die Wurzelfasern. Die Wurzeln werden, ehe sie Stengel treiben, zum Essen ausgegraben, man befreyet sie von dem durchlaufenden harten Nerven, oder Marck, und ißt sie roh mit Salz, Pfeffer, Essig und Oehl, oder bereitet sie als Zugemüße, oder in die Suppen. Das Kraut giebt den Schweinen und Kühen eine gute Nahrung. Aus ½ Pfund Wurzeln, hat Margraf, 3 Loth reinen Zucker erhalten. Durch die Gährung läßt sich ein trefflicher Brandtwein aus ihnen bereiten. In nassen Jahrgängen, werden oft mehrere Küchengärten und Felder, vorzüglich in den Rhein-, Main-, und Neckargegenden, auf einige Zeit überschwemmt, wodurch die meisten angebauten Küchengewächse zu Grunde gehen, was aber mit der Zuckerwurzel, die einen feuchten und nassen Boden liebt, der Fall nicht ist. Ja sie wird dadurch größer und schmackhafter.

### ***Solanum tuberosum* L.**

**Synonyms:** *Battata tuberosa* Hill; *Larnax sylvarum* subsp. *novogranatensis* N.W.Sawyer; *Lycopersicon tuberosum* (L.) Mill.; *Parmentiera edulis* Raf.; *Solanum andigenum* Juz. & Bukasov; *Solanum andigenum ancacpomacanchicum* Bukasov & Lechn.; *Solanum andigenum f. acomayoanum* Lechn.; *Solanum andigenum f. alccai-huarmi* Bukasov & Lechn.; *Solanum andigenum f. ancacc-maquin* Bukasov & Lechn.; *Solanum andigenum f. ancacpomacanchicum* Bukasov & Lechn.; *Solanum andigenum f. andigena* Juz. & Bukasov; *Solanum andigenum f. andigenum* Juz. & Bukasov; *Solanum andigenum f. arcuatum* Bukasov & Lechn.; *Solanum andigenum f. atroviolaceum* Lechn.; *Solanum andigenum f. basiscopum* Bukasov & Lechn.; *Solanum andigenum f. bifidum* Bukasov & Lechn.; *Solanum andigenum f. blanca* Lechn.; *Solanum andigenum f. caesium* Bukasov & Lechn.; *Solanum andigenum f. caiceda* Bukasov; *Solanum andigenum f. ccompetillo* Bukasov & Lechn.; *Solanum andigenum f. ccompis* Bukasov & Lechn.; *Solanum andigenum f. cevallosii* Bukasov & Lechn.; *Solanum andigenum f. chalcense* Bukasov; *Solanum andigenum f. chiar-imilla* Bukasov & Lechn.; *Solanum andigenum f. chimaco* Bukasov & Lechn.; *Solanum andigenum*

f. *ckehuillo* Lechn.; *Solanum andigenum* f. *coeruleum* Lechn. ex Bukasov; *Solanum andigenum* f. *conicolumnatum* Bukasov & Lechn.; *Solanum andigenum* f. *coyo* Lechn.; *Solanum andigenum* f. *cryptostylum* Bukasov & Lechn.; *Solanum andigenum* f. *dilatatum* Bukasov & Lechn.; *Solanum andigenum* f. *discolor* Bukasov & Lechn.; *Solanum andigenum* f. *elongatipedicellatum* Lechn.; *Solanum andigenum* f. *globosum* Bukasov & Lechn.; *Solanum andigenum* f. *grandiacuminatum* Lechn.; *Solanum andigenum* f. *guatemalense* Bukasov. *Solanum andigenum* f. *huacalaira* Bukasov & Lechn.; *Solanum andigenum* f. *huallata* Bukasov & Lechn.; *Solanum andigenum* f. *huaman-uma* Bukasov & Lechn.; *Solanum andigenum* f. *huarasicum* Lechn.; *Solanum andigenum* f. *huarisalla* Lechn.; *Solanum andigenum* f. *imilla* Lechn.; *Solanum andigenum* f. *incrassatum* Bukasov & Lechn.; *Solanum andigenum* f. *lanciacuminatum* Bukasov & Lechn.; *Solanum andigenum* f. *languaja* Lechn.; *Solanum andigenum* f. *lapazense* Bukasov & Lechn.; *Solanum andigenum* f. *lecke-umo* Bukasov & Lechn.; *Solanum andigenum* f. *leona-negra* Lechn.; *Solanum andigenum* f. *lilacinoflorum* Bukasov; *Solanum andigenum* f. *lisarassa* Bukasov; *Solanum andigenum* f. *llutuc-runtum* Lechn. ex Bukasov; *Solanum andigenum* f. *longituberatum* Lechn.; *Solanum andigenum* f. *magnicorollatum* Bukasov & Lechn.; *Solanum andigenum* f. *maralena* Lechn.; *Solanum andigenum* f. *microstigma* Bukasov & Lechn.; *Solanum andigenum* f. *mixtum* Lechn.; *Solanum andigenum* f. *nahui* Lechn.; *Solanum andigenum* f. *nigriarticulatum* Lechn.; *Solanum andigenum* f. *nigrum* Lechn.; *Solanum andigenum* f. *nodosum* Bukasov; *Solanum andigenum* f. *ovatibaccatum* Bukasov & Lechn.; *Solanum andigenum* f. *pacus* Lechn. ex Bukasov; *Solanum andigenum* f. *pallidum* Bukasov & Lechn.; *Solanum andigenum* f. *pigmentatum* Lechn.; *Solanum andigenum* f. *pomacanchicum* Bukasov & Lechn.; *Solanum andigenum* f. *ppacc-nacha* Bukasov & Lechn.; *Solanum andigenum* f. *ppaqui* Bukasov & Lechn.; *Solanum andigenum* f. *ppisace* Lechn.; *Solanum andigenum* f. *puca-nahui* Lechn.; *Solanum andigenum* f. *puca-papa* Lechn.; *Solanum andigenum* f. *quilcanense* Lechn. *Solanum andigenum* f. *rayancanchense* Lechn.; *Solanum andigenum* f. *rica-liclla* Lechn.; *Solanum andigenum* f. *rosada* Bukasov; *Solanum andigenum* f. *rubricvaneum* Lechn.; *Solanum andigenum* f. *sunchchu* Bukasov & Lechn.; *Solanum andigenum* f. *taccla* Lechn.; *Solanum andigenum* f. *tenue* Bukasov & Lechn.; *Solanum andigenum* f. *tiahuanacense* Bukasov & Lechn.; *Solanum andigenum* f. *tocanum* Bukasov; *Solanum andigenum* f. *toldoense* Lechn.; *Solanum andigenum* f. *tolucanum* Bukasov; *Solanum andigenum* f. *uncuna* Bukasov & Lechn.; *Solanum andigenum* f. *viride* Lechn.; *Solanum andigenum* f. *viridiculum* Lechn.; *Solanum andigenum* f. *viridulum* Lechn.; *Solanum andigenum* f. *yuncay-pampa* Lechn.; *Solanum andigenum* f. *yurac* Lechn.; *Solanum andigenum* f. *yurac-suittu* Lechn.; *Solanum andigenum* *huarasicum* Lechn.; *Solanum andigenum* subsp. *argentinicum* Lechn.; *Solanum andigenum* subsp. *australiperuvianum* Lechn.; *Solanum andigenum* subsp. *ayapapa* Bukasov & Lechn.; *Solanum andigenum* subsp. *bolivianum* Lechn.; *Solanum andigenum* subsp. *centraliperuvianum* Lechn.; *Solanum andigenum* subsp. *colombianum* (Bukasov) Lechn.; *Solanum andigenum* subsp. *ecuatorianum* Lechn.; *Solanum andigenum* subsp. *mediamericanum* (Bukasov) Lechn.; *Solanum andigenum* subsp. *ribbachii* Bukasov & Lechn.; *Solanum andigenum* subsp. *runa* Bukasov & Lechn.; *Solanum andigenum* subsp. *tarmense* Bukasov & Lechn. *Solanum andigenum* var.; *acomayense* Lechn.; *Solanum andigenum* var. *acuminatum* Lechn.; *Solanum andigenum* var. *acutifoliatum* Lechn.; *Solanum andigenum* var. *acutifoliolatum* Lechn.; *Solanum andigenum* var. *adpresse* Lechn.; *Solanum andigenum* var. *albocaesicum* Lechn.; *Solanum andigenum* var. *alca-pimuco* Lechn.; *Solanum andigenum* var. *alccai-huarmi* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *ancacc-maquin* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *ancaschicum* Lechn.; *Solanum andigenum* var. *ancashicum* Lechn.; *Solanum andigenum* var. *atrocoerulescens* Lechn.; *Solanum andigenum* var. *aymaranum* Bukasov & Lechn.; *Solanum andigenum* var. *bifidum* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *bogotense* Lechn.; *Solanum andigenum* var. *bolivianum* Bukasov & Lechn.; *Solanum andigenum* var. *brevicalyx* Bukasov & Lechn.; *Solanum andigenum* var. *brevipetiolatum* Lechn.; *Solanum andigenum* var. *caesium* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *caiceda* (Bukasov) Lechn.; *Solanum andigenum* var. *calvachi* Lechn.; *Solanum andigenum* var. *caranum* Lechn.; *Solanum andigenum* var. *carguamayense* Lechn.; *Solanum andigenum* var. *carhua* Vargas; *Solanum andigenum* var. *catathrisimile* Lechn.; *Solanum andigenum* var. *ccoec-ccompadre* Lechn.; *Solanum andigenum* var. *ccompetillo* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *ccorauense* Lechn.; *Solanum andigenum* var. *ccusi* Bukasov & Lechn.; *Solanum andigenum* var. *cerrodepascense* Lechn.; *Solanum andigenum* var. *chacarero* Lechn.; *Solanum andigenum* var. *chalcoense* Lechn.; *Solanum andigenum* var. *chata-blanca* Lechn.; *Solanum andigenum* var. *chauchuca* Lechn.; *Solanum andigenum* var. *chiar-imilla* Lechn.; *Solanum andigenum* var. *chimaco* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *chimborasicum* Lechn.; *Solanum andigenum* var. *chinchaoense* Lechn.; *Solanum andigenum* var. *chipaquense* Lechn.; *Solanum andigenum* var. *ckecco* Lechn.; *Solanum andigenum* var. *ckellohuaccoto* Bukasov & Lechn.; *Solanum andigenum* var. *colombianum* Bukasov; *Solanum andigenum* var. *conicolumnatum* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *cryptostylum* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *cunca* Lechn.; *Solanum andigenum* var. *curao* Lechn.; *Solanum andigenum* var. *curte* Lechn.; *Solanum andigenum* var. *curtipedicellatum* Lechn.; *Solanum andigenum* var. *curtipilosum* Lechn.; *Solanum andigenum* var. *cuzcoense* Bukasov & Lechn.; *Solanum andigenum* var. *digitotuberosum* Vargas; *Solanum andigenum* var. *dilatatum* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *dissecticorollatum* Lechn.; *Solanum andigenum* var. *ecuatoriale* Lechn.; *Solanum andigenum* var. *elongipedicellatum* Lechn.; *Solanum andigenum* var. *facatativense* Lechn.; *Solanum andigenum* var. *fertilissimum* Lechn.; *Solanum andigenum* var. *flavifilamentosum* Lechn.; *Solanum andigenum* var. *funzanum* Lechn.; *Solanum andigenum* var. *globosum* (Bukasov & Lechn.) Lechn.; *Solanum*

*andigenum* var. *grandifolium* Lechn.; *Solanum andigenum* var. *grauense* Vargas; *Solanum andigenum* var. *guatemalense* (Bukasov) Lechn.; *Solanum andigenum* var. *guatemalense* Lechn.; *Solanum andigenum* var. *hederiforme* (Bukasov) Lechn.; *Solanum andigenum* var. *hederiforme* Bukasov; *Solanum andigenum* var. *herreriae* Bukasov & Lechn.; *Solanum andigenum* var. *huairuru* Bukasov & Lechn.; *Solanum andigenum* var. *hualtca* Lechn.; *Solanum andigenum* var. *hualtca-canaren* Lechn.; *Solanum andigenum* var. *hualtca-lomo* Lechn.; *Solanum andigenum* var. *huancayense* Lechn.; *Solanum andigenum* var. *huarasicum* Lechn.; *Solanum andigenum* var. *huilca* Lechn.; *Solanum andigenum* var. *ibaguense* Lechn.; *Solanum andigenum* var. *imilla* Bukasov & Lechn.; *Solanum andigenum* var. *incrassatum* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *iodes* Lechn.; *Solanum andigenum* var. *jaujense* Lechn.; *Solanum andigenum* var. *jenesanoense* Lechn.; *Solanum andigenum* var. *juninum* Bukasov; *Solanum andigenum* var. *lapazense* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *latacunca* Lechn.; *Solanum andigenum* var. *latiacuminatum* Lechn.; *Solanum andigenum* var. *latipetalum* Lechn.; *Solanum andigenum* var. *latissimiacuminatum* Lechn.; *Solanum andigenum* var. *latius* Bukasov & Lechn.; *Solanum andigenum* var. *leona* Lechn.; *Solanum andigenum* var. *lilacinoflorum* (Bukasov) Lechn.; *Solanum andigenum* var. *lisarasa* (Bukasov) Lechn.; *Solanum andigenum* var. *llutac-rutun* (Lechn. ex Bukasov) Lechn.; *Solanum andigenum* var. *longibaccatum* Bukasov & Lechn.; *Solanum andigenum* var. *longifolium* Lechn.; *Solanum andigenum* var. *luta* Lechn.; *Solanum andigenum* var. *magnicalyx* Lechn.; *Solanum andigenum* var. *magnicorollatum* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *medellinense* Lechn.; *Solanum andigenum* var. *mejoradense* Lechn.; *Solanum andigenum* var. *mexicanum* Bukasov; *Solanum andigenum* var. *mocco-sencca* Lechn.; *Solanum andigenum* var. *monda* Lechn.; *Solanum andigenum* var. *muruchecona* Lechn.; *Solanum andigenum* var. *nigrum* Lechn.; *Solanum andigenum* var. *nodosum* Lechn.; *Solanum andigenum* var. *overa* Lechn.; *Solanum andigenum* var. *parvistigmatum* Lechn.; *Solanum andigenum* var. *pascense* Lechn.; *Solanum andigenum* var. *pata-pata* Lechn.; *Solanum andigenum* var. *paucartambense* Lechn.; *Solanum andigenum* var. *pichinchense* Lechn.; *Solanum andigenum* var. *pinha* Lechn.; *Solanum andigenum* var. *pinha-cerro* Lechn.; *Solanum andigenum* var. *pipinilla* Lechn.; *Solanum andigenum* var. *plathyantherum* Lechn.; *Solanum andigenum* var. *platyantherum* Bukasov & Lechn.; *Solanum andigenum* var. *pomacanchicum* Lechn.; *Solanum andigenum* var. *popayanum* Lechn.; *Solanum andigenum* var. *poroense* Lechn.; *Solanum andigenum* var. *ppaca-naha* Lechn.; *Solanum andigenum* var. *ppaqui* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *ppaspa-sunchchu* Lechn.; *Solanum andigenum* var. *pseudoherreriae* Lechn.; *Solanum andigenum* var. *puca-almilla* Lechn.; *Solanum andigenum* var. *puca-lomo* Lechn.; *Solanum andigenum* var. *puca-mata* Lechn.; *Solanum andigenum* var. *quechuanum* Bukasov & Lechn.; *Solanum andigenum* var. *quitoense* Lechn.; *Solanum andigenum* var. *recurvatulum* Lechn.; *Solanum andigenum* var. *riobambense* Lechn.; *Solanum andigenum* var. *rosada* Lechn.; *Solanum andigenum* var. *siachoquense* Lechn.; *Solanum andigenum* var. *sihuanum* Bukasov & Lechn.; *Solanum andigenum* var. *soccohuaccoto* Bukasov & Lechn.; *Solanum andigenum* var. *soganum* Lechn.; *Solanum andigenum* var. *stenophyllum* Bukasov & Lechn.; *Solanum andigenum* var. *sunchchu* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *tenue* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *tiahuanacense* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *titlicaense* Lechn.; *Solanum andigenum* var. *tocanum* (Bukasov) Lechn.; *Solanum andigenum* var. *tolimense* Lechn.; *Solanum andigenum* var. *tolucanum* (Bukasov) Lechn.; *Solanum andigenum* var. *tolucanum* Lechn.; *Solanum andigenum* var. *tuquerena* Lechn.; *Solanum andigenum* var. *uncuna* (Bukasov & Lechn.) Lechn.; *Solanum andigenum* var. *usmense* Lechn.

**Original name (Gmelin 1817):** *Solanum tuberosum*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 517. - 519.

**German names and French names (Gmelin 1817):** Grundbirn, Erdäpfel., Erdbirn, Kartoffeln; Pomme de terre

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Cultivated as an annual. Plants with fibrous roots and trailing shoots, forming tubers. Stem 0.5-1 m tall, branched, cylindrical below, upper part along with branches slightly angular, shortly appressed hairy, green or generally colored with anthocyanin. Leaves interruptedly pinnatisect, with 7-11 large lobes, alternating with small ones; lobes mostly ovate, acuminate, with oblique, usually cordate base tapering into petiole, upper surface subglabrous, lower pubescent. Flowers in terminal inflorescence. Pedicels articulate near middle. Calyx with five lanceolate-acuminate lobes. Corolla white, reddish, violet, or bluish with short tube and broad, plicate, 5-angular or shallowly 5-lobed limb, 2-3(4) cm in diameter. Anthers yellow. Style curved at base, with capitate stigma. Berry globose, green, 1.5-2 cm in diameter.

**Contemporary uses:** Potatoes are very widely eaten. Young leaves are sometimes consumed in khachapuri and phkhali, however only after careful preparation, and only mixed with lots of other plants. Also used to produce alcohol and sometimes pickled. Eastern Europe: alcohol, bread, pickled. Italy: added to local dumplings. Albania: boiled, staple food together with corn, used for sarma. Hungary / Romania, Balkans: as vegetable. Ukraine: for fever. Hungary: wounds, digestive. In Morocco, tubers, leaves and stem in powder or in infusion are used as a mask to treat burn and skin infections. The aerial parts are used fresh to treat fever, and the juice of the aerial parts is used for digestive problems. In Lebanon, decoction of plant is

externally used to treat hemorrhoids. In Palestine, roots are cooked and used to treat vomiting and diarrhea. The tubers are cooked or eaten fresh to treat high blood pressure. The dried buds of the potato bush are prepared in Colombia as decoction, are used against spasms and applied in seat baths cure hemorrhoids. The peel of the potato prepared in decoction helps lower blood pressure, heals the duodenal ulcer and helps lose weight. Preparing a dough using scraped raw potatoes, it is applied to the skin and covered with gauze so that the boils mature and burst. The poultices prepared with raw peeled and grated potatoes are used to cure varicose veins and burns. The mass of peeled potatoes dissolved in milk whitens the hands with freckles and spots. Peru: Used to treat gastritis, ulcers, stomach infection, and kidney problems. Also, to remedy after childbirth complications, bronchitis, and respiratory problems. Romania: green parts as fodder for cattle. (Aissa et al. 2024b; Bussmann et al. 2020t; 2025J; Paniagua-Zambrana et al. 2020h; 2025Q).

**Uses 1817 (Gmelin 1817):** We owe this excellent plant, which best protects us against hunger, to the Peruvians. Although it has been known in Europe for about 250 years, it was only cultivated in our Rhineland and neighboring regions lately, between 1714 and 1724, and has become more widespread with each passing year. In cases of poor growth and a real shortage of food, it is particularly important to ensure that some of the ground pears intended for cultivation are planted very early in dry, sunny, warm, and loose locations. I particularly recommend hot, dry, sandy areas and some vineyards for this purpose. For this purpose, the so-called early ground pears should be chosen, which should be planted at the beginning of March, about half a foot deep into well-prepared and loosened soil. Throughout March, as long as severe frost is still expected, they should be covered with leaves and straw, weighted down with wood shavings or other material to prevent them from being blown away by the wind. In April, the leaf covering can be removed, and at the end of May, if necessary, the trained ground pears can be collected and used. Should even the necessary ground pears be lacking, they can be used instead; their thread-like, fresh growths, which experience shows produce a large number of ground pears, can be used instead. The most reliable means of obtaining a large number of small, but very nutritious, tasty, and healthy ground pears in a short time is to obtain them from good, ripe seeds. Since experience shows that in very wet, as well as in exceptionally dry years, potatoes often degenerate and yield little or poor nutrition, this is best counteracted by producing them from good, mature seed. S. Gmelin, on the influence of natural science on the overall welfare of the state. Karlsruhe 1809, pp. 66, 67, 68. Mature potato seeds can be stored for several years without spoiling, which is all the more important since they rarely reach full maturity in very wet years or unfavorable late spring seasons. They are sown in spring in suitable, loose soil.

**Original German text Gmelin (Gmelin 1817):** Diese treffliche Pflanze, welche uns am besten gegen Hunger schützt, verdanken wir bekanntlich den Peruvianern. Ob sie gleich schon gegen 250 Jahre in Europa bekannt ist, wurde sie dennoch in unsern Rheinischen und den benachbarten Gegenden erst spät zwischen 1714 - 1724 angebaut, und mit jedem Jahr mehr verbreitet. Bey Mißwachs und wirklichem Mangel an Nahrungsmitteln hat man vorzüglich darauf zu sehen, daß ein Theil der Grundbirn, welche zum Anbauen bestimmt sind, sehr früh an trockne sonnereiche, warme lockere Plätze untergebracht werden, wozu ich vorzüglich die hitzigen trockenen Sandgegenden, und einen Theil der Weinberge in Vorschlag bringe. Dazu sind vorzüglich die sogenannten Früh-Grundbirn zu wählen, welche Anfangs März, etwa einen halben Fuß tief in das gut zugerichtete und aufgelockerte Erdreich zu bringen sind, und den Monat März über, so lange noch starke Frost zu besorgen ist, mit Laub und Stroh zudecken, welches mit Holzspänen oder sonst zu beschweren ist, damit es nicht durch den Wind von der Erde weggetragen werde. Im April kann die Laubdecke abgenommen werden, und zu Ende des Maymonats können im Nothfall, die erzogenen Grundbirn eingesammelt und benutzt werden. Sollte es selbst an den nöthigen Grundbirn zum Anbau fehlen, so können statt diesen, deren fadenartige frische Auswüchse, welche wie die Erfahrung zeigt, eine Menge Grundbirn hervorbringen, dazu genommen werden. Das zuverlässigste Mittel in kurzer Zeit zu einer Menge zwar kleiner, aber sehr nährenden schmackhaften und gesunden Grundbirn zu gelangen, ist deren Erzielung, aus guten reifen Samen. Da die Erfahrung zeigt, daß in sehr nassen, so wie in ausserordentlich trockenen Jahrgängen, die Kartoffeln nicht selten ausarten, daß sie wenig oder schlechte Nahrung geben, ist diesem durch die Erzielung aus gutem reifen Samen am besten zu begegnen. S. Gmelin über den Einfluß der Naturwissenschaft auf das gesammte Staatswohl. Karlsruhe 1809. p. 66. 67. 68. Die reifen Kartoffel-Samen lassen sich mehrere Jahre über aufbewahren, ohne zu verderben, was um so wichtiger ist, da sie bey sehr nassen Jahrgängen, und ungünstigem Spathjahr, selten zu gehöriger Reife kommen. Die Aussaat derselben geschieht im Frühjahr, in ein dazu geeignetes lockeres Erdreich.

### ***Sonchus arvensis* L.**

*Synonyms: Sonchus arvensis f. arvensis; Sonchus arvensis var. arvensis; Sonchus arvensis var. tenggerensis* Hochr.; *Sonchus vulgaris* subsp. *arvensis* (L.) Rouy; *Sonchus vulgaris* subsp. *vulgaris*

**Original name (Gmelin 1817):** *Sonchus arvensis*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 284. 285.

**German names and French names (Gmelin 1817):** Acker-Gänsedistel, Großer Ackerhasenkohl; Laitron des champs

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 157589** (Fig. 79)



Figure 79. *Sonchus arvensis* L. - KR 157589

**Botany and Ecology:** Perennial. Plants with up to 50 cm long vertical root and more or less horizontal, long (up to 150 cm), string-like, tuberous, fragile, lateral roots, covered with numerous adventitious buds. Stems (6)40-100(150) cm high, erect, finely sulcate, including peduncles glandular-hairy or glabrous above. Leaves lanceolate or oblong, 8-20(28) cm long and 1.5-8(10) cm wide, somewhat stiff, almost undivided or weakly sinuate to pinnatilobate, pinnatisect and runcinate, more or less distinctly sharply spinose-toothed; lower leaves narrowed toward base into winged petiole, middle and upper leaves sessile, amplexicaul, basally auriculate or hastate. Capitula of 100-200 florets, usually few (5-10, very rarely more), in corymbose-paniculate or umbellate-corymbose inflorescence; peduncles glandular-hairy or glabrous, usually much longer than capitula.

Involucre cylindrical or campanulate, 12-20 mm long, 7-15(25) mm wide; bracts lanceolate or oblong, dark green or blackish, two- or three (four)-rowed, often dorsally glandular-hairy. Corolla bright or golden yellow. Achenes oblong or ovoid, more or less distinctly compressed, dark brown, 2.5- 3.5(5) mm long and 0.7-1 mm wide, usually with five transversely rugose ribs on each side, apically with low (inconspicuous) circular ridge, somewhat narrowed toward base; pappus of numerous, thin, soft, white or slightly grayish, more or less basally distinctly connate hairs, 9-13 mm long. Flowering June to October. In crops, especially spring crops, lowlands and weedy places, kitchen gardens, roadsides, embankments of canals and peat quarries; meadows, stepped areas with more or less strongly saline soil, riverbanks and seacoasts, shrub thickets (but usually in places where natural vegetation is destroyed for some reason). (Boborov & Tzvelev 1964)

**Contemporary uses:** *Eaten as vegetable. In the region the plants are widely used for wound healing and as diuretic. Eaten in the Caucasus (Bussmann et al. 2016b). In the Caucasus the young leaves are used as a salad. and many species are mixed together for Pkhali. Fodder for livestock. They are also good honey plants. Used in India for cholera, cuts, wounds, dysentery and jaundice (Verma et al 2007). All species sometimes fed to guineapigs and rabbits. Used as fodder for guinea pigs, rabbits and cattle. It is used to purify the blood. (Bussmann et al. 2020u; 2021b; 2025K; Paniagua Zambrana et al. 2020i; 2025R).*

**Uses 1817 (Gmelin 1817):** The green plant is eagerly eaten by pigs and provides them with good nutrition. Therefore, this weed, which is very prevalent in wet years and cursed by farmers, can be used very effectively for pigs.

**Description and Ecology (Gmelin 1817):** The root is somewhat cylindrical, creeping widely and widely, producing milk. The stem is 2-4 feet tall, upright, hollow, rounded, smooth, producing milk, and branched at the top. The leaves are alternate, clasping the stem, heart-shaped at the base, saw-tooth, smooth, and covered with small, soft spines on the edges. The flowers are dispersed and somewhat umbel-shaped. The flower stalks are somewhat long, round, and, along with the calyx, are covered with many glandular bristles. The corolla is large and yellow. The seeds are elongated. The corolla is hair-like and sessile. The receptacle is bare. Grows best in loamy fields, vineyards, and kitchen gardens. It blooms in June, July, and August. Its seeds ripen in August and September and is considered a perennial.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel etwas walzenförmig, weit und breit umher kriechend, milchgebend. Der Stengel 2 - 4 Fuß hoch, aufrecht, hohl, rundlich, glatt, milchgebend, oben ästig. Die Blätter abwechselnd, stengelumfassend, am Grunde herzförmig, schrotsägenartig, glatt, am Rande mit kleinen weichen Stacheln besetzt. Die Blüten ausgehend, etwas doldenförmig. Die Blütenstiele etwas lang, rund, nebst dem Blumenkelche mit vielen drüsenträgenden Borsten besetzt. Die allgemeine Blumenkrone groß, gelb. Die Samen länglich. Die Samenkronen haarförmig, aufsitzend. Der Fruchtboden nackt. Wächst vorzüglich in leimigen Aeckern, Weinbergen und Küchengärten. Blühet im Juni, Juli, August. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Pflanzen. Die grüne Pflanze wird begierig von den Schweinen gefressen, und giebt ihnen eine gute Nahrung. Es kann daher dieses in nassen Jahrgängen sehr überhand nehmende, den Landwirthen verwünschte Unkraut, für Schweine bestens benutzt werden.

### ***Sonchus asper* (L.) Hill**

**Synonyms:** *Carduus amplexicaulis* Noronha; *Hieracium asperum* Bernh.; *Hieracium sonchus* E.H.L.Krause; *Sonchus asper* All.; *Sonchus asper* Garsault; *Sonchus asper* f. *adenotrichus* Soó; *Sonchus asper* f. *asper*, *Sonchus asper* f. *laevis* (Wallr.) V.Kuusk; *Sonchus asper* f. *lignosus* A.T.Szabó; *Sonchus asper* var. *asper*, *Sonchus asper* var. *inermis* Bisch.; *Sonchus asper* var. *pungens* Bisch.; *Sonchus asper* var. *sabulosus* P.D.Sell; *Sonchus carolinianus* Walter; *Sonchus crocifolius* hort. ex Sch.Bip.; *Sonchus decipiens* Zenari; *Sonchus eryngioides* DC.; *Sonchus fallax* Wallr.; *Sonchus fallax* var. *asper* Wallr.; *Sonchus fallax* var. *decipiens* De Not.; *Sonchus fallax* var. *fallax*, *Sonchus fallax* var. *laevis* Wallr.; *Sonchus ferox* Wallr.; *Sonchus glaber* Gilib.; *Sonchus glaber* Thunb.; *Sonchus gracilis* Sennen; *Sonchus infestus* Poepp. ex DC.; *Sonchus laevis* Sloane; *Sonchus macrotus* Fenzl; *Sonchus oleraceus* Wall., *Sonchus oleraceus* subsp. *asper* (L.) Ehrh.; *Sonchus oleraceus* var. *laevis* L.; *Sonchus runcinatus* Zenari; *Sonchus schmidianus* K.Koch; *Sonchus spinosus* Lam.; *Sonchus spinulifolius* Sennen; *Sonchus spinulosus* Bigelow; *Sonchus sulphureus* Boiss.; *Sonchus tenerrimus* Schur; *Sonchus tibesticus* Quézel; *Sonchus umbellatus* E.Mey. ex DC.; *Sonchus viridis* Zenari

**Original name (Gmelin 1817):** *Sonchus asper*. - Gmel. Flor. Badens. III. p. 287.

**German names and French names (Gmelin 1817):** Rauhe Saudistel, Rauhe Gänsedistel, Rauher Hasenkohl, Rauhe Leberdistel, Rauhes Sonchenkraut; Laitron epineux

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 157563 (Fig.80)

Figure 80. *Sonchus asper* (L.) Hill - KR 157563

**Botany and Ecology:** Annual. Root slender, narrowly conical or fusiform, usually branched. Stem (10)30-75(100) cm high, finely sulcate, fistular, simple or branched, glabrous or covered with dark, stalked, glandular hairs above. Leaves somewhat stiff or almost coriaceous, less often thin and soft, dark green or sometimes light bluish, oblong or obovate, 6-15 cm long and 1.5-8 cm wide, undivided, sinuate-pinnatifid, or, less often, pinnatisect, with unevenly spinescent teeth; lower leaves on winged petiole, middle and upper leaves sessile, with roundish auricles appressed to stem. Capitula less numerous (usually 5-10), in corymbose or umbellate-corymbose inflorescence; peduncles glabrous or glandular hairy, often much longer than usually undeveloped capitula; fully developed capitula with 100-150 florets. Involucre campanulate or bowl-shaped, 10-12(15) mm long, (6)10-15(25) mm wide, bracts dark green, narrowly ovate, lanceolate or oblong, usually three-rowed. Corolla yellow. Achenes oblong-obovoid, flat, light- or dark-brown, 2.5-3(3.5) mm long and 0.75-1 mm wide, not rugose transversely (or weakly rugose), usually winged, weakly toothed (under high magnification!) along margin, mostly with three prominent longitudinal ribs on each side; pappus of numerous thin and soft, white, almost smooth, weakly toothed (under

high magnification), fragile hairs, two times or slightly more as long as achenes. Flowering June-September. Ural, Caucasus, Altai, Middle Asia, as weed in gardens, vineyards, along roads, in thickets of steppes, river valleys, up to the middle mountain belt. (Boborov and Tselev 1964).

**Contemporary uses:** Leaves are eaten as a cooked vegetable, or occasionally raw in salads.. Herzegovina: Used as vegetable. Croatia: component of pazija. Poland / Lithuania: boiled as vegetable. Widely eaten as vegetable. Used in fodder as digestive. In the region the plants are widely used for wound healing and as diuretic. Eaten in the Caucasus. In the Caucasus the young leaves are used as a salad and many species are mixed together for Pkhali. Fodder for livestock. They are also good honey plants.. The infusion or decoction of the whole plant is used to prevent the goiter or preserve and as a purgative. In India used to treat cholera, cuts, wounds, diarrhea and jaundice in India. Fresh stems and leaves are used to treat gallbladder, liver, high blood pressure, stomachache, stomach acidity and alcoholism The latex of the leaves is used to soothe toothache. The juice of the crushed leaves is used to treat the colerín; In infusion, treat colds, colic, diarrhea and infections in children. The infusion of the whole plant, combined with taraxaco, escancel, calaguala, artichoke, plantain, cerote, corn hair and a lemon, is drunk to treat liver and kidney problems. The whole plant, in infusion, is used to treat nerves and vomiting; Infused and combined with oregano, melissa and sour orange, it is used to treat the liver and liver conditions. The infusion is tonic and to treat flu and fever. Used for wound healing, and diabetes. All species sometimes fed to guineapigs and rabbits.. Used as fodder for guinea pigs, rabbits and cattle. It is used to purify the blood. (Bussmann et al. 2020u; 2021b; 2025K; Paniagua Zambrana et al. 2020i; 2025R).

**Uses 1817 (Gmelin 1817):** Its use is the same as the previous species.

**Description and Ecology (Gmelin 1817):** It differs from the previous species (*Sonchus laevis*) by its rough leaves and its seeds, which are winged on both sides. It grows and blooms in the same regions and at the same time as the previous species and is also an annual.

**Original German text Gmelin (Gmelin 1817):** Sie unterscheidet sich von der vorhergehenden Art: durch die rauhen Blätter, und die Samen, welche auf beiden Seiten mit einer Haut geflügelt sind. Wächst und blühet mit der vorgehenden in denselben Gegenden und derselben Zeit, und gehört ebenfalls unter die einjährigen Gewächse. Der Nutzen ist wie bei der vorhergehenden Art.

### ***Sonchus oleraceus* L.**

**Synonyms:** *Sonchus ciliatus* Lam.; *Sonchus gracilis* Phil.; *Sonchus mairei* H. Lé.; *Sonchus maritimus* Sessé & Moc.; *Sonchus plumieri* Sessé & Mac.; *Sonchus rivularis* Phil.

**Original name (Gmelin 1817):** *Sonchus laevis*. - Gmel. Flor. Badens. III. p. 285. 286.

**German names and French names (Gmelin 1817):** Glatte Saudistel, Glatte Gänsedistel, Glatte Hasenkohl, Glatte Leberdistel, Glattes Sonchenkraut

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

### **KR 121182**

**Botany and Ecology:** Annual (sometimes biennial). Root narrowly conical or fusiform. Stem 30-100 cm high, finely sulcate, fistular, simple or branched, glabrous or glandular-hairy above. Leaves not stiff, dull, 10-18(22) cm long and 5-7(12) cm wide, pinnatipartite or lyrate with large terminal, triangular lobe, finely sinuate-toothed, with somewhat spinescent teeth; lower leaves on winged petiole with wide amplexicaul base; upper leaves sessile, with sagittate auricles at base. Capitula mostly few (usually 5-15), in corymbose or umbellate-corymbose inflorescence; peduncles and bases of capitula arachnoid- or flocculose-lanate when young, sometimes glandular hairy; some capitula often undeveloped, normally with 100-125(150) florets. Involucre campanulate or bowl-shaped, 10-12 mm long and (6)10-15(25) mm wide; bracts dark green, usually three-rowed, sometimes dorsally with few glandular hairs. Corolla yellow, less often whitish. Achenes oblong-obovoid, somewhat narrowed toward base, more or less strongly compressed, light brown, brown, or dark brown, 2.5-3, mm long, 1 mm wide, weakly toothed along margin (under high magnification!), with three or less often more prominent longitudinal ribs on each side, finely rugose transversely; pappus of numerous thin, soft, white, almost smooth bristles (slightly barbed under high magnification), two times as long as achene. Flowering June-October. Ural, Caucasus, Altai, Middle Asia, as weed in field, kitchen gardens, irrigated areas, along roads, along riverbanks, to the middle mountain belt. (Boborov and Tselev 1964).

**Contemporary uses:** In the region the plants are widely used for wound healing and as diuretic. Eaten in the Caucasus (Bussmann et al. 2016b). In the Caucasus the young leaves are used as a salad, and many species are mixed together for Pkhali. Fodder for livestock. They are also good honey plants. The roots are used as purgative. The crushed leaves soaked in water are used for earache. Used medicinally in Ethiopia. Very frequently used medicinally in the Americas, e.g. for cholera, high blood pressure and used to treat chest pain and cough. Also, to remedy gonorrhoea and other sexually transmitted disease, and sometimes for typhoid. Used ceremonially to remedy embarrassment, shame, hangover, negative energy, anger, to calm strong character, hangover. The stem, leaves and flowers are used to treat head attacks, liver irritation and back, abdomen, heart and chest pain. The plant is used to treat heart poisoning. The boiled inflorescence, together with the vanilla fruit, the cabbage roots, "orosul" and the guineo flower, is used to treat asthma. The infusion of the plant treats diseases of the liver and kidneys. The leaves are used to treat grains and bee stings. Root and leaf infusion is used to treat biliary conditions. With the infusion of the root and leaves the colerín is cured. The infusion of the root, with lemon and salt, is taken to treat stomach pain. The infusion is drunk or used in baths to treat infected wounds. The crushed plant is used to treat gangrene and stomach pain. The infusion is used to prevent "relapses", treat cough and menstrual cramps. The plant is appreciated as a refrigerant. The plant is used for colds and styes. It serves as a maturation and to treat the flu. It is used, in plaster, to treat inflammation. Milk thistle is used to treat cholera, high blood pressure, embarrassment, shame, hangover, anger. The species shows antibacterial activity. Often included in herbal mixtures. In Kenya used for chest pain and tonsillitis, and the treatment of sexually transmitted diseases, as well as typhoid. The leaf extract is used for snakebites in livestock and for nervous system problems. Used as fodder additive to serve as galactagogue. Used ceremonially to remedy embarrassment, shame, hangover, negative energy, anger, to calm strong character, hangover. Used against anaplasmosis in cattle. Herzegovina: Used as vegetable. Croatia: component of pazija and eaten as vegetable. Poland / Lithuania: boiled as vegetable. (Bussmann et al. 2020u; 2021b; 2025K; Paniagua Zambrana et al. 2020i; 2025R).

**Uses 1817 (Gmelin 1817):** The young, tender roots and leaves can be prepared and eaten in spring as vegetables and salads. The former have also been recommended for baking bread in times of scarcity, although we would not recommend this. Roots and herbs provide adequate food for pigs, cattle and geese.

**Description and Ecology (Gmelin 1817):** The root is simple, fibrous, white, and milk-producing. The stem is 1-3 feet tall, erect, tubular, smooth, rounded at the top, branched at the top. The leaves are alternate, clasping the stem, the lower ones semi-pinnate, unevenly sinuously toothed, smooth, pale green. The flower stalks are smooth or covered with hairs. The calyx is smooth. The corolla is yellow. Grows frequently in fields, herbaceous patches, vineyards, kitchen gardens, and rubble heaps. It blooms in June and July. Its seeds ripen in August and September and are classified as annuals.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel einfach, faserig, weiß, milchgebend. Der Stengel 1 - 3 Fuß hoch, aufrecht, röhrig, glatt, rundeckig, oben ästig. Die Blätter abwechselnd, stengelumfassend, die untern halbgefiedert, ungleich buchtig gezahnt, glatt, fahlgrün. Die Blütenstiele glatt, oder mit Haadrüßen besetzt. Der Blumenkelch glatt. Die Blumenkrone gelb. Wächst häufig auf Aeckern, Krautfeldern, in Weinbergen, Küchengärten, und auf Schutthaufen. Blühet im Juni. Juli. Reifet seine Samen im August, September, und gehört unter die einjährigen Gewächse. Die jungen zarten Wurzeln und Blätter können im Frühjahr, als Gemüse und Salat zubereitet und verspeist werden. Erstere wurden auch bei Mangel, um Brod daraus zu backen, empfohlen, was wir jedoch nicht anrathen möchten. Wurzel und Kraut geben den Schweinen dem Rindvieh und den Gänsen, eine angemessene Nahrung.

### ***Sorbus aucuparia* L.**

**Synonyms:** *Aucuparia sylvestris* Medik.; *Mespilus aucuparia* (L.) Scop.; *Pyrenia aucuparia* [Clairv.]; *Pyrus aucuparia* (L.) Gaertn.; *Pyrus aucuparia* subsp. *aucuparia*, *Pyrus aucuparia* var. *typica* (C.K.Schneid.) Asch. & Graebn.; *Pyrus lanuginosa* DC.; *Sorbus altaica* Koehne; *Sorbus anadyrensis* Komarov; *Sorbus aucuparia* subsp. *aucuparia*, *Sorbus aucuparia* var. *typica* C.K.Schneid.; *Sorbus boissieri* C.K.Schneid.; *Sorbus boissieri* var. *adsharica* Sosn.; *Sorbus camschatcensis* Kom.; *Sorbus cordata* Gand.; *Sorbus glabrata* Hedl.; *Sorbus kamschatcensis* Komarov; *Sorbus lanuginosa* Kit.; *Sorbus monticola* Gand.; *Sorbus moravica* M.Lepší & P.Lepší, *Sorbus polaris* Koehne; *Sorbus subserrata* Opiz

**Original name (Gmelin 1817):** *Sorbus aucuparia*. Linn. Sp. pl. - Gmel. Flor. Bad. II. p 374 - 376.

**German names and French names (Gmelin 1817):** Vogelbeerbaum, Wilder Sperberbaum, Wilder Spierlingsbaum, Vogelbeeren., Vogelspierling, Ebereschenbeeren; Sorbier des Oiseleurs, Sorbier sauvage

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Tree. 4-20 m tall, with ovate crown, more or less ascending branches, grayish, smooth bark, and pubescent juvenile twigs. Buds 9-18 mm, ovoid-conical, tomentose. The leaves 9-30 x 4-18 cm, pinnate. The leaflets 4-9 paired, 1.2-9 x 0.6-2.7 cm in shape, serration. The inflorescence is 8-17 cm in diameter, dense, many-flowered, and wooly pubescent at first. The flowers 8-15 mm in diameter. The fruit is subglobose, scarlet or yellow-orange, with a few inconspicuous lenticels. The seeds are lanceolate. The seeds are slightly curved, 2-4 mm. The plant can be found in the woods, pine forests, rocky igneous slopes, usually from 1500-2500 m Ural, Caucasus, on forest fringes, glades, riverbanks, less often in meadows, on rocky places and cliffs, up to the timberline. Widely planted. (Yuzepchuk 1939). In rocky and stony places, in forests. In upper mountain belt, on an elevation up to 2500 m. Flowers from June to July, fruits from August to October (January). Found in small groups on edges of beech and oak forests of the upper mountain belt, in subalpine belt in glades, edges, park birch forests and maple forests. Soil-improving species. Low-demanding to soil. Grows on various soils, even on lime rich skeleton soil, but prefers fresh, fertile and deep soils. Reproduced with seeds, forms fast-growing groups. Flowering in May-June, fruiting in August-September. (Yuzepchuk 1939).

**Contemporary uses:** Armenia: used for complex therapies in thyrotoxicosis, diabetes, hypertension and atherosclerosis, decreased immunity, gastritis with low acidity, hypertension and anemia. The fruit juice contributes to strengthening the walls of blood vessels but significantly increases blood clotting. The plant has antitumor, antisclerotic, anti-inflammatory, hypotensive, pressure regulating properties, regulates digestion, promotes the removal of heavy metals and radioactive materials from the body, and affects the body's hematopoietic activity. The leaves contain bitter that contribute to formation and removal of bile. Azerbaijan: used for colds. A water infusion of fruits is used as sudorific and antipyretic. The juice of fresh fruits, or a water infusion of dried fruits is applied in gastro enteric diseases, especially in dysentery and as laxative. The juice of fresh fruits, or a water infusion and decoction of dried fruits is also used as diuretic, for the treatment of diabetes, and against hemorrhoids. A water extract has anastaltic properties. Fruits, both dried and fresh are used as vitamin supplement. Georgia: Sorbus sp. fruits, flowers and leaves are in use as antidiarrheal, anti-inflammatory, a remedy for abdominal distention; the flowers are used to heal urolithiasis, whilst ripe fruits can help atherosclerosis. A leaf decoction is used to relieve cramps, and the fruit tincture is applied to relieve heart problems, hypertension, and applied to disinfect wounds. A decoction of the flowers is used to remedy with liver disease, kidney and urinary tract infections, problems of the gastrointestinal tract, for metabolic disorders, hemorrhoids, colds, and coughs. The fruits serve as diuretic, laxative, hemostatic, contraceptive and for malignant tumors. Especially in the Western Ural fruit extracts are used to treat diseases of the liver, kidneys, ascites, diarrhea, rheumatism, metabolic disorders, hypovitaminosis, whooping cough, throat diseased and glaucoma, and are applied externally for wound-healing. In the wider region Sorbus aucuparia is used for complex therapies in thyrotoxicosis, diabetes, hypertension and atherosclerosis, decreased immunity, gastritis with low acidity, hypertension and anemia. The fruit juice contributes to strengthening the walls of blood vessels but significantly increases blood clotting. The plant has antitumor, antisclerotic, anti-inflammatory, hypotensive, pressure regulating properties, regulates digestion, promotes the removal of heavy metals and radioactive materials from the body, and affects the body's hematopoietic activity. The leaves contain bitter that contribute to formation and removal of bile. Sorbus aucuparia is used for colds. A water infusion of fruits is used as sudorific and antipyretic. The juice of fresh fruits, or a water infusion of dried fruits is applied in gastro enteric diseases, especially in dysentery and as laxative. The juice of fresh fruits, or a water infusion and decoction of dried fruits is also used as diuretic, for the treatment of diabetes, and against hemorrhoids. A water extract has anastaltic properties. Fruits, both dried and fresh are used as vitamin supplement. Sorbus sp. fruits, flowers and leaves are in use as antidiarrheal, anti-inflammatory, a remedy for abdominal distention; the flowers are used to heal urolithiasis, whilst ripe fruits can help atherosclerosis. A leaf decoction is used to relieve cramps, and the fruit tincture is applied to relieve heart problems, hypertension, and applied to disinfect wounds, and for digestive disorders. Sometimes they can be found in local markets. The fruits are also used to treat cough and colds. Digestive, colds, urinary problems. Armenia: Sorbus aucuparia fruits are used usually after the first frost or dried. From fresh fruits jam, marmalade, kvass, wine, and vinegar are prepared, and the fruits are used for some cakes, brandy and liquor, as well as tea. Fruits contain sugars, organic acids, carotene, vitamin C. P. tannins, essential oils, etc. The seeds contain glycosides and amygdaline. Azerbaijan: Fruits are edible fresh form only after the first frost. Jam is made of fruits. Georgia: Sorbus sp: In Tusheti rowan ცირცელი tsitrsele fruits become sweet in late autumn and are used to prepare jams and juice after the first frost. Sorbus fruits are fermented to make alcohol, as well as added to beer, eaten fresh. Sorbus fruits are fermented to make alcohol, as well as added to beer, eaten. The fruits are used in the Ural to treat diarrhea in calves. The wood is used in carpentry, for furniture, and for musical instruments. The bark is used to dye wool and silk in red-brown and black tones. Sorbus aucuparia has reddish wood that is hard and flexible and is used for furniture and musical instruments. Honey and decorative plant, perspective species for reforestation and landscaping. Sorbus aucuparia is also used for dyeing. Black color is obtained from young branches. This is a beautiful tree, mainly in the period of flowering and fruiting, as well as in autumn with bright coloration of the leaves. Good nectariferous plant, producing much nectar and pollen. All parts of plant and especially the bark contain tannins and are used to cure

leather. The fine-grained wood is firm, solid, and used in turnery. Different national musical instruments are made of it. The wood is used to manufacture furniture, tool handles, and for household utensils, and in construction, especially for fences. The wood of the mountain ash is quite heavy, resistant, firm, dense, elastic, caustic, thin layer, reddish colors that are well polished. Burns, bright, but strongly smokes, good quality charcoal. Used in the manufacture of rollers, blocks, cylinders, machine teeth, and small carpentry. Often used for making musical instruments and furniture. In veterinary medicine the fruits are used in Middle Asia to treat diarrhea in calves. The wood is used in carpentry, for furniture, and for musical instruments. The bark is used to dye wool and silk in red-brown and black tones. Armenia: *Sorbus aucuparia* has reddish wood that is hard and flexible and is used for furniture and musical instruments. Honey and decorative plant, perspective species for reforestation and landscaping. Azerbaijan: *Sorbus aucuparia* is used for dyeing. Black color is obtained from young branches. This is a beautiful tree, mainly in the period of flowering and fruiting, as well as in autumn with bright coloration of the leaves. Good nectariferous plant, producing much nectar and pollen. All parts of plant and especially the bark contain tannins and are used to cure leather. The fine-grained wood is firm, solid, and used in turnery. Different national musical instruments are made of it. Georgia: The wood is used to manufacture furniture, tool handles, and for household utensils. Hungary: unspecified medicinal use. Albania: urinary system stones, diarrhea, headache. Ukraine: blood pressure. Belarus: cold, cough, bone strengthening, hypotension. Romania: madness, toothache. Poland: digestive. Hungary: fruits eaten. Ukraine: fruits as tea, kwas. Eastern Europe: beverage, bread, wine; tree sap sometimes drunk. Belarus: tea, alcohol, jam, snack, syrup. Czech Republic: syrup, jam, alcohol. Romania: fruits eaten. Poland: wine, liqueur, jam. Croatia: eaten raw. Slovakia: famine food, dried for winter for food, added to vodka. Bulgaria: fruits mixed Balkans: turnery, chairs, walking sticks. Used as fodder for guinea pigs, rabbits and cattle. It is used to purify the blood. (Batsatsashvili et al. 2017a; Bindu et al. 2021; Bussmann et al. 2020b,c; 2025c; Paniagua-Zambrana et al. 2025e).

**Uses 1817 (Gmelin 1817):** The ripe, very sour rowan berries provide good fodder for cattle and poultry, and fermentation produces a strong brandy. The pressed juice can also be used as vinegar or citric acid. This magnificent tree, an ornament of the higher mountain regions and pleasure gardens, deserves to be planted and propagated especially in those mountainous regions covered superficially with weathered granite and gneiss. It must be considered the most excellent decoy for larger songbirds, such as the chamois, mistler, thrush, blackbird, and scuttler. The excellent wood is especially sought after by coopers, gunstock makers, turners, wheelwrights, and carpenters. It is particularly suitable for growing around farms, forest dwellings, and along avenues, along high mountain roads and side roads, where it delights the eye in May and June with its beautiful green and countless white blossoms, and after autumn with its numerous, scarlet berries. The blossoms also provide wax and honey for bees. Propagation is very easy, by seed.

**Description and Ecology (Gmelin 1817):** A mostly moderately tall tree. The branches are somewhat spreading and alternate. The leaves are alternate, stalked, pinnate with a single leaflet. The leaflets are 13-15, sessile, lanceolate, pointed, serrate, pleasantly green above, pale green beneath, more or less finely hairy. The flowers are borne in large umbels. The calyx is five-lobed and finely woolly. The corolla is white and has five petals. The stamens are three, sometimes four, rarely five. The berries are spherical, scarlet, smooth, glossy, the size of a large pea. The seeds are three, four, or five, egg-shaped, compressed, and smooth. Grows in the middle and higher mountain regions of Baden, Württemberg, Hesse, Franconia, Alsace, and Switzerland. It blooms in May and June, and its berries ripen in September and October.

**Original German text Gmelin (Gmelin 1817):** Ein meist mittelmäßig hoher Baum. Die Aeste etwas ausgebreitet, abwechselnd. Die Blätter abwechselnd, gestielt, gefiedert mit einem ausgehenden Blättchen. Die Blättchen zu 13 - 15, aufsitzend, lanzettförmig, zugespitzt, gesägt, oberhalb angenehm grün, unterhalb blaßgrün, mehr oder weniger fein behaart. Die Blüten ausgehend, in großen Doldentrauben stehend. Der Blumenkelch fünfmal eingeschnitten, feinwollig. Die Blumenkrone weiß, fünfblättrig. Staubwege 3, zu Zeiten 4, seltener 5. Die Beeren kugelförmig, scharlachroth, glatt, glänzend, von der Größe einer großen Erbse. Samen 3 - 4 - 5, eiförmig, zusammengedrückt, glatt. Wächst in mittlern und höheren Gebirgsgegenden im Badischen, Württembergischen, in Hessen, Franken, im Elsaß und in der Schweiz, blühet im May, Juni, und reifet seine Beeren im September, October. Die reifen sehr sauern Vogelbeeren, geben dem Rindvieh, und dem Hausgeflügel in gutes Futter, und durch die Gährung einen starken Brandtwein. Auch kann der ausgepreßte Saft, wie Essig und Citronensäure benutzt werden. Dieser prachttvolle Baum, die Zierde der höhern Berggegenden und der Lustgärten, verdient vorzüglich in denjenigen Gebirgsgegenden, welche oberflächlich mit verwittertem Granit und Gneus bedeckt sind, angepflanzt und vermehrt zu werden. Er muß als die vorzüglichste Lockspeiße, der größern Singvögel, als der Singamseln, Mistler, Drosteln, Amseln, und der Krammetsvögel, betrachtet werden. Das treffliche Holz, wird vorzüglich von Böttchern, Büchschäftlern, Drehern, Wagnern und Schreibern gesucht. Er eignet sich vorzüglich zur Umgebung von Bauernhöfen, Forstwohnungen, und zu Alleen, an höhern Gebirgs- und Seiten-Straßen, wo er im May und Juni, das Auge durch das schöne Grün, und die zahllosen weißen Blüten, und nach dem Herbst, mit seinen scharlachrothen, vielen, gedrängt stehenden

Beeren erfreuet, Ueberdies biethen die Blüthen auch Wachs und Honig für die Bienen. Die Vermehrung geschieht sehr leicht, durch den Samen.

***Spergula arvensis* L.**

*Synonyms: Alsine arvensis* Crantz; *Arenaria arvensis* Wallr.; *Spergula arvensis* subsp. *arvensis*; *Spergula arvensis* subsp. *maxima* (Weihe ex Boenn.) O.Schwartz; *Spergula arvensis* subsp. *sativa* (Boenn.) Čelak.; *Spergula arvensis* subsp. *vulgaris* O.Schwartz; *Spergula arvensis* var. *arvensis*; *Spergula arvensis* var. *maxima* (Weihe ex Boenn.) Rohrb.; *Spergula arvensis* var. *sativa* (Boenn.) Rohrb.; *Spergula linicola* Boreau; *Spergula maxima* Weihe ex Boenn.; *Spergula maxima* Weihe ex Boenn.; *Spergula sativa* Boenn.; *Spergula sativa* subsp. *linicola* O.Schwartz; *Spergula vulgaris* Boenn.; *Spergularia arvensis* Cambess.

**Original name (Gmelin 1817):** *Spergula arvensis*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 300 - 301. Schkuhr. Bot. Handb. tab. 125.

**German names and French names (Gmelin 1817):** Ackerspark, Spark, Spurre, Ackerspurre, Spurgift, Spergel, Weisser Knöterich; Spargoute des champs

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 162618**

**Botany and Ecology:** Plants annual. Stems (7-)13-50(-60) cm, pilose, apically glandular hairy. Stipules triangular-ovate, small, soon deciduous. Leaf blade linear, (1.1-)1.5-4 cm × 0.5-0.7 mm, abaxially channeled, glabrous or glandular pubescent, apex acute. Cymes lax, at first dichasial, upper branches monochasial. Pedicel 1.5-2.5 cm, slender. Sepals ovate, 3(-5) mm, glandular pub-scent, apex subacute to obtuse. Petals obovate, slightly shorter than to slightly longer than sepals, apex obtuse. Stamens 10, shorter than ovary. Ovary ovoid; style extremely short; stigmas 5. Capsule ovoid, ca. 4 mm in diam., slightly longer than sepals. Seed gray-black, subglobose, slightly compressed, 1-2 mm, both surfaces often with minute, pale, club-shaped papillae, margin with narrow wing. Flowering June-July, fruiting July-August. (Wu et al. 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant, both fresh and dried, is among the most excellent forage herbs. It grows partly on the poorest, most infertile sandy soils. It is eaten eagerly by all livestock. It increases and improves the milk of cows, goats, and sheep, which also makes the latter very fat and produces tasty meat. It therefore deserves a top spot when fodder is scarce and should not only be used to its full potential, but should also be cultivated here, especially in the sterile sandy areas that have so far remained completely unused. In addition to the Rhine region, the mountainous regions of the Black Forest, which have sterile, loose sandy soil, are particularly well-suited for the artificial cultivation of this plant. This would greatly improve the fields there, which often remain fallow and unused for eight to ten years, and would significantly boost the livestock population there. A good, tasty, mild oil can be pressed from the seeds, which are also palatable to poultry.

**Description and Ecology (Gmelin 1817):** The root is fibrous, thin, and white. The stem is 7-8-13 inches tall and taller, erect, rounded, segmented, smooth, branched at the top, and somewhat finely hairy. The leaves are whorled, 9-20, sessile, evenly broad, awl-shaped, smooth, or somewhat finely hairy, thickly hairy. The leaf bases are rounded, white, and short. The flowers terminate in a forked panicle. The flower stalks are solitary, single-flowered, upright. The fruit stalks are recurved. The calyx has five petals. The corolla has five petals, is larger than the calyx, and is white. The seed capsule is oval, single-lobed, five-valved, and many-seeded. The seeds are round, without margins, and black. It grows very frequently in the Rhine, Main, and Neckar regions, especially on poor sandy fields, grain fields, fallow fields, and occasionally in vineyards. It blooms in May, June, July, August, and September. Its seeds ripen in July, August, September, and October, and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel faserig, dünn, weiß. Der Stengel 7 - 8 - 13 Zoll hoch und höher, aufrecht, rundlich, gegliedert, glatt, oben ästig, und etwas feinhaarig. Die Blätter quirlförmig, 9 - 20, aufsitzend, gleichbreit, pfriemenförmig, glatt, oder etwas feinhaarig, dicklicht. Die Blattansätze rundlich, weiß, kurz. Die Blüthen endigen die gabelförmige Rispe. Die Blüthenstiele einzeln, einblüthig, aufrecht. Die Fruchtsiele zurückgebogen. Der Blüthenkelch fünfblätterig. Die Blumenkrone fünfblätterig, größer als der Blüthenkelch, weiß. Die Samen-Capsel eyrund, einfächerig, fünfklappig, vielsamig. Die Samen rund, ohne Rand, schwarz. Sie wächst sehr häufig in den Rhein-, Main- und Neckargegenden, vorzüglich auf magern Sandfeldern, Getreideäckern, Brachäckern, auch hie und da in den Weinbergen, Blühet im May, Juni, Juli, August, September. Reifet ihre Samen im Juli, August, September, October, und gehört unter die

einjährigen Gewächse. Diese Pflanze gehört frisch und getrocknet, unter die vorzüglichsten Futterkräuter, wächst theils auf den schlechtesten unfruchtbarsten Sandböden, wird von allem Vieh sehr begierig gefressen, vermehrt und verbessert den Kühen, Ziegen und Schafen die Milch, auch werden letztere, sehr fett davon, und geben ein schmackhaftes Fleisch. Sie verdient daher bei Mangel an Futter, eine der ersten Stellen, und sollte nicht nur bestens benutzt, sondern bei uns vorzüglich in den sterilen Sandgegenden, die bisher ganz unbenutzt da liegen, bestens angebaut werden. Ausser den Rheingegenden, sind die Berggegenden des Schwarzwaldes, welche einen sterilen lockern Sandboden haben, zum künstlichen Anbau dieser Pflanze, ganz vorzüglich geeignet, welches die Felder daselbst, die nicht selten 8 - 10. Jahre lang, brach und unbenutzt liegen bleiben, gar sehr verbessern, und dem Viehstand daselbst wesentlich aufhelfen würde. Aus den Samen, die auch dem Hausgeflügel angenehm sind, läßt sich ein gutes und schmackhaftes mildes Oehl pressen.

### ***Spergularia marina* (L.) Besser**

*Synonyms: Spergula marina* Bartl. & H.L.Wendl.; *Spergula salina* D.Dietr.; *Spergula salina* var. *faurei* Maire; *Spergularia dillenii* Lebel; *Spergularia marina* (L.) Griseb.; *Spergularia marina* var. *marina*; *Spergularia marina* var. *tenuis* (Greene) R.Rossbach; *Spergularia rubra* var. *marina* (L.) A.Gray; *Spergularia salina* J.Presl & C.Presl; *Spergularia salina* var. *tenuis* (Greene) Jeps.; *Spergularia tenuis* B.L.Rob.; *Stipularia marina* (L.) Haw.

**Original name (Gmelin 1817):** *Spergula pentandra*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 301. 302.

**German names and French names (Gmelin 1817):** Kleiner Ackersperg, Fünffädiger Sperg, Kleiner Frühlingspergel; Spargoute pentandrique

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but very rare in the region

**Botany and Ecology:** Annual or biennial (perennial) herbs. Stems branching from the base, 10-30 cm, ascending to ± erect, glabrescent, ± glandular. Leaves 9.5-25 x 0.5 mm, linear, somewhat fleshy, glabrous to glandular-pubescent. Stipules triangular. Flowers terminal, lax dichasial cymes. Bracts similar to stipules. Pedicels c. 2 times calyx. Sepals 3-5 mm, ovate-lanceolate, with scarios margins. Petals pink whitish, ovate, obtuse, as long or shorter than the sepals. Stamens 1-5 (-8). Capsule 4-6 mm, ovoid. Seeds 0.7-0.8 mm, ovoid, brown, smooth or tuberculate. (Ali & Qaiser 1995-2020).

**Contemporary uses:** *Algeria: the extraction from the plant is used for infections, renal and reproductive problems* (Ouasti et al. 2024c).

**Uses 1817 (Gmelin 1817):** In terms of its properties and uses, it is similar to the preceding species. It is eagerly eaten by all livestock, increases milk production, and is among the most excellent fodder for breeding sheep, as I have thoroughly observed, especially on the sheep pastures in Castile near St. Ildefonso and Segovia.

**Description and Ecology (Gmelin 1817):** It differs from the preceding species (*Spergularia arvensis*) by its smaller, more delicate stems, which are less branched, its shorter, pale-gray, finely hairy leaves, its usually five stamens, and its flat seeds, which are broadly and white-edged. This plant grows on sunny, barren, dry sandy areas and pastures in the Rhine region. It blooms in April and May. Its seeds ripen in July, and it is also classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Sie unterscheidet sich von der vorhergehenden Art (*Spergularia arvensis*), durch kleinere zartere Stengel, welche weniger ästig sind, kürzere fahlgraue, feinhaarige Blätter, durch gewöhnlich fünf Staubfäden und flache Samen, die breit und weiß gerändert sind. Diese Pflanze wächst auf sonnenreichen, unfruchtbaren, trockenen Sandstrecken und Weiden in den Rheingegenden. Blühet im April, May. Reifet ihre Samen im Juli, und gehört ebenfalls unter die einjährigen Gewächse. In Betracht ihrer Eigenschaften und Benutzung, kommt sie mit der vorhergehenden Art überein. Sie wird von allem Vieh begierig gefressen, vermehrt die Milch, und gehört unter das vorzüglichste Futter für Zuchtschaafe, wovon ich mich vorzüglich auf den Schaaflweiden in Castilien bei St. Ildefons und Segovia sattsam überzeugt habe.

### ***Stachys palustris* L.**

*Synonyms: Stachys aquatica* Bubani; *Stachys austriaca* Heynh.; *Stachys maeotica* Postrig.; *Stachys palustris* f. *cleoniquei* B.Boivin; *Stachys palustris* var. *angustifolia* Benth.; *Stachys palustris* var. *arenicola* Farw.; *Stachys palustris* var. *cinerea* T.Durand; *Stachys palustris* var. *hybrida* Benth.; *Stachys palustris* var. *macrocalyx* Jenn.; *Stachys palustris* var. *nipigonensis*

*Jenn.*; *Stachys palustris* var. *palustris*, *Stachys palustris* var. *petiolata* T.Durand; *Stachys palustris* var. *phaneropoda* Weath. ex Fernald; *Stachys palustris* var. *segetum* (Hagen) Nyman; *Stachys segetum* K.G.Hagen; *Stachys wolgensis* Wilensky

**Original name (Gmelin 1817):** *Stachys palustris*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 625. 626.

**German names and French names (Gmelin 1817):** Brauner Wasserandorn, Sumpfpoley, Roßpoley, Kleine Sumpftaubnessel, Sumpfstachys, Sumpfundorn; Epinaire des Marais, Ortie morte aquatique

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs perennial. Rhizomes robust. Stems usually much branched, 60-110 cm, densely retrorse pubescent, nodes and angles sparsely hispid. Stem leaves petiole 2-3 mm; leaf blade oblong-lanceolate to ovate-lanceolate, 3-8 × 1.2-1.5 cm, appressed puberulent, densely so on veins and abaxially, base rounded to shallowly cordate, margin serrate-crenate, apex acute to acuminate. Spikes long; verticillasters 6-flowered, ± close together except for lower ones; lower floral leaves subsessile, similar to stem leaves; upper ones long acuminate, entire, shorter than verticillasters; bracteoles ca. 1 mm, early deciduous. Pedicel ca. 1 mm. Calyx tubular-campanulate, ca. 7 mm, grooved, villous, glandular puberulent, puberulent inside, 10-veined, accessory veins inconspicuous; teeth triangular-lanceolate, ca. 3 mm, apex spinescent, ± reflexed; fruiting calyx campanulate, conspicuously pouched. Corolla purple to red-purple, ca. 1.3 cm, sparsely puberulent outside, puberulent on throat; tube ca. 7 mm; upper lip straight, broadly ovate, ca. 3 × 2 mm; lower lip ± spreading, ca. 6 × 6 mm; middle lobe reniform, apex rounded; lateral lobes ovate. Nutlets brown, triquetrous ovoid, glabrous. Flowering June-August, fruiting August-September (Wu *et al.* 1994-2013).

**Contemporary uses:** Eastern Europe / Hungary: Used as famine food. Bulgaria: used as tea.

**Uses 1817 (Gmelin 1817):** The roots provide pigs with a pleasant, good, and healthy source of fat. They are fleshy and mealy, and have therefore been suggested and recommended, after first boiling, as food and instead of bread for humans in times of scarcity. Since this plant occurs in large numbers during wet years, especially in low-lying areas prone to flooding, and often completely suppresses the grain in grain fields and maintains the upper hand there, the roots are ideal for pigs. The surest way to reduce this weed, which has become rampant in grain fields after very wet years, is to let pigs walk on it, which eagerly dig the roots out of the soil, eat them, and thus eradicate this plant.

**Description and Ecology (Gmelin 1817):** The widely spreading root is creeping, segmented, and fleshy. The stem is 1-2-3 feet tall, erect, quadrangular, simple, rarely branched, and rough-haired. The leaves are opposite, the lower ones with short stalks, the others almost sessile, cordate or ovoid-lanceolate, with blunt-to-serrate margins, entire toward the tip, finely hairy, sometimes somewhat smooth and flat. The flowers are borne in whorled, 6-12-flowered spikes. The calyxes are tubular, angular, rough, and have 5 pointed, awl-shaped teeth. The corolla is purple-violet or reddish-yellow marbled, rarely white, and bilipped. The tube is short. The upper lip is arched, erect, and emarginate. The lower lip is larger, curved back at the sides, three-parted, the larger central section emarginate and folded back. The withered stamens lie along the sides of the throat. Seeds are four, oval, angular. Grows abundantly in the Rhine, Main, Neckar, and Danube regions, along ditches, streams, rivers, swamps, wet meadows, pastures, and fields prone to flooding. It blooms in July and August, its seeds ripen in September and October, and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die sich weit ausbreitende Wurzel, ist kriechend, und gegliedert, fleischig. Der Stengel 1- 2 - 3 Fuß hoch, aufrecht, viereckig, einfach, seltener ästig, rauhaarig. Die Blätter gegenüberstehend, die untern kurz gestielt, die übrigen fast aufsitzend, herz- oder ey-lanzettförmig, am Rande stumpflich-gesägt, gegen die Spitze hin ganz, feinhaarig, zu Zeiten etwas glatt, flach. Die Blüthen sitzen in quirlförmigen, 6 - 12 blüthigen Aehren. Die Blumenkelche sind röhrig, eckig, rauh, und haben 5 spitzige pfriemenförmige Zähne. Die Blumenkrone purpur-violett, oder rothgelb mamorirt, seltener weiß, zweylippig. Die Röhre kurz. Die Oberlippe gewölbt, aufrecht, ausgerandet. Die Unterlippe größer, an den Seiten zurückgebogen, dreytheilig, der größere mittlere Abschnitt ausgerandet und zurückgeschlagen. Die verwelkten Staubfäden legen sich nach den Seiten des Schlundes. Samen 4, eyrunde, eckige. Wächst in den Rhein-, Main-, Neckar- und Donaugegenden, an Wassergräben, Bächen, Flüssen, Sümpfen, auf nassen Wiesen, Weiden, und Ueberschwemmungen ausgesetzten Aeckern, in Menge. Blühet im Juli, August, reifet seine Samen im September, October, und gehört unter die ausdauernden Gewächse. Die Wurzeln geben den Schweinen eine angenehme gute und gesunde Mastung, sie sind fleischig und mehligt, wurden daher bei Mangel, nachdem sie vorher abgekocht, auch als Nahrung und statt des Brodes für Menschen, vorgeschlagen und empfohlen. Da diese Pflanze, bei nassen Jahrgängen, vorzüglich in den Ueberschwemmungen ausgesetzten, tiefer liegenden Gegenden, in großer Menge vorkommt, und auf den Getreidefeldern nicht selten, das Getreide gänzlich unterdrückt, und daselbst die Oberhand behält, sollten die Wurzeln bestens für die Schweine benutzt

werden. Das sicherste Mittel, nach sehr nassen Jahrgängen, dieses in Getreideäckern überhand genommene Unkraut, zu vermindern, besteht darin, die Schweine darauf gehen zu lassen, welche mit großer Begierde die Wurzeln aus der Erde wühlen, fressen, und somit diese Pflanze ausrotten.

***Stellaria holostea* L.**

*Synonyms: Alsine holostea* (L.) Britton; *Alsine scabra* Stokes; *Cerastium holosteum* Crantz

**Original name (Gmelin 1817):** *Stellaria Holostea*. Linn. - Gmel. Flor. Badens. II. p. 258. 259. - Schkuhr. Bot. Handb. tab. 122.

**German names and French names (Gmelin 1817):** Grasnelken-Meier, Augentrost-Sternkraut; Stellaire Holostée

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Plants perennial, scrambling to ascending, from slender, creeping rhizomes. Stems branched distally, 4-angled, 15-60 cm, glabrous or hispid-puberulent distally. Leaves sessile; blade narrowly lanceolate, widest near base, 4-8 cm × 2-10 mm, somewhat coriaceous, base round and clasping, margins and abaxial midrib very rough, apex narrowly and sharply acuminate, scabrid, otherwise glabrous, slightly glaucous. Inflorescences terminal, loose, 3-31-flowered cymes; bracts foliaceous, 5-50 mm, margins and abaxial midrib scabrid. Pedicels ascending, 1-60 mm, slender, pubescent. Flowers 20-30 mm diam.; sepals 5, inconspicuously 3-veined, ovate-lanceolate, 6-8 mm, margins narrow, scarious, apex acute, glabrous; petals 5 (rarely absent), 8-14 mm, longer than sepals, blade apex 2-fid to middle; stamens 10, sometimes fewer by degeneration; styles 3, ascending, ca. 4 mm. Capsules green, subglobose, 5-6 mm, ± equaling sepals, apex obtuse, opening by 3 valves, tardily splitting into 6; carpophore absent. Seeds reddish brown, reniform, 2-3 mm diameter, papillose. (Ali & Qaiser 1990-2020).

**Contemporary uses:** *Sometimes used as forage.*

**Uses 1817 (Gmelin 1817):** The young plant provides cattle with abundant and tasty food in March, April, and May. Since it commonly occurs in very large quantities in our Rhine, Main, and Neckar regions, in Württemberg, Fürstenberg, and the surrounding areas, it deserves to be collected fresh for cattle and used well.

**Description and Ecology (Gmelin 1817):** The root is widely creeping and fibrous. The stem is 1-1.5 feet tall, erect, prostrate at the base, quadrangular, segmented, somewhat rough, and bilobed above. The leaves are sessile, opposite, fused at the base, lanceolate, acute, entire, rough at the margins, and barely visible, finely toothed. The flowers terminate at the stem. The flower stalks are single-flowered, erect, longer than the leaves. The fruit stalks are drooping. The calyx has five petals. The leaflets are elliptical-lanceolate, acute, and whitish at the margins. The corolla is large, white, and has five petals. The leaflets are divided to the center and obtuse. The seed capsule is rounded, protruding at the tip, and has many seeds. The seeds are rounded and compressed. This plant grows very frequently in shady forests, at the eaves of forests, in open woodlands, both in flat and mountainous regions. It blooms in April, May, and June. Its seeds ripen in July and August, and it is a perennial plant..

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weit und breit kriechend, faserig. Der Stengel 1 - 1½ Fuß hoch aufrecht, am Grunde niederliegend, viereckig, gegliedert, etwas rauh, oberhalb zweytheilig. Die Blätter aufsitzend, gegenüberstehend, am Grunde mit einander verwachsen, lanzettförmig, spitzig, ganz, am Rande rauh, kaum sichtbar fein gezähnt. Die Blüthen endigen den Stengel. Die Blüthenstiele einblüthig, aufrecht, länger als die Blätter. Die Fruchtsiele niederhängend. Der Blüthenkelch fünfblättrig. Die Blättchen eyrund-lanzettförmig, spitzig, am Rande weißlich. Die Blumenkrone groß, weiß, fünfblättrig. Die Blättchen bis in die Mitte getheilt, stumpf. Die Samen-Capsel rundlich, an der Spitze ausspringend, vielsamig. Die Samen rundlich, zusammengedrückt. Diese Pflanze wächst sehr häufig in schattigen Waldungen, am Traufe derselben, in lichten Waldschlägen, sowohl in ebenen als Gebirgsgegenden. Blühet im April, May, Juni. Reifet ihre Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Die junge Pflanze giebt im März, April und May dem Rindvieh reichliche und schmackhafte Nahrung. Da sie gewöhnlich in unsern Rhein-, Main- und Neckargegenden, im Württembergischen, Fürstenbergischen und den anliegenden Ländern, in sehr großer Menge vorkommt, verdient sie für das Rindvieh, vorzüglich frisch eingesammelt, und wohl benutzt zu werden.

***Stellaria uliginosa* Murray**

*Synonyms: Alsine uliginosa* (Murray) Britton; *Alsine uliginosa* E.H.L.Krause; *Arenaria alsinoides* Raddi; *Arenaria raddiana* Ser.; *Stellaria alsine* Grimm; *Stellaria dilleniana* Leers

**Original name (Gmelin 1817):** *Stellaria uliginosa*. Roth. Flor Germ. 2. p. 489. - Gmel Flor. Badens. II. p. 261. *Stellaria fontana*. Wulfen. *Stellaria Alsine*. Hofm. Flor. Germ. p. 153. - Willdenow. Sp. pl. 2. p. 713. - *Stellaria aquatica*. Poll. Flor. Palat. n. 422.

**German names and French names (Gmelin 1817):** Wassermeier, Quellenmeier, Brunnenmeier, Sumpfbeier; Stellaire des fontaines

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 172053** (Fig. 81)

**Botany and Ecology:** Perennial with a creeping rootstock. Stems ± erect, slender, glabrous. Leaves 10-25 x 3-5 mm, lanceolate to linear-lanceolate to oblanceolate, acute, glabrous or ciliate at the base, sessile; midrib prominent. Inflorescence a many-flowered dichasial cyme. Bracts similar to leaves but smaller. Pedicels filiform, much longer than the calyx. Sepals 3-4 mm, lanceolate, acuminate, glabrous with scarious margins, 3-nerved. Petals 4, shorter than the sepals, deeply bilobed into linear lobes. Capsule as long as or longer than the sepals, dehiscent to base by 4 valves. (Ali & Qaiser 1990-2020).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant, as I have often seen, is eagerly eaten by cattle and provides them with good and healthy food. Since it appears at springs and streams in the areas mentioned above as soon as the snow melts, it is ideally suited to fodder shortages, freshly harvested and fed green.

**Description and Ecology (Gmelin 1817):** The root is creeping, fibrous, thin, and white. Several stems arise from a single root, 5-12 inches long, prostrate at the base, rooting, then erect, somewhat quadrangular, weakly segmented, smooth, branched, and somewhat bifid. The leaves are sessile, opposite, fused at the base, entire, hairy at the base along the margin, the lower ones oval, the others oval-lanceolate, smooth, light green, often covered with dew. The flowers terminate at the stem, stalked, the stalks sideways or arising from the leaf axils, single-flowered, erect. The fruit stalks are curved downwards. The calyx has five petals and is spread out. The sepals are ovate-lanceolate, very finely pointed, and smooth. The corolla has five petals, small, white, and shorter than the calyx. The petals are bifid to the base. The incisions are protruding, very narrow, and linear. The seed capsule is elongated-oval, with many seeds. This delicate, succulent plant grows abundantly in the Black Forest and other mountainous regions, along small and large streams, springs, swamps, ponds, ditches, and other wet or always very humid places. I frequently found it in the Baden, Fürstenberg, and Württemberg Black Forests, near Frauenalb, Herrnalb, Gernsbach, on the Tobel, Kaltenbrunnen, on the Herrnwiese, on the Blättie in the Bühler, Oppenauer, Griesbach, Peters, and Durrbach valleys, near Freudenstadt, Rippolsau, and many other places in the Alpine valleys of Switzerland, in the valleys of the Vosges, the Palatinate, and the Odenwald. It blooms in May, June, and July. Its seeds ripen in July and August, and it is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend, faserig, dünne, weiß. Stengel mehrere aus einer Wurzel, 5 - 12 Zoll lang, am Grunde niederliegend, wurzelnd, alsdann aufrecht, etwas viereckig, schwach, gegliedert, glatt, ästig, etwas zweygetheilt. Die Blätter aufsitzend, gegenüberstehend, am Grunde verwachsen, ganz, am Grunde an dem Rande haarig, die untern oval, die übrigen oval-lanzettförmig, glatt, hellgrün, öfters mit einem Thau überzogen. Die Blüten den Stengel endigend, gestielt, die Stiele zur Seite, oder aus den Blattachsen kommend, einblüthig, aufrecht. Die Fruchtsiele unterwärts gebogen. Der Blütenkelch fünfblättrig, ausgebreitet. Die Kelchblättchen, eyrund-lanzettförmig, sehr fein zugespitzt, glatt. Die Blumenkrone fünfblättrig, klein, weiß, kürzer als der Kelch. Die Blütenblätter bis an den Grund zweygetheilt. Die Einschnitte abstehend, sehr schmal und linienförmig. Die Samen-Capsel länglich-oval, vielsamig. Diese zarte, saftreiche Pflanze, wächst in Menge im Schwarzwalde, und in andern Gebirgsgegenden, an kleinen und größern Bächen, Quellen, Sümpfen, Teichen, Wassergräben, und andern nassen oder immer sehr feuchten Orten. Häufig fand ich sie im Badischen, Fürstenbergischen und Würtenbergischen Schwarzwalde, bei Frauenalb, Herrnalb, Gernsbach, auf dem Tobel, Kaltenbrunnen, auf der Herrnwiese, der Blättie im Bühler-, Oppenauer-, Griesbacher-, Peters-, und Durrbacher-Thal, bei Freudenstadt, Rippolsau, u. v. a. O. in den Alpenthälern der Schweiz, in den Thälern der Vogesen, der Pfalz, und des Odenwaldes. Sie blühet im May, Juni, Juli. Reifet ihre Samen im Juli, August, und gehört unter die einjährigen Gewächse. Diese Pflanze wird, wie ich oft zu sehen Gelegenheit hatte, sehr begierig, von dem Rindvieh gefressen, und giebt ihm eine

gute und gesunde Nahrung. Da sie in oben gedachten Gegenden, sobald der Schnee schmelzt, an den Quellen und Bächen zum Vorschein kommt, ist sie bei Futtermangel, frisch eingesammelt und grün gefüttert, bestens zu benutzen.



Figure 81. *Stellaria uliginosa* Murray - KR 172053

### ***Symphytum officinale* L.**

*Synonyms: Consolida major* Garsault; *Consolida major* Gilib.; *Symphytum album* hort. ex Steud.; *Symphytum ambiguum* Pau.; *Symphytum besseri* Zaver.; *Symphytum bohemicum* F.W.Schmidt; *Symphytum commune* Faegri; *Symphytum consolida* Gueldenst.; *Symphytum elatum* Tausch; *Symphytum majus* Bubani; *Symphytum microcalyx* Opiz; *Symphytum molle* Janka; *Symphytum patens* Sibth.; *Symphytum peregrinum* Ledeb.; *Symphytum stenophyllum* Beck; *Symphytum* × *rakosiense* (Soó) Péntes

**Original name (Gmelin 1817):** *Symphytum officinale*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 426. 427.

**German names and French names (Gmelin 1817):** Große Wallwurzel, Wallwurz, Gemeines Beinwell, Beinheil; Grande Consoude

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs forming tussocks, 30-90 cm tall, arcuate hispid, short strigose. Main roots purplish brown, stout. Stems erect or ascending, branched. Basal leaves long petiolate, lorate-lanceolate to ovate, 30-60 × 10-20 cm, apex acuminate; middle and upper stem leaves sessile, smaller, base decurrent. Inflorescences many flowered. Calyx parted nearly to base; lobes lanceolate, apex acuminate. Corolla light purple, purple-red, or yellowish white, 1.4-1.5 cm; throat appendages ca. 4 mm, not exerted beyond limb; lobes triangular, apex revolute. Filaments ca. 3 mm; lower part nearly as wide as anthers; anthers ca. 3.5 mm, apex with somewhat prominent connective. Ovary usually sterile, occasionally only 1 mericarp develops in a few flowers. Nutlets black, oblique ovoid or ovoid, 3-4 mm, smooth, shiny. Flowering April-October (Wu *et al.* 1994-2013).

**Contemporary uses:** *Belarus: roots for fractures, leaves for bruises. Romania: fractures; varicose ulcers, stomatitis, eczema, burns, bruises, wounds, skin cancer, breast fissure, psoriasis, swellings, anti-inflammatory, hemostatic, astringent, emollient, vulnerary, decongestive, antitumoral, calming, anticancer. Bulgaria: unspecified. Ukraine: skin, fractures, gout, rheumatism, hernia, liver, stomach problems, joint pain. Serbia: swollen gums. Romania: roots as tea. Czech Republic: in vegetable dishes. Poland / Hungary: as famine food. Slovakia / Hungary: nectar sucked by children. Poland / Ukraine: in Corpus Christi decorations.* (Bussmann *et al.* 2025L; Paniagua-Zambrana *et al.* 2025S).

**Uses 1817 (Gmelin 1817):** The young, tender leaves provide a tasty, nutritious, and healthy dish in spring. They are eaten as a vegetable in England and Ireland, and also as a salad.

**Description and Ecology (Gmelin 1817):** The root is large, branched, black on the outside, white on the inside. Stems are several, 2-3 feet tall, upright, angular, rough-haired, and somewhat branched. The root leaves are orbicular-lanceolate, stalked. The stem leaves are alternate, stalked, running down the stem, entire at the margins, and rough-haired. The flowers are purple-red, rose-red, sometimes pale yellow or white, sessile at the ends of the branches, drooping forward. This plant grows along ditches, in moist meadows, ditches, damp bushes, streams, ponds, and swamps, and is found in abundance in the Rhine, Danube, Main, and Neckar rivers, and other moist areas. It blooms in May and June. Its seeds ripen in July and August, and it is a perennial.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel groß, ästig, aussen schwarz, innen weiß. Stengel mehrere, 2 - 3 Fuß hoch, aufrechtstehend, eckig, rauhaarig, etwas ästig. Die Wurzelblätter eyrund-lanzettförmig, gestielt. Die Stengelblätter abwechselnd, gestielt, am Stengel herablaufend, am Rande ganz, rauhaarig. Die Blüthen purpurroth, rosenroth, zu Zeiten blaßgelb oder weis, am Ende der Aeste sitzend, vorwärts überhängend. Diese Pflanze wächst an Wassergräben, auf feuchten Wiesen, an Gräben, feuchtem Gebüsche, an Bächen, Teichen, Sümpfen, und kommt in Menge in den Rhein-, Donau-, Main-, Neckar- und anderen feuchten Gegenden vor. Sie blühet im May, Juni. Reifet ihre Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter geben im Frühjahr eine schmackhafte, nährende und gesunde Speiße. Sie werden in England und Irland als Gemüß gegessen, und auch als Salat verspeist.

### ***Taraxacum officinale* F.H. Wigg.**

*Synonyms: Chondrilla taraxacum* (L.) Stokes; *Leontodon taraxacum* L.; *Leontodon taraxacum* var. *vulgare* Benth.; *Taraxacum dens-leonis* Desf.; *Taraxacum officinale* subsp. *vulgare* (Benth.) Schinz & R.Keller

**Original name (Gmelin 1817):** *Leontodon Taraxacum*. Linn. Sp. pl. - Gmel. Fl. Badens. III. p. 302. 303. Schkuhr. Bot. Handb. tab. 219.

**German names and French names (Gmelin 1817):** Löwenzahn, Pfaffenröhrlein, Pfaffenblatt, Hundsblume, Hundslattig, Ketten-Blume; Dent de Lion, Pissenlit

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Perennial. Plants. 5-50 cm high, with more or less thick, usually vertical root; root collar more or less woolly, less often glabrous. Leaves 10-25 cm long and 1.5-5.0 cm wide, pinnatipartite or pinnatilobate, with more or less

deflexed, often toothed, lateral lobes and larger terminal lobes, less often undivided, sinuate-toothed, scatteredly hairy to entirely glabrous. Scapes with more or less profuse arachnoidhairy tomentum. Involucre 13-20 mm long, green, outer involucre bracts broadly lanceolate to lanceolate-linear, more or less recurved, almost as wide as inner or wider, without scarious border or with very narrow membranous border, without cornicle; inner involucre bracts oblonglinear, one and one-half times or less as long as longest outer bracts without cornicle, less often with indistinct cornicle. Florets yellow with profuse long hairs in middle part of corolla; peripheral florets usually with dark stripes on lower side of ligules. Achenes light brown or brownish, body of achenes 3-4 mm long, covered with acute tubercles in upper half; cone 0.4-0.6 mm long, beak 7-12 mm long; pappus 6-8 mm long, white. Flowering April to June. Ural, Caucasus, Altai, Middle Asia, meadows, gardens and parks, near roads, weed. (Bobrov and Tselev 1964).

**Contemporary uses:** Georgia: medicinal tea, diabetes, colds. Used as stimulant, to treat alcoholism, digestive system, indigestion, intestinal worms, as laxative, for liver ailments, mouth blisters, stomach disorders, as tonic, for backache, as blood purifier, for body ache, bone fractures, diarrhea, gastric ulcers, general weakness, jaundice, swellings, urinary irritation abdominal pain, as anti-pyretic, blood diseases, as blood purifier, for chest infection, cold, dropsy, dyspepsia, headache, hepatic stimulant, jaundice, kidney complaints, as laxative, rheumatism, sedative, tonic, for vertigo, vitiligo, ulcers. Puree and salads are made from the leaves. The roots collected in spring or autumn are dried, roasted and added to natural coffee. In addition, they are eaten fried or baked. The roasted roots are used as coffee surrogate and included in sweets and as flavoring agents. The young leaves are eaten as salad. The herbs are only gathered in early spring, during summer and even autumn, until tomatoes, eggplants, spinach, cucumbers can be harvested. By this time, the ingredients of pkhali (mostly weeds) lose softness, tenderness, taste; they become rough already producing seeds and probably for this reason are not collected by late autumn. Early spring they taste very differently than in summer. While making pkhali, some finely minced kitchen herbs are added after boiling the main herbs: a little dill, a little dill, a little coriander, parsley, celery, green onions, estragon, mint. All these herbs are mixed with finely crushed walnuts; the boiled pkhali will be minced, desirably on a wooden gobi (wide shallow bowl with a flat bottom) and seasoned with herbs, walnuts, add salt and pepper by your taste. The flowers are boiled with sugar as substitute for honey. The leaves and shoots are eaten as salad, and in chavre and phkhali (herb pie), cooked with eggs and yoghurt as soup, and as tea. Leaves chopped and fried with spices. The leaves are used as food. With the leaves and flowers salads are prepared. Also eaten in the Caucasus). Hungary: wounds, digestive, respiratory and urogenital problems, cough. Balkans: liver diseases, stomachache, diuretic, cough, regulate hypertension during pregnancy, hepatitis, improve blood circulation, digestive tract disorders, urinary tract disorders, anti-anemic, respiratory diseases, anticancer. Poland: respiratory ailments. Romania: acne, varicose veins, varicose ulcer, eczema, scurvy, acne, warts, tinea, freckles, sensitive skin, depurative, decongestive, antiscorbutic, astringent. Tonic, appetizer, bitter, diuretic, depurative, anorexia, digestive problems, urinary disorders, cough. Russia: Stomach problems, cosmetics for black spots and freckles. Belarus: Joint pain, kidney diseases, immune boosting, cold, bronchitis. cancer, cold, sore throat, tuberculosis, stomachache, vitamins. kidney stones. Albania: hepatoprotective, antihypertensive, diuretic. Part of many official herbal pharmacopoeiae in wider Europe. In the whole region used as bitters, for diseases of the hepatobiliary system and organs of the gastrointestinal tract, for diabetes, atherosclerosis, anemia, rheumatism, arthritis, as expectorant, anti-inflammatory, as a sedative, laxative, anthelmintic, for tuberculosis, bronchitis, bronchial asthma, kidney and bladder diseases. Topically for varicose veins, skin diseases, acne, eczema, for warts, and insect bites. In the Altai the leaves are used in infusion to treat diarrhea, anorexia, liver disease, stomach colic. The flowers are used as remedy for colds, the leaves for gallstones, as laxative and diuretic, for oral inflammations and toothache. The roots are used for liver problems, and the whole plant serves as medicinal tea. In India the root extract is used for migraine, headaches, as blood purifier and for hepatitis. As a lactogenic, laxative and tonic, in the treatment of boils and inflammations, including eye inflammation, diabetes, fever, insomnia, sore throat, lung abscess, jaundice, rheumatism and urinary tract infections. Preparations from dandelion have choleric, cleansing and hematopoietic action; have a sedative and mild sedative effect; reduce the amount of sugar in the blood and regulate the release of insulin and the effect on the human body. Taraxacum is widely used around the globe. In India the root extract is used for migraine, headaches, as blood purifier and for hepatitis. To treat body ache and for its cooling effect of abdomen. Used to treat fever. The plant is bitter, vulnerary, digestive, stomachic, anthelmintic, aperient, liver tonic, sudorific, antibacterial, depurative, cholagogue and tonic. Roots are used to treat liver and spleen ailments and to stimulate appetite. Juice of the fresh plant is effective against liver disease, chronic hepatitis, visceral congestion, intermittent fever, nephropathy, strangury, leprosy, gout, stiff joints, insomnia, hypochondria, jaundice, renal calculi and other hepatic diseases. Flowers are used as tea, which are beneficial in heart trouble. Blood purifier, analgesic, dermatology, health tonic. Root decoction is taken to cure jaundice and kidney disorder. Plant juice is considered to use in insomnia. Plant paste is used for the high-altitude sickness. Roots, leaves and flower are used for the medicinal purpose. Also to treat chronic disorders of kidney and liver and also used as tonic, laxative and anti-rheumatic. The root is diuretic, tonic and slightly aperient; used as laxative, anti-rheumatic and in remedies for chronic disorders of

*Kidney and liver. Ulcer, chronic fever, poisoning, eye infection, bile and stomach disorders. Also used as galactagogue. Milky sap cures poisoning from precious stones and metals. Plant juice valued for chronic hepatitis, visceral congestion, intermittent fever and hypochondria. The crushed plant used for stomach and intestinal disorders, boiled root extract for kidney disorders. The fresh root is eaten raw, regularly, for its alleged cooling property. It is also said to relieve gastritis. Taraxacum is used globally as part of the Dioscoridan pharmacopoeia. Fresh stems and leaves used to treat Gallbladder, Liver, Stomachache, Stomach acidity, Gastritis / Ulcers, Anemia, Fever, Kidney infection, High blood pressure, Alcoholism, and as Depurative and Galactagogue. Dandelion is used as a general tonic, as a diuretic, against liver and skin diseases, to decrease the levels of uric acid in the blood in patients with gout, to treat gastric affections, to eradicate warts and to treat malaria. The root is used as a mild laxative, as well as a diuretic and to facilitate the expulsion of bile. The leaves are used prepared in infusion or decoction as diuretics and facilitators of digestion. Whole plant used to treat Gout, High cholesterol, Obesity, Liver problems, improve health, Skin ulcers, Urinary infection, and as Diuretic; Leaves used to treat Gastritis and Stomach problems; Root and Leaves used to treat Arthritis, Blood cleansing, Constipation, Gallbladder, Indigestion and Stomachache. The fresh plant used to treat liver problems and high blood pressure. The juice of the macerated root is diuretic. Root infusion is drunk to treat kidney pain and diarrhea. The whole plant infused is used to treat liver and kidney problems. Used to increase red blood cells and to eliminate toxins from the body. It is used to treat colds and kidney conditions. The flower, mixed with egg yolk and salt, is used to treat abscesses and tumors. Root infusion is used to treat kidney conditions. The infusion of the entire plant is used to treat bile and kidney conditions (unspecified ethnicity-Tungurahua). The infusion of the plant is used for menstrual delays, kidney pain, liver and chest conditions. The infusion of the plant is taken to regulate menstruation and treat liver and kidney problems. Infusion of the root or leaf juice is used to reduce obesity and to treat constipation, liver and kidney conditions. The infusion of the root and leaves is used as a diuretic. The infusion of the macerated stem treats liver and bile conditions. The root and leaves are used to relieve stomach pain, liver irritation, body discomfort and internal infections. The plant, in infusion, is used to treat the hangover. The leaves and the root, in infusion, are used as laxatives and to treat digestion problems and conditions of the skin, blood, liver and kidneys. Cleanses the stomach and heals ulcers and pressure problems. The leaves, in infusion, are used to treat kidney conditions. The leaves, in infusion, are used to relieve stomach pains. It serves as a cholagogue and for liver congestion. Relieves kidney conditions. The whole fresh plant used to treat liver problems, stomachache, inflammation (internal), ovaries. Also, for liver problems, fever and malaria. Dandelion is often sold in medicinal plant markets. Limited antibacterial activity has been shown. Sometimes applied in combination with other plants. In the Caucasus used as diuretic, for gallstones, as laxative, for liver problems, oral inflammation, and toothache). Croatia: raw or shortly boiled salad. Hungary: young leaves eaten as salad in spring, syrup cooked from soaked flowers, "cikoria honey" made from flowers with sugar syrup, wine fermented from flowers. Ukraine: flowers for jam, salad, roots as coffee substitute, tea; raw snack, salads, syrup. Europe: tea, coffee substitute, salad, syrup, flowers fermented for wine. Belarus / Ukraine / Slovakia / Czech Republic: raw snack, salads. Belarus: Salad, coffee substitute, tea. Italy: raw and boiled vegetable. Albania: raw in salad or boiled. Czech Republic: bee plant. Belarus: Fodder for pigs and livestock, good for cows, good for horses, hair care. Fodder for livestock. The stems are used by children to make whistles. The plant is used as animal fodder. It has beekeeping use. Dandelion used as a dye and for skin cleansing. In Peru used for bad air / mal aire and protection against evil. (Belkasmı et al. 2024d; Bussmann et al. 2019g; 2020v; 2025MN; Kojimatov et al. 2025c; Luintel et al. 2021; Paniagua-Zambrana et al. 2020j).*

**Uses 1817 (Gmelin 1817):** The young, tender leaves can be prepared and eaten in spring, before the plant produces stems, as a healthy, tasty vegetable and as a salad. The roots were used to make bread when food was scarce. However, before they produce stems, they are better used as a nutritious vegetable.

**Description and Ecology (Gmelin 1817):** The root is cylindrical, whitish-grey, slightly ringed, branched, fleshy, and milk-producing. The stems are leafless, tubular, round, upright, smooth, and single-flowered. The root leaves are numerous, stalked, and serrated; the segments are triangular and toothed. The corolla is large and yellow. This very well-known plant grows here and there in orchards and orchards, in meadows, pastures, and fields, along paths and hedges. It blooms in March, April, and May. Its seeds ripen in May and June, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, weißgrau, etwas geringelt, ästig, fleischig, milchgebend. Die Stengel blätterlos, röhrenförmig, rund, aufrecht, glatt, einblütig. Wurzelblätter viele, gestielt, schrotsägenförmig; die Abschnitte dreyeckig, gezähnt. Die allgemeine Blumenkrone groß, gelb. Diese sehr bekannte Pflanze, wächst hie und da häufig in Gras- und Obstgärten, auf Wiesen, Weiden und Aeckern, an Wegen und Hecken. Blühet im März, April, May. Reifet ihre Samen im May, Juni, und gehört unter die ausdauernden Gewächse. Die jungen zarten Blätter, können im Frühjahr, ehe die Pflanze Stengel treibt, als gesundes schmackhaftes Gemüse, und als Salat zubereitet und verspeist werden. Aus den Wurzeln wurde bei Mangel, Brod gebacken. Sie können aber ehe sie Stengel treiben, besser als nahrhaftes Gemüse benutzt werden.

***Torminalis glaberrima* (Gand.) Sennikov & Kurtto**

*Synonyms: Sorbus torminalis* (L.) Crantz; *Aria torminalis* (L.) Beck; *Crataegus torminalis* L.; *Hahnia torminalis* (L.) Medik.; *Pyrus torminalis* (L.) Ehrh.; *Sorbus orientalis* Schönb.-Tem.; *Torminalis clusii* (M. Roem.) K. R. Robertson & J. B. Phipps; *Torminaria clusii* M. Roem.

**Original name (Gmelin 1817):** *Crataegus torminalis*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 369. - 371.

**German names and French names (Gmelin 1817):** Darmbeerenbaum, Elsebeeren, Arlsbeere, Elrizen, Eschenrösel; Alisier torminale, Sorbier torminal, Tormigne.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened in Baden-Württemberg, but rare in the region

**Botany and Ecology:** Tree, 25 m tall. With a pyramidal or wide crown and spreading branches. The bark is dark gray. The buds are 2-5 mm, greenish, glabrous. The leaves 5-13 cm broadly ovate, slightly cordate, to broadly cuneate at the base. The lobes are more or less acuminate, deep bright green on both sides, slightly pubescent beneath when young, glabrous or sparsely pubescent at maturity. The veins are 6-paired. The petiole is 15-50 mm. The inflorescence is 10-15 cm in diameter, 20-60 flowered. The flowers are 12-15 mm in diameter. The sepals are deltoid, pubescent with glandular margins. The fruit is 12-18 mm, more or less spherical or pear-shaped. The seeds are 7 mm oval-elongate, dark-red. The plant can be found in deciduous forests, solitary or gregarious. Caucasia, North and Northwestern Iran, Europe to Siberia. Mountain forest zone, up to 1700 m. Mountain forest zone, up to 1700 m. Distributed in Abkhazia, Svaneti, Racha-Lechkhumi, Imereti, Guria, South Oseti, Kartli, Mtiuleti, Kakheti, Gare Kakheti, Trialeti, Kvemo Kartli, Meskheti (Yuzepchuk 1939).

**Contemporary uses:** *Georgia: unspecified medicinal use, digestive, colds, urinary problems Fruits eaten raw and fermented to distill alcohol. Hungary: sweet, pulpy fruits eaten by children, herdsmen. Eastern Europe: fruits pickled. Czech Republic: jam. Croatia: eaten raw. Slovakia: dried for winter for food, added to vodka. Bulgaria: fruits mixed with flour. Balkans: wooden home goods, turnery, charcoal for gunpowder production.* (Batsatsashvili et al. 2017a; Bindu et al. 2021; Bussmann et al. 2020b,c; 2025c; Paniagua-Zambrana et al. 2025e).

**Uses 1817 (Gmelin 1817):** The ripe berries have a pleasantly sour-sweet taste and, after being picked from the tree for a few days and placed on straw, where they soften, can be eaten like medlars as a pleasant and healthy food. They produce a strong and pleasant brandy through fermentation and can also be used to make very good vinegar. These trees are definitely worth planting and propagating in the low mountain regions, especially above vineyards, and in the valleys. The berries provide excellent fattening for pigs and poultry. The very hard wood does not warp, making it highly sought after by carpenters and turners for inlaid work. Propagation is best achieved by seed. Until now, the berries have been left to the birds in our country, whereas in France and England they are sold at weekly markets every autumn.

**Description and Ecology (Gmelin 1817):** A tree 8-15-24 feet tall. The branches are alternate, slightly upward-bearing. The leaves are alternate, stalked, ovoid or heart-shaped, rounded, flat, with seven to nine lobes. The two lowest lobes are distinct. The others are erect, shorter, and all pointed, with serrated edges. The flowers are borne on branched umbels. The calyx has five lobes. The corolla is white, larger than the calyx, and has five petals. The stamens are two, rarely three or four, fused together at the base. The berry is ovoid-rounded, brown, marked with white, somewhat rough spots, fleshy, and has two to three seeds. Grows here and there very frequently in the low mountain ranges and also in somewhat higher, wooded mountain regions, in Baden, Württemberg, Hesse, Alsace, and Switzerland. It blooms in May and its berries ripen in October and November.

**Original German text Gmelin (Gmelin 1817):** Ein Baum von 8 - 15 - 24 Fuß Höhe. Die Aeste abwechslend, etwas aufwärts stehend. Die Blätter abwechslend, gestielt. eyrund, oder herz-eyförmig, rundlich, flach, sieben bis neunlappig. Die zwey untersten Lappen von einander stehend. Die übrigen aufrecht, kürzer, und sämtlich spitzig, und am Rande gesägt. Die Blüthen sitzen auf ästigen Doldentrauben. Der Blüthenkelch fünfteilig. Die Blumenkrone weiß, größer als der Blüthenkelch, fünfblättrig. Staubwege 2, seltener 3 - 4, am Grunde mit einander verwachsen. Die Beere eyförmig-rundlich, braun, mit weissen etwas rauhen Punkten bezeichnet, fleischig, zwey bis dreysamig. Wächst hie und da sehr häufig in den Mittelgebirgs- und auch in etwas höhern waldigen Gebirgsgegenden, im Badischen, im Würtembergischen, Hessischen, im Elsaß und der Schweiz, blühet im May, und reifet seine Beeren im October, November. Die reifen Beeren schmecken angenehm säuerlich-süß, und können, nachdem sie etliche Tage vom Baum abgenommen, und auf Stroh gelegt, worauf sie weich werden, wie die Mispeln als eine angenehme und gesunde Nahrung verspeist werden. Sie geben durch die Gährung einen starken und angenehmen Brandtwein, und können auch auf einen sehr guten Essig benutzt werden. Diese Bäume verdienen in jedem Betracht, in den Mittel-Gebirgsgegenden, vorzüglich oberhalb den Weinbergen, und in den Thalgegenden, angepflanzt und

vermehrt zu werden. Die Beeren geben den Schweinen und dem Hausgeflügel eine treffliche Mast. Das sehr harte Holz, wirft sich nicht, und ist daher zu eingelekten Arbeiten, von Schreibern und Drehern sehr gesucht. Die Vermehrung kann am besten durch Samen geschehen. Bisher werden die Beeren bei uns den Vögeln überlassen, da sie hingegen in Frankreich und England, alle Jahre im Herbst auf die Wochenmärkte zum Verkauf gebracht werden.

***Tragopogon pratensis* L.**

*Synonyms: Tragopogon carinatus* Gilib.; *Tragopogon praecox* Focke; *Tragopogon pratensis* f. *pratensis*; *Tragopogon pratensis* subsp. *eupraticensis* Thell.; *Tragopogon sylvestris* Garsault

**Original name (Gmelin 1817):** *Tragopogon pratense*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p.268. 269.

**German names and French names (Gmelin 1817):** Gelber Wiesenbocksbart, Wolfsbart, Gauchbart, Süßling, Josephsblume, Haberwurz, Habermakeln, Morgenstern; Barbe de Bouc ordinaire, Salsifix des Près

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 157900** (Fig. 82)

**Botany and Ecology:** Biennial. Root vertical, robust, cylindrical, with numerous slender and short lateral roots; root collar covered with fibers. Plants glabrous, 30-90(120) cm high; stems simple or branched, straight, mostly robust, sometimes colored. Leaves long, linear or lanceolate-linear, basally semi amplexicaul, broadened and abruptly narrowed, finely longacuminate, sometimes undulate along margin, almost carinate in upper part; middle and upper cauline leaves much shorter than lower ones. Peduncles long, significantly exceeding leaves, straight, glabrous, not thickened below capitula. Capitula solitary terminal on stem and branches, at flowering 2.5-3 cm long, 12-20 mm wide, elongated at fruiting. Involucral bracts 8-10, lanceolate or linear-lanceolate, 2.5-4 cm long, 8-12 mm wide, long-acuminate, sometimes brown or pale in lower part, sometimes shorter than peripheral florets and achenes, white bordered. Receptacle glabrous, initially flat, later on weakly convex, punctate-alveolate. Florets light yellow; anthers yellow, sometimes turning black at apex. Achenes with pappus 3-4 cm long, without pappus 2-2.3 cm long, blackish or brownish-gray; body of achene slightly curved, sulcate, scabrous due to small subobtus tubercles along ribs, somewhat thick, about 1.1 cm long, abruptly narrowed into 0.8-1 cm-long, slender and smooth beak as long as body of achene, not swollen at apex, and with hairy annulus; pappus 1-1.5 cm long, shorter than achene with beak, whitish. Flowering May to September. Meadows, meadow slopes, forest glades, borders of fields, roadsides and old fields. (Boborov & Tzvelev 2000).

**Contemporary uses:** *Turkey: digestive. Italy: depurative. India: appetizer, liver ailments, gout, rheumatism. Italia / Croatia / Estonia / Poland / Mediterranean / Switzerland: green vegetable, raw. Italy: Fresh flower buds and young leaves eaten raw or boiled; soup; snack and vegetable. Hungary: young stems eaten peeled, in autumn leaves chewed, cooked in whey.* (Mehdiyeva et al 2025j).

**Uses 1817 (Gmelin 1817):** The roots, shoots, and stems are sweet, nourishing, and tasty in spring and can be eaten raw or cooked. They should be used to their full potential when food is scarce. This plant is also a good fodder for cattle and pigs.

**Description and Ecology (Gmelin 1817):** The root is spindle-shaped, simple, brown on the outside, white on the inside. The stem is 1.5 - 2 feet tall, upright, round, very smooth, lactiferous, and somewhat branched. The leaves are alternate, stem-clasping, lanceolate, narrower at the top, entire, and smooth. The flowers are borne singly on the upwardly thickened stem and branches. The communal calyx has eight petals. The corolla is large and yellow. The seeds are oblong, angular, and rough. The corolla is feathery and stalked. The receptacle is bare. Grows in meadows and grassy gardens, especially common in mountainous regions where the meadows can be watered. It blooms in May and July. Its seeds ripen in August and September, and is a biennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel spindelförmig, einfach, außen braun, innen weiß. Der Stengel 1½ - 2 Fuß hoch, aufrecht, rund, sehr glatt, milchgebend, etwas ästig. Die Blätter abwechselnd, stengelumfassend, lanzettförmig, oben schmaler, ganz, glatt. Die Blüthen stehen einzeln auf dem nach oben verdickten Stengel und denen Aesten. Der gemeinschaftliche Blüthenkelch achtblättrig. Die allgemeine Blumenkrone groß, gelb. Die Samen länglich, eckig, rauh. Die Samenkronen federartig, und gestielt. Der Fruchtboden nackt. Wächst auf Wiesen und in Grasgärten, vorzüglich häufig in den Gebirgsgegenden, wo die Wiesen gewässert werden können. Blühet im May, Juli. Reifet seine Samen im August, September, und gehört unter die zweyjährigen Gewächse. Die Wurzeln, Schößlinge und Stengel, sind im Frühjahr süß, nährend und

schmackhaft, und können roh, und gekocht verspeist werden. Sie müssen bei Mangel bestens benutzt werden. Ausserdem ist diese Pflanze ein gutes Futter für Rindvieh und Schweine.



Figure 82. *Tragopogon pratensis* L. - KR 157900

### *Trapa natans* L.

*Synonyms:* *Trapa acicularis* V.N.Vassil.; *Trapa alatyrica* Sprygin ex V.N.Vassil.; *Trapa algeriensis* V.N.Vassil.; *Trapa amurensis* Flerow; *Trapa amurensis* var. *bispinosa* Flerow; *Trapa amurensis* var. *komarovii* Skvortsov; *Trapa annosa* Jankovic; *Trapa annosa* f. *bicornis* Janković; *Trapa annosa* f. *pseudomuzzanensis* Janković; *Trapa araborum* V.N.Vassil.; *Trapa arcuata* S.H.Li & Y.L.Chang; *Trapa astrachanica* (Flerow) N.A.Winter; *Trapa astrachanica* var. *caspica* (V.N.Vassil.) Tzvelev; *Trapa bicornis* var. *acornis* (Nakano) Z.T.Xiong; *Trapa bicornis* var. *bispinosa* (Roxb.) Nakano; *Trapa bicornis* var. *cochinchinensis* (Lour.) Steenis; *Trapa bicornis* var. *quadrspinosa* (Roxb.) Z.T.Xiong; *Trapa bicornis* var. *taiwanensis* (Nakai) Z.T.Xiong; *Trapa bispinosa* var. *iinumae* Nakano; *Trapa borysthenica* V.N.Vassil.; *Trapa brevicarpa* Jankovic; *Trapa brevicarpa* f. *effigia*

Janković; *Trapa brevicarpa* subsp. *calosa* Janković; *Trapa brevicarpa* subsp. *rubida* Janković; *Trapa brevicarpa* var. *delicata* Janković; *Trapa brevicarpa* var. *mirabila* Janković; *Trapa carinthiaca* (Beck) V.N.Vassil.; *Trapa caspica* V.N.Vassil.; *Trapa caucasica* Flerow; *Trapa colchica* Albov; *Trapa conocarpa* var. *pyramidalis* (V.N.Vassil.) Tzvelev; *Trapa conocarpa* var. *suecica* (Nath.) Tzvelev; *Trapa cruciata* (Glück) V.N.Vassil.; *Trapa danubialis* Dobroc.; *Trapa dimorphocarpa* Z.S.Diao; *Trapa europaea* Flerow; *Trapa europaea* var. *clipeata* Janković; *Trapa europaea* var. *egregia* Janković; *Trapa europaea* var. *macrocarpa* Janković; *Trapa europaea* var. *vulgata* Janković; *Trapa fastigiata* P.Vassil.; *Trapa flerovii* Dobroc.; *Trapa grozdovii* V.N.Vassil. ex V.N.Tikhom.; *Trapa hungarica* Opiz ex Nyman; *Trapa jankovicii* Tacik; *Trapa japonica* var. *longicollum* Z.T.Xiong; *Trapa japonica* var. *magnicorona* Z.T.Xiong; *Trapa kasachstanica* V.N.Vassil.; *Trapa kazakorum* P.Vassil.; *Trapa komarovii* V.N.Vassil.; *Trapa laevis* C.Presl ex Nyman; *Trapa longicarpa* Jankovic; *Trapa longicarpa* f. *amplicornis* Janković; *Trapa longicarpa* f. *brevicola* Janković; *Trapa longicarpa* f. *concamerata* Janković; *Trapa longicarpa* f. *elata* Janković; *Trapa longicarpa* f. *falcata* Janković; *Trapa longicarpa* f. *perangusticornis* Janković; *Trapa longicarpa* f. *subcoronata* Janković; *Trapa longicarpa* subsp. *perlongicornis* Janković; *Trapa longicarpa* subsp. *valida* Janković; *Trapa longicarpa* subvar. *miniata* Janković; *Trapa longicarpa* var. *contortula* Janković; *Trapa longicarpa* var. *loricata* Janković; *Trapa longicarpa* var. *mammeata* Janković; *Trapa longicarpa* var. *rubra* Janković; *Trapa longicarpa* var. *spatiosa* Janković; *Trapa longicornis* V.N.Vassil.; *Trapa macrorhiza* Dobroc.; *Trapa maeotica* Woronow; *Trapa maleevii* V.N.Vassil.; *Trapa manshurica* Flerow; *Trapa manshurica* f. *komarovii* (Skv.) S.H.Li & Y.L.Chang; *Trapa manshurica* var. *tranzschelii* (V.Vassil'ev) Kitag.; *Trapa maximowiczii* Korsh.; *Trapa media* (Glück) V.N.Vassil.; *Trapa metschorica* P.Vassil.; *Trapa muzzanensis* Jäggl; *Trapa muzzanensis* var. *europaea* Tacik; *Trapa natans* f. *quadrispinosa* Makino; *Trapa natans* var. *amurensis* (Flerow) Kom.; *Trapa natans* var. *borysthenica* (V.N.Vassil.) Tzvelev; *Trapa natans* var. *europaea* (Flerow) Tzvelev; *Trapa natans* var. *hamata* Tzvelev; *Trapa natans* var. *natans* L.; *Trapa natans* var. *quadrispinosa* (Roxb.) Makino; *Trapa natans* var. *suroshensis* Flerow; *Trapa numidica* V.N.Vassil.; *Trapa okensis* P.Vassil.; *Trapa pectinata* V.N.Vassil.; *Trapa pseudocolchica* V.N.Vassil.; *Trapa pseudoincisa* Nakai; *Trapa pseudoincisa* var. *aspinosa* Z.T.Xiong; *Trapa pseudoincisa* var. *complanata* Z.T.Xiong; *Trapa pseudorossica* V.N.Vassil.; *Trapa pyramidalis* V.N.Vassil.; *Trapa quadricornis* Stokes; *Trapa quadrispinosa* Roxb.; *Trapa quadrispinosa* var. *yongxiuensis* W.H.Wan; *Trapa rossica* V.N.Vassil.; *Trapa rossica* var. *pseudorossica* (V.N.Vassil.) Tzvelev; *Trapa saissanica* (Flerow) V.N.Vassil.; *Trapa sajanensis* P.Vassil.; *Trapa septentrionalis* V.N.Vassil.; *Trapa sibirica* Flerow; *Trapa sibirica* var. *altaica* Flerow; *Trapa sibirica* var. *saissanica* Flerow; *Trapa sibirica* var. *ussuriensis* Flerow; *Trapa spryginii* V.N.Vassil.; *Trapa taiwanensis* Nakai; *Trapa tranzschelii* V.N.Vassil.; *Trapa turbinata* P.Vassil.; *Trapa ucrainica* P.Vassil.; *Trapa uralensis* P.Vassil.; *Trapa verbanensis* De Not.; *Trapa wolgensis* P.Vassil.; *Trapa* × *raciborskii* Jent.-Szaf. ex Tacik; *Tribulus aquaticus* Garsault

**Original name (Gmelin 1817):** *Trapa natans*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 370. 371.

**German names and French names (Gmelin 1817):** Wassernuß, Stachelnuß, Seenuß; Macre d'eau, Truffles d'eau, Chataignes d'eau, Triboule

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - Highly threatened, strong decline, extinct in the region

**Botany and Ecology:** Annual. The petioles are smooth or slightly hairy, with oblong-ellipsoid float-bladders. The leaf blade rhomboidal or rounded-rhomboidal, irregularly toothed, hairy beneath on veins and periphery. The pedicels are rather slender, hairy. The fruit is 4-horned, at the level of the upper horns triangular or sub-rhomboidal, 2.5-4 cm broad (excluding the spines), 1.8-2.2 cm high. The crown is 6-10mm in diameter or lacking. The upper horns horizontal, with somewhat upward turned points, rapidly attenuate from broad base and then gradually tapering to a point. The lower horns also rapidly attenuate at first and then gradually tapering to a point their ends horizontal or ascending; pronounced median line between upper and lower horns with light spots conspicuous against dark background of fruit. The diameter of the basal ring 2-2.5 mm. Central and Atlantic Europe, Mediterranean, Balkan peninsula and Asia Minor. Grows in lakes and wetlands in the Lankaran lowlands. Flowering in May-June (Flora of Azerbaijan, 1950-1961).

**Contemporary uses:** Azerbaijan: A decoction and infusion of flowers and leaves is used internally in dysentery and diarrhea. It also has diuretic effects. Azerbaijan: The fruits are eaten raw. Dried and crushed fruits make a very tasty herbal infusion. The fruits are baked or boiled with sugar or honey. Flour of the fruits is used for bread baking which has a good taste. Slovakia: Eaten boiled. Poland / Lithuania: Scalded and eaten. Hungary: Seeds cooked or roasted. Czech Republic: Seeds eaten raw or ground into flour. Bulgaria: Seeds cooked or ground into flour. Belarus: Seeds eaten raw or. A beautiful plant used as decorative in artificial water bodies. (Mehdiyeva et al. 2017c; 2025k; Paniagua-Zambrana et al. 2025T).

**Uses 1817 (Gmelin 1817):** The ripe fruits of this plant, which grows so frequently in the Rhine region, are sweet, floury, tasty, and nutritious. They have the flavor of chestnuts and can be eaten raw, roasted, or cooked. They are picked when ripe on

small boats or skiffs that are taken to the swamps, ponds, and oxbows. This must be done with due caution, as they are very easily lost and fall into the water. The collected water chestnuts are immediately dried in the sun or spread out on a well-ventilated surface and left to rest until the kernel detaches from the nut and rattles inside. Then, the hard shell is cracked open with a knife, and the kernel is removed. Nuts that are not yet completely dry can also be opened, and the kernel, which must be peeled off its outer reddish-brown skin, can be completely dried in a baking or drying oven. However, this drying, baking, or drying process must be done carefully so that the kernels do not acquire a burnt taste. The well-dried kernels are then coarsely crushed in a mortar, ground in a hand mill, and sieved through a fine sieve, producing the finest and whitest flour, which is then stored in a dry, well-ventilated place. It swells considerably when cooked with water, meat broth, or milk, and is used to make healthy, tasty, and nourishing soups, porridge, cakes, and pies, even dumplings. The dried, coarsely crushed kernels can also be made with meat broth, butter, and milk, with a little spice, into a nourishing, excellent, and tasty porridge. According to Pliny, even the Thracians made bread from this fruit. However, after my experiments with it 30 years ago, I cannot recommend its excellent and excellent white flour for bread because, like rice and manna flour, it does not ferment well. Until now, water chestnuts in our Rhine region have mostly been left to pigs, who welcome them and provide tasty food. In China, water chestnuts are widely cultivated and used as food. It would, however, be worthwhile to plant them in our Rhine region and on Lake Constance, in swamps, ponds, and oxbows where they do not currently occur. This can be done in the easiest and simplest way, as follows: The fully ripe fruits are picked in August or September and immediately wrapped in wet moss, and then brought to the swamps, ponds, and oxbows, where they are planted in the mud of these waters at a distance of twelve to fourteen inches from each other.

**Description and Ecology (Gmelin 1817):** The root is very long, creeping, segmented, and fibrous. The stems are very long, round, smooth, and submerged. The leaves float above the water, arranged in a circle at the tip of the stem, diamond-shaped, smooth, pleasantly green above, toothed at the edges, and brown-tomentose beneath. The leaf stalks are almost finger-stalked, bulbous and bladder-like in the middle. The white, four-petaled, short-stalked flowers are larger than the single-petaled, four-parted calyx. They are located in the center of the floating leaves, leaving behind a hard, oval-shaped, angular, black-green, finally black, very hard nut, crowned with four protruding spines, two of which are alternately larger, and whose kernel is heart-shaped, dense, and white. This plant grows here and there in the swamps, ponds, and oxbows of the Rhine, near Dachsland, Aue, Knielingen, Eckenstein, Hochstedt, Linckenheim, and others, as well as near Germersheim and Hagenau in Alsace, where it often covers the water entirely with a green blanket and occurs in large numbers. It blooms in June and July, ripens its fruits in August and September, and is classified as an annual plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel sehr lang, kriechend, gegliedert, und faserig. Die Stengel sehr lang, rund, glatt, unter Wasser. Die Blätter über dem Wasser schwimmend, an der Spitze des Stengels, kreisförmig beysammenstehend, rautenförmig, glatt, oberhalb angenehm grün, am Rande gezahnt, unterhalb braunfilzig, die Blattstiele beynahe Fingerslang, in der Mitte bauchig, blasenartig. Die weissen vierblättrigen kurzgestielten Blumen sind größer als der einblättrige in vier Theile getheilte Blumenkelch, stehen in der Mitte der schwimmenden Blätter, und hinterlassen eine harte, eyrunde eckige mit vier abstehenden Stacheln, wovon wechselseitig zwey größer sind, gekrönte schwarzgrüne endlich schwarze sehr harte Nuß, deren Kern herzförmig, dicht, und weiß ist. Diese Pflanze wächst hie und da in den Sümpfen, Teichen und Altwassern des Rheins, bey Dachsland, Aue, Knielingen, Eckenstein, Hochstedt, Linckenheim u. a. O. bey Germersheim, bey Hagenau im Elsas, wo sie nicht selten die Wasser gänzlich mit einer grünen Decke überzieht und in großer Menge vorkommt. Sie blühet im Juni und Juli, reifet ihre Früchte im August, September, und gehört unter die einjährigen Pflanzen. Die reifen Früchte, dieser in den Rheingegenden so häufig wachsenden Pflanze, sind süß, mehlicht, schmackhaft und nährend, sie haben den Geschmack der Kastanien, und können roh gebraten und gekocht verspeist werden. Sie werden auf kleinen Schiffen oder Kähnen, welche man auf die Sümpfe, Teiche und Altwasser bringt, wenn sie reif sind, abgelesen, welches mit gehöriger Vorsicht geschehen muß, indem sie sehr leicht ab- und ins Wasser fallen. Die eingesammelten Wassernüsse, werden sogleich an der Sonne getrocknet, oder auf einem luftigen Boden ausgebreitet, und so lange liegen gelassen, bis der Kern von der Nuß losgeht, und darinnen klappert. Alsdann wird die harte Schaale mit einem Messer aufgeschlagen, und der Kern herausgenommen. Auch können die noch nicht ganz ausgetrockneten Nüsse geöffnet, und der Kern, welcher von seinem äusserlichen röthlichbraunen Häutchen abzuschälen ist, in einem Back- oder Dörröfen, vollends ganz ausgetrocknet werden. Jedoch muß dieses Austrocknen, Backen oder Dörren, mit Vorsicht geschehen, damit die Kerne keinen brandigen Geschmack bekommen. Die gut getrockneten Kerne, werden alsdann im Mörser gröblich gestoßen, auf einer Handmühle gemahlen, und durch ein Haarsieb gesiebet, wodurch man das feinste und weisseste Mehl erhält, welches alsdann an einem trockenen und luftigen Ort aufbewahrt wird. Es quillt im Kochen mit Wasser, Fleischbrühe oder Milch, so stark auf, und wird zu gesunden, schmackhaften und nährenden Suppen, Brey, Kuchen und Torten, auch zu Klösen angewendet. Aus den getrockneten gröblich gestossenen Kernen, kann auch mit Fleischbrühe, Butter, Milch, eine nährrende, treffliche, wohlschmeckende Grütze, mit etwas Gewürze, zubereitet werden. Schon die Thrazier bereiteten Brod aus dieser Frucht, nach Plinius. Jedoch kann ich das treffliche und ausgezeichnete weiße Mehl derselben, nach meinen schon vor 30

Jahren damit angestellten Versuchen, nicht auf Brod empfehlen, weil dasselbe, so wie das Reis- und Mannaschwaden-Mehl, nicht wohl fermentiert. Bisher wurden die Wassernüsse in unsern Rheingegenden, größtentheils den Schweinen überlassen, denen sie willkommen sind, und eine schmackhafte Nahrung geben. In China werden die Wassernüsse häufig angebauet und als Nahrung benutzt. Es verlohnte sich allerdings der Mühe, sie auch in unseren Rheingegenden und am Bodensee, in solchen Sümpfen, Teichen und Altwassern, wo sie zur Zeit noch nicht vorkommen, anzupflanzen, welches auf die leichteste und einfachste Art, auf folgende Weise geschehen kann. Die ganz reifen Früchte werden im August oder September abgenommen, und sogleich in nasses Moos eingehüllt, und darinn auf die Sümpfe, Teiche und Altwasser gebracht, wo sie in einer Entfernung von zwölf bis vierzehn Zoll von einander, in dem Schlamm dieser Wasser angepflanzt werden.

### ***Trifolium alpestre* L.**

*Synonyms: Trifolium alpestre f. bicefala* Kožuharov; *Trifolium alpestre f. heterofoliolata* Kožuharov; *Trifolium alpestre f. lanigerum* (Ser.) Bolzon; *Trifolium alpestre f. monostachyum* (Ser.) Cincović; *Trifolium alpestre subf. monostachyum* Ser.; *Trifolium alpestre subsp. lanigerum* (Ser.) Stoj. & Stef.; *Trifolium alpestre var. alpestre*; *Trifolium alpestre var. davidovii* Kožuharo; *Trifolium alpestre var. distachyum* Ser.; *Trifolium alpestre var. durmitorium* Rohlena; *Trifolium alpestre var. glabratum* C.Klinggr.; *Trifolium alpestre var. lanigerum* Ser.; *Trifolium alpestre var. parvifolium* Kožuharov; *Trifolium alpestre var. rubellum* Ser.; *Trifolium alpestre var. sericeum* Hausskn.; *Trifolium alpestre var. trinervia* Kožuharov; *Trifolium alpestre var. villosum* Čelak.; *Trifolium alpinum* Georgi; *Trifolium incarnatum* Stephan; *Trifolium purpureum-majus* Gilib.; *Trifolium rubens* Desc.; *Triphylloides nervosa* Moench

**Original name (Gmelin 1817):** *Trifolium alpestre*. Linn. Sp. pl. - Gmel. Flor. Bad. III. p. 224. 225.

**German names and French names (Gmelin 1817):** Aufrechter rother Bergklee; Trefle rouge étroite de montagne

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Threatened, decline

**Botany and Ecology:** Perennial; taproot descending deep into the soil, sometimes multicipital, with long and often branched rhizomes; stems several, 15-50 cm long, erect or ascending, usually simple, more or less appressed-hairy; stipules large, lanceolate, hairy, united with petiole to beyond the middle, prominently veined, the free portion subulate, the margin ciliate; leaves mostly cauline, the lower long-petioled, the upper short-petioled; leaflets lanceolate to narrow-elliptic, 1.5-6 cm long and 0.5-1.5 cm broad, acuminate, unequally denticulate, densely appressed-hairy especially beneath, the lateral veins attenuate at margins; heads solitary or sometimes paired, surrounded by terminal leaves, subsessile or short-peduncled, ovoid, 3- 5 cm long, densely many-flowered; flowers dark red, ca. 1.5 cm long, calyx slenderly 12-nerved; tube ca.6mm long, pale green, hairy, with a dense ring of hairs at throat; teeth subulate, ciliate, the upper one -third to half the length of tube, the lowest at least twice as long as tube; corolla united for two-thirds its length; standard broad-ovate; wings and keel lanceolate, scarcely shorter than standard; pod ovoid, scarious, 1 -seeded. Floering June-July; fruiting July-August. Foothills and middle mountain zone, dry meadows, steppes, scrub, sometimes ascending into the subalpine zone; in plains, dry meadows, forest margins, open forests, and scrub. (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This beautiful, densely growing clover often covers entire areas and provides cattle with abundant and good food. It deserves to be planted and propagated as a very productive fodder herb, especially on the limestone marl hills and mountains of Baden, Württemberg, Switzerland, and the Jura, where so many stony limestone hills, barely covered with shrubs, remain unused. This can be done through roots and especially through seeds. How much these regions would benefit from this. The flowers provide the bees with abundant honey.

**Description and Ecology (Gmelin 1817):** The root is creeping, downward-growing, dark brown. The stem is 1-1.5 feet tall, erect, simple, rounded, and slightly hairy. The leaves are stalked and trifoliate. The leaflets are lanceolate, veined and striated, pointed, finely serrate and hairy along the margins. The leaf bases are sheath-shaped, long, narrow, bristle-like, and hairy along the margins. The flower spike is often double, erect, oval, dense, the second smaller, surrounded by opposite membranous leaf bases. The calyxes are shaggy and striated. The corollas are dark purple-red. The pods are single-seeded. Grows on sunny, dry hills and mountains, on the edges of forests, on paths leading through stony and calcareous hills and mountains, on the slopes of these hills, and on ravines. Blooms in May, June, and July. Its seeds ripen in July and August, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend, abwärtssteigend, dunkelbraun. Der Stengel 1 - 1½ Fuß hoch, aufrecht, einfach, rundlich, etwas behaart. Die Blätter gestielt, dreyfach. Die Blättchen lanzettförmig, aderförmig-gestreift, spitzig, am Rande feingesägt, feinhaarig. Die Blattansätze scheidenförmig, lang, schmal, borstenförmig, am Rande haarig. Die Blüten-Aehre öfters gedoppelt, aufrecht, eyrund, dicht, die zweyte kleiner, mit entgegengesetzten häutigen Blattansätzen umgeben. Die Blumenkelche zottig, gestreift. Die Blumenkronen dunkel-purpurroth. Die Hülsen einsamig. Wächst an sonnenreichen trockenen Hügeln und Bergen, am Rande der Waldungen, an Wegen, welche durch steinige und leimige Kalkhügel und Gebirge führen, am Abhange derselben, und an Hohlwegen. Blühet im May, Juni, Juli. Reifet seine Samen im Juli, August, und gehört unter die ausdauernden Gewächse. Dieser schöne, dichtwachsende Klee, überzieht öfters ganze Strecken, und giebt dem Rindvieh reichliche und gute Nahrung. Er verdiente vorzüglich auf den Kalkmergel-Hügeln und Bergen im Badischen, Würtenbergischen, in der Schweiz, und am Jura, wo so viele steinige Kalkhügel, kaum mit etwas Gesträuche bewachsen, unbenutzt liegen bleiben, als sehr ergiebige Futterkraut angepflanzt und vermehrt zu werden, welches durch Wurzeln und vorzüglich durch den Samen geschehen kann. Wie sehr würden diese Landesgegenden dadurch gewinnen. Den Bienen geben die Blüten reichlichen Honig.

### ***Trifolium fragiferum* L.**

*Synonyms:* *Amoria fragifera* (L.) Roskov; *Galearia fragifera* (L.) Bobrov; *Galearia fragifera* (L.) C.Presl; *Trifolium fragiferum* subsp. *fragiferum*; *Xerosphaera fragifera* (L.) Soják

**Original name (Gmelin 1817):** *Trifolium fragiferum*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 233. 234.

**German names and French names (Gmelin 1817):** Erdbeeren-Klee; Treffle Fraisier

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Threatened, decline.

**Botany and Ecology:** Perennial herbs, stoloniferous, glabrous or hairy. Stems prostrate or decumbent, 10-30(-50) cm, rooting at nodes. Leaves palmately 3-foliolate, long petiolate; stipules linear-lanceolate to lanceolate-ovate, 1-2 cm, membranous, base sheathing, tip acuminate to subulate; leaflets obovate to obovate-elliptic, ± sessile, (5-)10-25 × 5-15 mm, glabrous or sparsely pubescent on veins, lateral veins 10-15, base broadly cuneate, apex rounded, retuse. Flowers 10-30, in crowded hemispheric or ovoid heads, 0.8-2.5 cm; peduncle axillary, to 2 × petiole; involucre bracts fused, lobes lanceolate, entire or toothed. Calyx bilabiate, strongly inflated in fruit, veins reticulate; teeth filiform, 2 upper longer than 3 lower, 2 upper and distal 1/2 of tube densely sericeous. Corolla white or pink, 6-8 mm; standard oblong. Ovary linear. Legume ovate-oblong, enclosed in inflated calyx. Seeds 1 or 2, brown, reniform. Flowering and fruiting May-August. (Wu *et al.* 1994-2013)

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** It is as good a fodder as meadow clover and is eagerly eaten by cattle and horses. Due to its strong, dense growth, it should be used, planted, and propagated as a very productive fodder herb, especially in river regions that are frequently subject to flooding; this is most easily done by seed. It is artificially sown in Ireland, where it is said to produce very tall stems.

**Description and Ecology (Gmelin 1817):** The root is simple and whitish. The stems are 1-2-3 feet long, creeping, rounded, rooting, then erect, smooth, purple, and branched. The leaves are alternate, stalked, and trifoliate. The leaflets are obovate, blunt, or marginal, the upper parts somewhat pointed, finely hairy, or smooth, veined, and finely serrated at the edges. The leaf bases are narrow, ovate-pointed, and veined. The long, upright flower stalks arise singly in the leaf axils and terminate in a rounded, purple-red or rose-red spike. The fruit spikes are larger, resemble strawberries, and are flesh-colored. The calyxes are tubular, shaggy, and humped on the upper side, finally inflated and nectar-veined. The pods are round, compressed, and two have only one seed. The seeds are oval-kidney-shaped, shiny, and yellowish. Grows very frequently in the Rhine, Main, and Neckar regions on low-lying, moist and wet meadows and pastures that are frequently subject to flooding. It blooms in June and July. Its seeds ripen in August and September, and is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel einfach, weißlich. Die Stengel 1 - 2 - 3 Fuß lang, kriechend, rundlich, wurzelschlagend, dann aufrechtsteigend, glatt, purpurfarbig, ästig. Die Blätter abwechselnd, gestielt, dreyfach. Die Blättchen verkehrt eyförmig, stumpf, oder ausgerandet, die obere etwas spitzig, feinhaarig, oder glatt, geadert, am Rande fein gesägt. Die Blattansätze schmal, eyrund-zugespitzt, geadert. Die langen aufrechten Blumenstiele stehen einzeln in den Achseln der Blätter, und endigen sich, in eine rundliche purpurrothe oder rosenrothe Aehre. Die Fruchthähren größer, ähneln den Erdbeeren und sind fleischfarbig. Die Blütenkelche röhrig, zottig, auf der oberen Seite bucklig, endlich aufgeblasen und

nezförmig geadert. Die Hülsen eyrund, zusammengedrückt, zwey auch nur einsamig. Die Samen oval-nierenförmig, glänzend, gelblich. Wächst sehr häufig in den Rhein-, Main- und Neckargegenden auf tiefliegenden feuchten und nassen, öftern Ueberschwemmungen ausgesetzten Wiesen und Weiden. Blühet im Juni, Juli. Reifet seine Samen im August, September, und gehört unter die ausdauernden Pflanzen. Er ist ein eben so gutes Futter als der Wiesenkee, und wird begierig von dem Rindvieh und den Pferden gefressen. Er sollte vorzüglich in den öftern Ueberschwemmungen ausgesetzten Flußgegenden, wegen seines starken dichten Wuchses, als sehr ergiebiges Futterkraut benutzt, angepflanzt und vermehrt werden, was am leichtesten durch Samen geschehen kann. Wird in Irland, wo er sehr hohe Stengel treiben soll, künstlich angesäet.

***Trifolium hybridum* L.**

*Synonyms: Amoria hybrida* (L.) C.Presl; *Trifolium elegans* subsp. *hybridum* (L.) Bonnier & Layens; *Trifolium hybridum* f. *hybridum*; *Trifolium hybridum* var. *hybridum*

**Original name (Gmelin 1817):** *Trifolium hybridum*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 221.

**German names and French names (Gmelin 1817):** Bastard-Klee, Weißröthlicher Honig-Klee; Trefle-batard

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 207715** (Fig. 83)

**Botany and Ecology:** Perennial herbs, glabrous or glabrescent. Stems few to several from crown, erect or ascending, 15-60 cm, ridged vertically. Leaves palmately 3-foliolate; stipules ovate to ovate-lanceolate, base fused for ca. 1/3 of length, free blade long acuminate, tip subulate; petioles very long in lower leaves, gradually reduced in upper leaves; petiolule 1-1.5 mm; leaflets broadly elliptic to ovate-elliptic or obovate, 1-3 × 1-2 cm, lateral veins 15-20 pairs, base broadly cuneate, margins entire to serrulate, apex obtuse (rarely emarginate). Flowers 10-50, in axillary and terminal, globose umbels, 1-2.5 cm; peduncle longer than adjacent leaves; involucre absent; bracts lanceolate, 0.5-1 mm; pedicels 3-5 mm, reflexed after anthesis. Calyx with 5 major and 5 minor veins; teeth subulate, 1-2 × length of tube. Corolla pink to white, 7-10 mm; standard elliptic, longer than wings and keel. Ovary linear; ovules 2. Legume elliptic. Seeds 2, brown to reddish, ovoid, tuberculate. Flowering and fruiting June-October. (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** It is an excellent and healthy fodder for cattle and horses. This clover, previously unknown to our farmers, is particularly well-suited for riverine regions. It should be planted in damp pastures and meadows, which are frequently subject to flooding, which could be done quickly and easily using seeds. It surpasses artificial meadow clover. How much the previously poor, wet pastures would be improved by its artificial cultivation. It should not be confused with the white honey clover, creeping clover, *Trifolium repens*. Linn. - Gmel. Flor. Badens. III. p. 222, 223.

**Description and Ecology (Gmelin 1817):** The root is white. The stems are 1.5 - 2 feet tall, erect, striated-furrowed, smooth, and branched. The leaves are alternate, long-stalked, and trifoliolate. The leaflets are short-stalked, oval, blunt, slightly serrated, and smooth. The leaf bases are opposite in pairs, oval-lanceolate, pointed, awned, veined, white at the base, smooth, and entire. The flowers arise from the axils of the upper leaves, on long, single, striated, smooth stalks, in the shape of an umbel. The flower head is naked, moderately large; the lower flowers are recurved, flesh-colored or rose-red, and finally brown; the upper ones are erect-whitish or whitish-reddish. The pods are covered, recurved, and have 2 - 3 - 4 seeds. Grows in the Rhine, Main, and Neckar regions, particularly in the vicinity of these and other rivers, in low-lying, damp meadows and pastures that are frequently subject to flooding, along standing water, ponds, and lakes. It blooms in June, July, and August. Its seeds ripen in August and September, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weiß. Die Stengel 1½ - 2 Fuß hoch, aufrechtsteigend, gestreift-gefurcht, glatt, ästig. Die Blätter abwechselnd, lang gestielt, dreyfach. Die Blättchen kurz gestielt, eyrund, stumpf, etwas gesägt, glatt, Die Blattansätze zu zwey gegenüberstehend, ey-lanzettförmig, zugespitzt, begrannt, geadert, am Grunde weiß, glatt, ganz. Die Blüthen aus den Achseln der oberen Blätter, auf langen einzelnen gestreiften, glatten Stielen, Dolden-Kopfförmig. Der Blüthenkopf nackt, mittelmäßig groß; die untern Blumen zurückgebogen, fleischfarben oder rosenroth, endlich braun; die oberen aufrecht-weißlich, oder weißröthlich. Die Hülsen bedeckt, zurückgebogen, 2 - 3 - 4 samig. Wächst in den Rhein-, Main- und Neckar-Gegenden, und zwar in der Nachbarschaft dieser und anderer Flüsse, in tiefliegenden, feuchten, öftern Ueberschwemmungen ausgesetzten Wiesen und Weiden, an stehenden Wassern, Teichen, und Seen. Blühet im Juni,

Juli, August. Reifet seine Samen im August, September, und gehört unter die ausdauernden Gewächse. Ist ein ganz vorzügliches und gesundes Futter für Rindvieh und Pferde. Dieser unsern Landwirthen bisher unbekannte Klee, welcher für die Flußgegenden ganz vorzüglich geeignet ist, sollte in solchen Stellen, Weiden und Wiesengründen, welche feucht liegen, und öfters Ueberschwemmungen ausgesetzt sind, bestens angepflanzt werden, was auf die schnellste und leichteste Art durch Samen geschehen könnte. Er übertrifft den künstlichen Wiesenklee. Wie sehr würden die bisher magern nassen Weiden, durch den künstlichen Anbau desselben verbessert werden. Er muß nicht mit dem weißen Honigklee, kriechenden Klee, *Trifolium repens*. Linn. - Gmel. Flor. Badens. III. p. 222. 223. verwechselt werden.



Figure 83. *Trifolium hybridum* L. - KR 207715

***Trifolium medium* L.**

*Synonyms:* *Lagopus flexuosus* Bernh.; *Trifolium affine* Lej. ex Ser.; *Trifolium alpestre* Crantz; *Trifolium aucheri* Boiss.; *Trifolium flexicaule* Vill.; *Trifolium flexuosum* Jacq.; *Trifolium haynaldianum* Pant.; *Trifolium haynaldii* Meynh.; *Trifolium medium* f.

*pedunculosum* (Ser.) C.Vicioso; *Trifolium medium* subsp. *ericalycinum* (Hauskn.) Ponert; *Trifolium medium* subsp. *flexuosum* (Jacq.) Asch. & Graebn.; *Trifolium medium* subsp. *medium*; *Trifolium medium* subsp. *pendunculosum* Ser.; *Trifolium medium* subsp. *skorpili* Velen.; *Trifolium medium* subsp. *skorpilii* Velen.; *Trifolium medium* var. *angustifolium* Wimm. & Grab.; *Trifolium medium* var. *angustum* Wahlenb.; *Trifolium medium* var. *angustius* Wahlenb.; *Trifolium medium* var. *brachycalycinum* Rouy; *Trifolium medium* var. *ericalycinum* Hauskn.; *Trifolium medium* var. *flexuosum* (Jacq.) C.Vicioso; *Trifolium medium* var. *majus* Boiss.; *Trifolium medium* var. *microphyllum* Lej.; *Trifolium medium* var. *microphyllum* Lej. & Courtois; *Trifolium medium* var. *strictum* Hartm.; *Trifolium medium* var. *subpilosum* Charit.; *Trifolium pensylvanicum* Willd.; *Trifolium subexpansum* Schur; *Trigonella micrantha* Desf.

**Original name (Gmelin 1817):** *Trifolium medium*. - Gmel. Flor. Badens. III. p. 225. 226. - *Trifolium flexuosum*. Jacqu. Flor. Aust. 4. p. 45. *Trifolium alpestre*. Poll. Fl. Palat. n. 702

**German names and French names (Gmelin 1817):** Gebogener rother Bergklee, Mittlerer Klee; Treffle rouge intermediaire

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 207903** (Fig. 84); **207904** (Fig. 85)

**Botany and Ecology:** Perennial herbs, rhizomatous, pubescent to glabrescent. Stems decumbent or ascending, 20-50 cm, branches flexuous. Leaves palmately 3-foliolate, lower long petiolate, upper shortly petiolate; stipules linear-lanceolate, adnate to petiole for ca. 1/2 their length, free blade acuminate lanceolate; leaflets elliptic to broadly lanceolate, 15-55 × 6-20 mm, lateral veins 10-12, arching, branched, running into small marginal teeth, base rounded, margins entire to obscurely serrate, apex obtuse to acute. Flowers numerous, in globose to broadly ovate, terminal, solitary or paired, sessile or shortly pedunculate heads. Calyx 5-6 mm, veins 10; teeth subulate, unequal, lower tooth longest. Corolla purple, 15-18 mm; standard oblong-ovate. Legume ovoid. Seed 1, brown, angled. Flowering May-July, fruiting June-August. (Wu *et al.* 1994-2013)

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This succulent clover provides cattle with abundant, pleasant, and excellent food. It should be planted and propagated as a fodder, especially in the suitable higher mountains and valleys of the Black Forest, and in Switzerland, where artificial meadow clover does not thrive. This can be done most easily by seed. We have no clover that could better replace artificial meadow clover, *Trifolium pratense sativum*. The flowers provide the bees with abundant honey.

**Description and Ecology (Gmelin 1817):** It differs from the preceding species, with which it has often been confused, by its somewhat prostrate, branchy stem, curved at the limbs, broader, more succulent leaves and leaf bases, a mostly single, flaccid, somewhat larger, round flower spike, and lighter, purple-colored corollas. It is intermediate between mountain clover and meadow clover. Grows primarily in slightly damp valley and mountain meadows, on grassy, somewhat shaded sandstone, marl, and granite hills and mountains in Baden, Württemberg, Switzerland, and other countries.

**Original German text Gmelin (Gmelin 1817):** Er unterscheidet sich von der vorhergehenden Art, mit welcher er oft verwechselt wurde: durch den an den Gliedern gebogenen etwas niederliegenden ästigen Stengel, breitere saftreichere Blätter und Blattansätze, eine größtentheils einzelne, schlaffere, etwas größere, runde Blumenähre, und hellere purpurfarbige Blumenkronen. Er steht zwischen dem Berg- und Wiesenklee gleichsam in der Mitte. Wächst vorzüglich auf etwas feuchten Thal- und Bergwiesen, auf mit Gras bewachsenen etwas beschatteten Sandstein-, Kalkmergel- und Granithügeln und Bergen im Badischen, Württembergischen, der Schweiz und andern Ländern. Dieser saftreiche Klee, giebt dem Rindvieh ergiebige, angenehme und treffliche Nahrung. Er sollte vorzüglich in den dazu geeigneten höherliegenden Bergen und Thälern des Schwarzwaldes, und in der Schweiz, da, wo der künstliche Wiesenklee, nicht gedeihet, bestens als Futtermittel, angepflanzt und vermehrt werden, welches am leichtesten durch Samen geschehen kann. Wir besitzen keinen Klee, der uns den künstlichen Wiesenklee, *Trifolium pratense sativum*, besser ersetzen könnte. Den Bienen geben die Blüten reichlichen Honig.



Figure 84. *Trifolium medium* L. - KR 207903



Figure 85. *Trifolium medium* L. - KR 207904

***Urtica dioica* L.**

*Synonyms:* *Urtica dioica* subsp. *eu-dioica* Selander, *Urtica dioica* var. *dioica*, *Urtica dioica* var. *vulgaris* Wedd.; *Urtica eckloniana* Blume; *Urtica galeopsifolia* Wierzb. ex Opiz; *Urtica haussknechtii* Boiss.; *Urtica sicula* Gasp. ex Guss.; *Urtica submitis* Boiss.; *Urtica tibetica* W.T.Wang ex C.J.Chen

**Original name (Gmelin 1817):** *Urtica dioica*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 683. 684.

**German names and French names (Gmelin 1817):** Große Brennessel; Grande Ortie

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 194962 (Fig. 86); 194963 (Fig. 87)

**Botany and Ecology:** Perennial. Rootstock creeping underground. Stems erect, 60-100cm long, glabrous or sparingly pubescent, with a dense coating of stinging hairs especially at the nodes. The leaves are ovate-cordate, coarsely serrate with incurved teeth, mostly cordate at base. Acuminate at apex. Stipules free, oblong, scarious, to 12mm long. The plants are dioecious; the inflorescences are long; they are also branched and covered with simple hairs and scattered stinging hairs. The bracts of the flowers are small. The fruit is 1.25-1.5mm long and extends beyond the kernel. Ural, Caucasus, Middle Asia. The plant can be found along roadsides, as a weed among crops and near human habitations and in damp woods. In humid, shady places, in tall grass communities, ruderal habitats, cultivated fields. Nettles do particularly well in soils with high level of nitrogen and are often found growing around abandoned buildings. From lower to sub-alpine mountain belt, on an elevation 400-2600 m. Flowers from June to September, fruits from August to October. Ruderal places and crop fields, vegetable and fruit gardens, from lowland to middle mountain zone. (Bobrov and Komarov 1936).



Figure 86. *Urtica dioica* L. - KR 194962



expectorant, anastaltic, anticonvulsant, anti-inflammatory, antiseptic, and antipyretic properties. A decoction and powder of leaves is used as a diuretic, laxative, expectorant, vasoconstrictor, and hemostatic to treat internal bleeding and hemorrhoids, and also to treat rheumatism, stomach diseases, diabetes, and chronic ulcers. It is used in a bath to treat various types of swelling. The roots and fruits are used to treat diarrhea. The leaves are used in a wash to treat hair loss. *Urtica dioica* is also used for sciatica, as rheumatism, boils, and skin ailments, as diuretic, for jaundice, as astringent and anthelmintic, and to treat kidney bleeding. Sometimes the plant is used to treat fractures and blood pressure instabilities. In Pakistan the plant is used to treat headache, fever and myalgia and as emollient. In India used as diuretic, anti-rheumatic, astringent, anthelmintic, for jaundice, and kidney hemorrhages. In Pakistan the species is used for headache, fever, flu and myalgia and as emollient. In the Caucasus *Urtica dioica* is used as antiseptic, for burns, hypertension, to increase hemoglobin, for joint pain and nervous system problems. One of the few species sold as medicinal plants in markets. The nettle is used in as bactericidal, healing, anti-inflammatory, anti-hemorrhagic, vasodilator and to lower blood sugar. Nettle is used as a stimulant for the production of lymphocytes. The roots are used as a diuretic and in cases of enlargement of the prostate. The leaves of the Nettle are used internally as diuretics and in disorders of the biliary tract, externally they are applied as an antiarthritic, to relieve osteo-muscular pains and as a cicatrizing. The infusion prepared with the leaves is used in the treatment of inflammation of the urinary tract.. Used for blood purification, fever, rheumatism, arthritis, blood circulation, hemorrhages, hair loss, asthma, hemorrhoids, inflammation (general). Nettles are among the most commonly sold medicinal plants in Peruvian markets. Iran: The leaves and flowers are used as anthelmintic, stomach stimulant, anticancer, urinary tract infection, wound healer, pain reliever for gout. Infusion and decoction of aerial part are used to treat prostate diseases, gynecological infections, menstrual disorders, diabetes and hyperglycemia, hyperlipidemia, hypertension, asthma, urinary stones, kidney stones and rheumatism. Among the Turkmens of the Turkmen Sahara, it is used as a lactation stimulant to increase lactation in mothers. People in parts of Kurdistan province use it to relieve toothache and improve uterine infections, while people in Alamut in Qazvin province use it to treat corns, eczema, and warts. Dagestan: Herb was used for bleeding, anemia, and vitamin deficiency in the form of decoction or tincture. Women rinsed their hair with nettle decoction after washing to give them a shine. Armenia: Usually young leaves are used fresh with salt and dried leaves and stems are used as a spice for soups and salads. Nettles' antiseptic quality helps maintain food freshness. It is use to fill fish for frying, and can be put on meat. Azerbaijan: Leaves contain significant quantities of vitamins A, C and K. Soups, kuku Leaves are used as fodder. Leaves are used in traditional carpet weaving as source of green, and roots as yellow dye. It's possible to make absolutely harmless green dye for the food industry. Fresh nettle extract increases resistance of plants to diseases and is used in the fight against insects of plants from families Rosaceae and Fabaceae. Stimulates the chlorophyll production in leaves. From ancient times magical properties were attributed to Nettle. It was believed that items made from nettles keep the house from evil forces. In order to cultivate the land around the fencing. Also used as amulet. Nettle is most useful when the plant is still green, but already has seeds. Nettle was used in ancient times in the economy, given the fiber, prepared the bags, ropes and nets. A dye solution is prepared from leaves to obtain green, grey-green, yellow, green-brown, greenish-pink, greenish-coffee, greenish-brown and other different colors and shades. The solution is used for dyeing wool fabric. In the past ropes, and coarse fabrics (sacking) were made of it. Georgia: Nettle is one of the most commonly used wild herbs in Georgian cuisine. *Ch'inch'ari* (*Urtica dioica* L.) is one of the major components of "pkhali" (other major herbs are: *natsarkatama* (*Chenopodium album*), *jijilaka* (*Amaranthus retroflexus*), *ts'its'marita* (*Cardamine hirsuta* L.), *kharik'bila* (*Capsella bursa-pastoris* (L.) Medik.), *andzla* (*Cirsium incanum* Fisch.), *katmikona* (*Ranunculus chius* D.C.), *msukana* (*Portulaca oleracea* L.) and *balba* (*Malva* sp.)- both make the mass smoother; other herbs used in small amounts are: *dedaput'k'ara* (*Stachys* sp. ), *birk'abalakhi* (presumably, *Arctium lappa* L.) - collected only in early spring, *zhunzhruko* (*Stellaria media* (L.) Cirillo), *matitela* (*Polygonum aviculare* L.) and *khvartkla* (*Convolvulus arvensis* L.) - in larger amounts that other accessory herbs, *kobrchkhila* (*Falcaria vulgaris* Bernh.), *batispekhebi* (*Erodium cicutarium* (L.) L'Her.), *ch'inch'ris-deda* (*Lamium album* L.) - gives slightly bitter taste, *sama'ura* (*Trifolium* sp.), *ionja* (*Medicago* sp.), *tavshava* (*Origanum vulgare* L.), *purtskhala* (not identified), young potato leaves (makes the mass smoother), *ia* (*Viola* sp.) - large amount must not be used as the plant is somewhat intoxicant, *babuats'vera* (*Taraxacum* F. H. Wigg.) - gives slightly bitter taste, *endro* (*Rubia tinctorium* L.) leaves, *natsarkatama* with fleshy leaves (*Chenopodium* sp.), *dedabrik'onk'a* (*Lamium purpureum* L.), *vardk'ach'ach'a* (*Cichorium intybus* L.) - gives bitter taste, *gholo* (*Rumex* spp. of *R. crispus* L. group) - gives brown colour), *q'aq'acho* (*Papaver* sp.), *mzhauna* (*Rumex acetosa* L.) - gives sour taste. Together with a number of other field herbs its young shoots are collected in early spring as well as summer, and autumn but after first harvest of tomato, eggplant, spinach, and cucumber. In early spring their taste is very different from that in summer. When preparing pkhali from all these field weeds, the following greens are used as seasoning for the mix and not boiled: dill, fennel, leek, coriander, parsley, celery, green onion shoots, silky wormwood, mint, garlic is also added. All these components of pkhali dressing are mixed with ground walnut, then the boiled herb mass is chopped, and is dressed with the mixture of greens, walnut and garlic, as well as some pepper. In Svaneti young leaves of *ch'inch'ari* are cleaned, washed, boiled, cut with "lapertkhi" (a kind of a knife) and a dense barley flour is added to the mixture boiled. The boiled nettles are cooled, then coriander, mint, salt are added. *Ch'inch'ari* "shech'amandi" (a semi-liquid meal with flour added)

requires coriander, mint and salt. In Samegrelo in early spring *ch'uch'ule* (*ch'inch'ari*) is collected, boiled, seasoned with walnut mixed with spices and vinegar or spices steered in *t'q'emali* (*Prunus divaricata*) juice. In Ient people boil and eat *ch'inch'ari* particularly often because it grows near houses and is easy to obtain. In Kazbegi the herbs are boiled, finely chopped, squashed, mixed with cheese and melted butter, shaped as rolls, which are put in pasta and the pie is baked. Khevsureti: *Ch'inch'ari* is collected early in spring, boiled in salted water, then mashed with a stone in a "latba" (a big wooden or copper vessel used for traditional beer production in Khevsureti and Tusheti, salted and melted butter is poured on the mass. Kvemo Kartli: *Q'aq'acho* (poppy *Papaver* sp.), *K'oprchkhila* (sickleweed *Falcaria vulgaris*) are boiled separately, squeezed and mixed with browned onions, then spiced with cilantro, garlic and salt. Natsarkatama Goosefoot, *ia-ia* (*Viola* sp.), *shavi pkhali* (*Jijilaq'a* - amaranth) are boiled and water discarded, spiced with garlic, walnuts, pepper, herbs; does not need oil (butter, fat). Nettle is collected in spring before first thunderstorms, boiled and the first water is thrown away. Then it is prepared as a soup. The boiled plants are minced, mixed with boiled milk and corn flour (suspended in a water or cool milk previously boiled), spiced with garlic and a little young cilantro or its seeds, ground with salt and pepper. Alternatively, the boiled nettle is mashed; browned onions with scrambled eggs or spice with walnuts, garlic, pepper and salt or just Svaneti salt are added. Nettle leaves are included in *chave* (a combination of dry herbs with coarse flour steered in water, and included in *khashapuri* (herb pie) and *Khinkali*. Leaves are also pickled, and a beverage (tea) is prepared from them. Used for *Phkhali*. Dagestan: Nettle is widely used in Dagestan as a rich source of vitamins, especially during spring vitamin deficiency. Young nettles are used to prepare soups. Especially popular are "Kurze" (general Dagestani name) and "Chudu" (general Dagestani name) (*Afarar* is a Lezgin-language name and *Galar*, *Tabasaran* name), stuffed with chopped young nettle shoots in pure form or mixed with other spring plants (*Stellaria media* (L.) VILL, *Capsella bursa-pastoris* (L) Medik) with walnuts (*Juglans regia* L.), fried onions, eggs, tallow. In spring, to increase immunity and hemoglobin, Dagestani also use a salad of fresh young nettle stems, peeled from their leaves, pre-mashing them in their hands, which is called "kyikyishv" by the Tabasaran ethnic group, "khyikyif" by the Lezgin ethnic group, and "tishilai" in the Agul ethnic group. Omelet with nettle is also widely spread in the cuisine of the peoples of Dagestan. In the mountains, people dried nettles for the winter. At the right moment, they soaked them in water or milk (yoghurt) if necessary and got a mushy "pitakhoi". It was used to stuff "wet chudu" (*shyamzi*)-(Dargin-Chirag ethnos). Georgia: Leaves are used as fodder. Azerbaijan: Young shoots are good food for horses and cows. A dye solution is prepared from leaves to obtain green, grey-green, yellow, green-brown, greenish-pink, greenish-coffee, greenish-brown and other different colors and shades. The solution is used for dyeing wool fabric. Best fiber of nettle is suitable household use. In the past ropes, and coarse fabrics (sacking) were made of it. Armenia: Leaves are used in traditional carpet weaving as source of green, and roots as yellow dye. It's possible to make absolutely harmless green dye for the food industry. Fresh nettle extract increases resistance of plants to diseases and is used in the fight against insects of plants from families *Rosaceae* and *Fabaceae*. Stimulates the chlorophyll production in leaves. From ancient times magical properties were attributed to Nettle. It was believed that items made from nettles keep the house from evil forces. In order to cultivate the land around the fencing. As well as keep as amulet. Nettle is most useful when the plant is still green, but already has seeds. Nettle was used in ancient times in the economy, given the fiber, prepared the bags, ropes and nets. Dagestan: In Dagestan, all ethnic groups wove carpets, paths; *burkas* and floor mats were made from sheep skins. In this regard, the technique of dyeing yarn of wool, cotton, linen threads, fabrics with natural dyes obtained from various plant organs is widely developed. Natural mordants (salt, soda, urea, etc.) were used to deepen, strengthen, and give different shades. Nettle grass, both raw and dried, was often used to give fabrics and threads green (all shades), brown (different shades) colors. Romania: Anti-anaemia, antiseptic, anti-inflammatory, cicatrizing, anti-lithiasis; anaemia, anthrax, rheumatism, scab, digestive (hepatitis, ulcer), renal, skin disorders; unspecified children's ailments; hypertension, rheuma, and vasoconstriction, rheuma, diabetes, analgesic, antimicrobial, antihyperglycemic; skin eruptions, varicose ulcer, stomatitis, seborrhoea, wounds, dandruff, alopecia anti-infective, astringent, anti-inflammatory, hair tonic. Ukraine: blood coagulation, mouth cleaning. Belarus: Back pain, hair care, thickening of blood, heart problems, cleansing, rheumatic pains, diabetes, urinary system, vesical cleansing, women diseases. Italy: diuretic, rheumatism. Albania: rheumatic pains or diuretic. Bulgaria / Yörük: strengthening, joint pain, yellow nails; difficulty urinating, headache. Croatia: dried for medicine. Serbia: bleeding gums. Hungary: Wounds, respiratory and urinary problems. Balkans: diuretic, blood cleansing, stomach-ache, rheumatism, cancer, liver problems, to regulate menstrual cycle, diabetes, antirheumatic, anti-hemorrhoidal, anti-anaemic, influenza, bronchitis, headache, antibacterial, digestive disorders, urinary disorders, general health, digestion, galactagogue, gastritis, headache. Decoction of plant is used as an astringent and anti-helminthic. Nettle is also used for sciatica, as rheumatism, boils, and skin ailments, as diuretic, for jaundice, as astringent and anthelmintic, and to treat kidney bleeding. Sometimes the plant is used to treat fractures and blood pressure instabilities. In Pakistan the plant is used to treat headache, fever and myalgia and as emollient. Poisonous cause skin itching. Plant is used for joint pain, blood tonic and pimples. Decoction of the plant is astringent and anthelmintic. Leaves cause severe irritation which can be soothed by rubbing leaves of *Rumex*. Young leaves are used as potherb. Reduce allergies, stops bleeding, lower blood pressure and heals wounds. Used as a diuretic and to cure rheumatism. Externally it has been used to improve the appearance of the hair and is said to be a remedy for dandruff. Young leaves are

cooked as a potherb and added to soups. They can also be dried for winter use. Decoction of root is given to increase milk secretion and reduces prostate enlargement. The decoction of plant is applied on baldness and dandruff. Decoction of roots and aerial parts is used for dandruff and baldness. It is allergenic plant. Leaves if touched with body cause severe irritation and itching swelling of skin that can be soothed by rubbing the leaves on effected parts. Plant root is used for toothache. Leaves are given to livestock to increase milk production. Used for stomach disorders, joint pain, pimples and as tonic, arthritis, nausea and swellings. Used also as digestive, diuretic, for genital disorders and against hemorrhoids, as anthelmintic and astringent, as well as asthma, anemia, gout, and fungal diseases. Sometimes the species is applied to bone fractures, and dog as well as snake bites, and for swollen legs. Can be used to regulate blood sugar, and as galactagogue. In Jammu and Kashmir for swellings, dandruff as anthelmintic, for hypertension, as blood purifier, to treat boils, as hair stimulant, against rheumatism, skin infections, to treat wounds, as astringent, diuretic, for jaundice, as nephritic, against blisters, toothache, bone fractures, fever, gastric disorders, gout, hyperacidity, skin-infections, sprain, stomachache. Ukraine: cooked or eaten raw in borsch, omelettes, salad, tea, soups, stew, pure; Azerbaijan: boiled, in khinkali. Belarus: Salad, snack, soup, bread additive. Czech Republic: young, steamed leaves used in soups, vegetable dish-es, egg dishes. Italy: in soups and frittata. Albania: Peta ingredient or mixed with rice and eggs, rarely used as wrapping for sarma, minced and dried for later food use. Bulgaria /Yörük: cooked with rye flour, pie filling. Croatia: used as food. Slovakia: potherb. Poland: green vegetable. Romania: As green vegetable. Eastern Europe: as green vegetable. Balkans: used for sarma. Hungary: soup, vegetable, salad, with eggs, tea. Belarus: Fodder for cows strengthening of piglets. Romania: magical ritual for snakebite treatments. Bulgaria: nettle fiber as substitute for cotton, fishing net, paper, to make brooms. Balkans: nettle fiber as substitute for cotton, fishing net, paper. (Batsatsashvili et al. 2017k; Bussmann et al. 2025O; Jan et al. 2021d; Kojimatov & Bussmann 2023c; Kojimatov et al. 2025c; Liu et al. 2020; Paniagua-Zambrana et al. 2025U).

**Uses 1817 (Gmelin 1817):** The young shoots and leaves can be prepared and eaten in spring as a healthy, nutritious, and tasty vegetable. The plant provides a rich and pleasant fodder for cows in March, April, and May, which improves and increases milk production.

**Description and Ecology (Gmelin 1817):** The root is cylindrical and fibrous. The stems are 2-3-10 feet long, erect, simple, or with a few branches, quadrangular, covered with stinging bristles. The leaves are opposite, stalked, heart-shaped, pointed, serrate, with stinging bristles on the margin and sides. The flowers have completely separate sexes and are borne on four short-stalked, branched green spikes in the leaf angles. The calyx has four petals. The corolla is absent. The female flowers have an oval ovary, without a style, and a shaggy stigma. Grows on rubble heaps, on hedges and fences, in light, slightly damp woodlands, in low-lying and higher areas. It blooms in July and August. Its seeds ripen in September and October, and it is considered a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel walzenförmig, faserig. Die Stengel 2 - 3 - 10 Fuß, aufrecht, einfach, oder mit einigen Aesten versehen, viereckig, mit Brennborsten besetzt. Die Blätter entgegenstehend, gestielt, herzförmig, spitzig, gesägt, am Rande und den Seiten mit Brennborsten versehen. Die Blumen haben ganz getrennte Geschlechter, und stehen auf vier kurzgestielten ästigen grünen Aehren in den Blattwinkeln. Der Blumenkelch vierblättrig. Die Blumenkrone fehlt. Die weiblichen Blüthen haben einen eyrunden Fruchtknoten, ohne Griffel, und eine zottige Narbe. Wächst auf Schutthaufen, an Hecken und Zäunen, in lichten etwas feuchten Waldungen, in niedergelegenen und höheren Gegenden. Blühet im Juli, August. Reifet ihre Samen im September, October, und gehört unter die ausdauernden Gewächse. Die jungen Sprossen und Blätter, können im Frühjahr, als ein gesundes, nährendes und schmackhaftes Gemüse, zubereitet und verspeist werden. Die Pflanze giebt im März, April und May, ein ergiebiges und angenehmes Futter, für die Kühe, welches die Milch verbessert und vermehrt.

### ***Vaccinium myrtillus* L.**

*Synonyms: Vaccinium myrtillus* subsp. *oreophilum* (Rydb.) Á.Löve, D.Löve & B.M.Kapoor *Vaccinium myrtillus* var. *oreophilum* (Rydb.) Dorn; *Vaccinium oreophilum* Rydb. *Vitis-idaea myrtillus* (L.) Moench

**Original name (Gmelin 1817):** *Vaccinium Myrtillus*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 146. - 148.

**German names and French names (Gmelin 1817):** Heidelbeere, Schwarze Heidelbeere, Blaue Heidelbeere, Gandelbeere, Gemeine Heidelbeere; Myrtille, Airelle, Raisin de bois, Maurets Lucette

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

KR 176334 (Fig. 88)

**Botany and Ecology:** Shrub with sharply angled glabrous branchlets, 15-40 cm tall; leaves deciduous, light green, turning red in fall, thin, ovate or elliptic, obtuse or acute with a soft mucro, rounded or slightly cordate at base, 10-28 mm long, 6-18 mm broad, finely serrate -dentate, covered on both sides with scattered hairs, the petiole 1-1.5 mm long; flowers solitary at the base of young branchlets, nodding, the pedicels 2.5-3.5 mm long; calyx with an almost entire limb; corolla greenish-pink, urceolate -globose, 3-4.5 mm long, 4- or 5-lobed; stamens 8-10, the glabrous filaments dilated at base; anthers with 2 long appendages; berry globose, black, with a blue bloom, 6-8 mm in diameter, with reddish pulp, juice with dyestuff properties. Flowering May-June, fruiting July-September. Ural, Caucasus, Altai, in coniferous forests up to 2000 m. (Shishkin and Boborov 1952).



Figure 88. *Vaccinium myrtillus* L. - KR 176334

**Contemporary uses:** Hungary: raw; as jam, liqueur, syrup, preserves. preserved in rum, put into brandy (palinka), tea from leaves. Romania: Jam, preserved with sugar, raw, juice, compote; pickle. Ukraine: food, raw, juice, syrup, alcohol, compote,

jam, cakes., raw, jam, fruit brandy, twigs for tea. Eastern Europe: recreational tea; beverage, bread, wine, pickle; additive to fermented tree saps. Belarus: recreational tea, compote, flavor for alcohol, snack, jam, juice, kissel, pies; fresh, jams and juice, milk soups, as spice for fermented sauerkraut, cucumbers and tomatoes. Czech Republic: seasoning in soups, raw as a children's snack, soups, jams/jellies, juice, wines, alcohol. Italy: Fresh fruits raw, jams, alcohol. Albania: raw. Slovakia: raw, jams, wines, infusions. Poland: raw, with milk and cream, juice, fruit soups, dried as a spice in winter. The leaves of all species are used as tea substitute in the Caucasus, the fruits are eaten and used as jam and juice, and to produce alcohol. Fruits are eaten raw and used to color vodka red. The dried and roasted fruits serve as coffee substitute. The berries of *Vaccinium myrtillus* L. are edible when ripe in Pshavi. The roots are used for infusions. The harvested berries can be kept up to one week. In Khevsureti *Vaccinium myrtillus* L. leaves are used as tea in Tusheti. In Svaneti *Vaccinium myrtillus* L. fruits are used to make compotes and marmalades, while their leaves are used in infusions. In *Vaccinium* spp are used for herb pie Wild pkhali plants can be cooked in various ways: can be pickled, boiled, seasoned with vinegar, walnuts and various spice herbs. Leaves are used for tea. The fruits are eaten raw, used for marmalade, and also to make berry wine. Azerbaijan: The fruits are edible fresh and dried, they are used to make compote, jam and jelly. In Adjara the leaves of motsvi მოცვი *Vaccinium* sp. were used to cook a kind of dish called motsvishveripkhala. Georgia: In Adjara the leaves of motsvi მოცვი *Vaccinium* sp. were used to cook a kind of dish called motsvishveripkhala მოცვიჟვერიფხალა. Fruits are eaten raw and used to color vodka red. The dried and roasted fruits serve as coffee substitute. The berries of shavshavi შავშავი *Vaccinium myrtillus* L. are edible when ripe in Pshavi. The roots are used for infusions. The harvested berries can be kept up to one week. In Khevsureti motsvi მოცვი *Vaccinium myrtillus* L. leaves are used as tea in Tusheti. In Svaneti motsvi (მოცვი) locally tsinq'a ცინყა (*Vaccinium myrtillus* L.), maq'vali მაცვალი locally vighv ვიღვ (*Rubus* spp.), zholo ჟოლო locally ingha ინღა (*Rubus idaeus* L.) fruits are used to make compotes and marmalades, while their leaves are used in infusions. Plants mixed together for pkhali in Adjara include dvarula dvalura დვარულა დვალურა *Polygonum carneum* C. Koch, dondoli დონდოლი *Gadellia lactiflora* (M.Bieb.), ch'inch'ari ჭინჭარი *Urtica dioica* L., katamnatsara კათამნაცარა *Chenopodium album* L., ch'ich'laq'a ჭიჭლაყა *Amaranthus retroflexus* L., perapera ფერაფერა *Phytolacca americana* L., k'uk'umzhava კუკუმჟავა, svint'ri სვინტრი *Polygonatum* spp., ch'arbadelo ჭარბადელო *Arctium lappa* L., and also young leaves of motsvi მოცვი *Vaccinium* spp., venakhi ვენახი *Vitis vinifera* L., babuats'vera ბაბუათსვერა *Taraxacum* spp., Kajiloja ქაჯილოჯა *Daucus carota* L., Ts'its'marit'a წიწმარიტა *Capsella bursa-pastoris* (L.) Medik., burt'q'ila ბურტყილა *Lapsana grandiflora* M. Bieb., the plants used by Adjara people as food are: ajark'ela აჯარკელა *Lathyrus roseus* Steven, ajorik'a აჯორიკას *Aruncus vulgaris* Raf. (young leaves are pickled), bobots'vera ბობოტვერა *Taraxacum* spp. (ground roasted dry roots used instead of cichorium), dilq'a დილყა *Heracleum* sp. (shoots are peeled and eaten), k'onst'ant'ila კონსტანტილა (white roots are edible), ozaghina ოზაღინა *Chaerophyllum aureum* L. (young leaves are pickled), ghima ღიმა *Chaerophyllum bulbosum* L. (mixed with leek or ajorik'a აჯორიკას *Aruncus vulgaris* Raf. and pickled), and dvalura დვალურა *Polygonum carneum* Wild pkhali plants can be cooked in various ways: can be pickled, boiled, seasoned with vinegar, walnuts and various spice herbs. Leaves are used for tea. The fruits are eaten raw, used for marmalade, and also to make berry wine and distill alcohol. In Karachay-Cherkessia as tincture for colds, as infusion for diarrhea, gastralgia, diabetes, menorrhagia, leukemia, typhoid, scrofululosis and to treat fungal infections. Hungary: digestive problems. Balkans: circulation, hemorrhoids, galactagogue, heart problems, to regulate menstrual cycle, stomach-ache, diarrhea, fever, lithontriptic, respiratory inflammations, anemia, immuno-stimulant, diabetes. Ukraine: vitamins, diabetes, stomach. Belarus: improve vision, eye problems, diabetes, panacea, rejuvenating, cold, constipation, diarrhea, diabetes, stomach-ache, toothache in children, hypotension. Albania: stomachache, diarrhea, diuretic, anemia, heart problems. Romania: home remedy. Poland: digestive problems. The leaves as infusion are especially used to treat diabetes, diseases of the gastrointestinal tract, pyelitis, cystitis, urethritis, diseases of the liver and pancreas peritonitis, and hemorrhoidal hemorrhage (as enemas). External applications include the treatment of purulent wounds, ulcers, and eczema. The fruits are used for colds, try throat, and as medicinal tea. The leaves help to decrease blood sugar and help to remedy kidney stones. Also used as tea. Azerbaijan: An infusion of the leaves is taken in diabetes. Water infusion and decoction of dried ripe berries, jelly and jam from them are taken orally for acute and chronic disorders of the gastrointestinal tract with diarrhea in children, as an astringent for dysentery. The leaves of all species can be used for tanning leather. A leaf extract can be used as fungicide against *Fusarium*. The fruits are used to yield a brown, red and violet dye for cotton, wool and silk. The branches and fruits of are used as dye. Azerbaijan: A coloring solution is made from the leaves and fruits to obtain yellow and purple. The solution is used for dyeing woolen yarn, as well as products from it. Honey is fragrant, pleasant to the taste. Ukraine: In Corpus Christi bouquets. (Bussmann et al. 2020w; 2025P; Paniagua-Zambrana et al. 2025V).

**Uses 1817 (Gmelin 1817):** The ripe berries are known as a very tasty and healthy, nourishing food, both raw and cooked, especially among mountain dwellers, who usually eat them with goat's milk. During a bread shortage, they are the daily fare for children, and sometimes for adults, in several regions of the Black Forest and Switzerland. In some regions of the Black Forest in Baden, Fürstenberg, and Würtenberg, blueberries are also used to make an excellent, delicately flavored and strong

blueberry spirit. This use should be particularly encouraged during years of poor wine production. Ripe blueberries can also be used to make wine and vinegar by fermenting them and then adding water to them to make a healthy, nourishing drink.

**Description and Ecology (Gmelin 1817):** This well-known small shrub, found in abundance in mountain forests in the Black Forest, Baden, Fürstenberg, Württemberg, Odenwald, Alsace, and elsewhere, blooms in April and May, and ripens its berries in July and August.

**Original German text Gmelin (Gmelin 1817):** Dieser bekannte kleine Strauch, kommt in den Gebirgsgegenden im Schwarzwalde, im Badischen, Fürstenbergischen, Württembergischen, im Odenwalde, im Elsaß u. a. O. in Berg-Waldungen hie und da in Menge vor, blühet im April, May, und reifet seine Beeren im Juli und August. Die reifen Beeren sind als eine sehr schmackhafte und gesunde nährnde Speiße, sowohl roh als gekocht, vorzüglich den Bergbewohnern bekannt, welche sie gewöhnlich mit Ziegenmilch essen. Bei Brodmangel, sind sie die tägliche Speiße für Kinder, und theils der Erwachsenen, in mehreren Gegenden des Schwarzwaldes und der Schweiz. Auch werden in einigen Gegenden des Badischen, Fürstenbergischen und Württembergischen Schwarzwaldes, die Heidelbeeren, auf trefflichen von Geschmacke feinen und starken Heidelbeergeist benutz. Diese Benutzung sollte vorzüglich bei Weinfehljahren bestens begünstigt werden. Auch kann aus den reifen Heidelbeeren durch die Gährung Wein und Essig, und durch einen Aufguß mit Wasser, ein gesundes nährndes Getränke bereitet werden.

#### ***Vaccinium oxycoccus* L.**

*Synonyms:* *Oxycoccus oxycoccus* (L.) MacMill.; *Oxycoccus palustris* Pers.; *Oxycoccus quadripetalus* Gilib.; *Oxycoccus quadripetalus* Schinz & Thell.; *Oxycoccus vulgaris* Hill; *Schollera oxycoccus* (L.) Roth; *Vaccinium oxycoccus* f. *oxycoccus*; *Vaccinium oxycoccus* var. *oxycoccus*

**Original name (Gmelin 1817):** *Vaccinium Oxycoccus*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 152.153. - Schkuhr. Botan. Handbuch. tab. 107

**German names and French names (Gmelin 1817):** Moosheidelbeere, Moosbeere, Moorbeere, Sumpfbeere, Kranichbeere; Canneberge, Coussinet des marais

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Threatened, decline

**Botany and Ecology:** An evergreen creeping subshrub, the slender shoots up to 75 cm long; leaves coriaceous, on short petiole to 1 mm long, ovate to oblong-ovate, 8-16 mm long and 3-6 mm broad, revolute, acute, dark green and lustrous above, glaucescent with a waxy bloom; flowers 2-4 rarely 6 in a terminal umbellate inflorescence on the preceding year's branches; pedicels in the axils of scale like bracts, 15-45 mm long, one-flowered, drooping, puberulent, with two minute linear bracts about the middle; calyx with 4 rounded sepals 0.5-0.7 mm long and 0.7-1 mm broad, ciliate-margined; corolla very deeply 4-parted, with upturned pinkish-red petals, 4-7 mm long; stamens 8, densely framed by hairs, the anthers minutely warted; style slightly exceeding the stamens, both style and stamens exerted; berry dark red, juicy, globose, oblong-ovoid, or occasionally pyriform. Flowering May-July, fruiting August -September. Ural, Altai, Caucasus, in Sphagnum bogs. (Shishkin and Boborov 1952).

**Contemporary uses:** *Eastern Europe: wine, pickle. Ukraine: food. Belarus: recreational tea, wine, compote, raw, jam, juice, kissel, flavouring for alcohol, condiment for sauerkraut; fresh, jam, kissel, juice, added to sauerkraut. Czech Republic: raw, for making chutneys. Poland: raw, juices, sauces, desserts with flour. Belarus: compote, flavouring for alcohol, snack, jam, kissel, condiment for sauerkraut; raw. Italy: Fresh fruits raw, jams, alcohol. Czech Republic: raw. Poland: raw, preserves. The leaves of all species are used as tea substitute in the Caucasus, the fruits are eaten and used as jam and juice, and to produce alcohol. In Adjara the leaves of motsvi ძოვძო Vaccinium sp. were used to cook a kind of dish called motsvizhveriphala. Balkans: urinary problems, diuretic, anti-rheumatic, lithonriptic, fever, diabetes, anticonvulsant, immuno-stimulant. Ukraine: Vitamins, kidneys problems: vitamins, kidney problems. Belarus: fever, panacea, stomach-ache, liver problems, sore throat, diuretic, constipation, urinary problems, kidney problems, hypertension. Romania: home remedy. Serbia: gum diseases. Ukraine: vitamins. Belarus: hypertension, hangover, ulcers, panacea. The leaves of all species can be used for tanning leather. A leaf extract can be used as fungicide against Fusarium. The fruits are used to yield a brown, red and violet dye for cotton, wool and silk.* (Bussmann et al. 2020w; 2025P; Paniagua-Zambrana et al. 2025V).

**Uses 1817 (Gmelin 1817):** The berries, after being covered in snow over the winter, are harvested in the spring. At this time, they are very juicy, pleasantly sour, tasty, and healthy, and can be used very effectively in the same ways as the red bilberries

or stoneberries described above. They are much preferred in England; the rural population there gathers them in large quantities and brings them to the markets for sale. There, they are baked raw in pies or eaten with cream and sugar. In Russia and Siberia, they are eaten both raw and preserved with sugar and honey. The pressed juice, mixed with water, makes a pleasant and healthy drink and, without adding water, is often used for punch, especially in St. Petersburg. A pleasant wine can also be made from them with sugar or syrup. These very beneficial berries are currently unappreciated in our region and in neighboring areas, and therefore not yet used. In Swedish pharmacies, they are used to make excellent syrup, honey, preserves, and a popular jelly. In North America, a similar cranberry (*Vaccinium hispidum* Linn.) grows in swamps, which is frequently sold in Philadelphia, baked in pies, preserved with sugar, and shipped in large quantities to the West Indies and Europe as a delicacy.

**Description and Ecology (Gmelin 1817):** A lovely, delicate shrub. The stems creep on the peat moss (*Spagnum palustre*), very thin, thread-like, and branchy. The branches are alternate and reddish. The leaves are alternate, slightly stalked, elliptic-lanceolate, pointed, with incurved edges, entire, stiff, smooth, green above, pale gray below, small, evergreen. The flowers terminate in the stems and branches, are stalked, and grow two to three together. The flower stalks are drooping at the tip, single-flowered, light purple, glossy, and thread-like. The calyx is very short, four times incised. The corolla is four times deeply divided and drooping, initially open, finally recurved, and pleasantly red. The stamens are purple. The ripe berries are round, purple, red, or marbled with ash-gray-brown, the size of a large pea, lying on marsh or peat moss. This lovely shrub is often found here and there on wet, mossy grounds filled with peat moss, such as on the Kaltenbrunnen, on the Herrnwiese at the dry lake, at the Oehlachen, at the wild Hornsee, Mummelsee, on the Gniebis, near Freudenstadt, on the Belchen and on the Feldberg, near St. Blasien, on the Nonnenmattweyher near Neuenweg, Tryberg, and Schone, in the Upper Principality, on Lake Constance, in the Vosges Mountains, in Alsace, on the lake near Hagenau, in the Palatinate beyond the Rhine, near Kaiserslautern, and in other peat moss locations, both in flat and mountainous regions. It blooms in May and June, and its berries ripen in October and November.

**Original German text Gmelin (Gmelin 1817):** Ein niedlicher feiner Strauch. Die Stengel auf dem Torfmoos (*Spagnum palustre*) kriechend, sehr dünne, fadenartig, ästig. Die Aeste abwechselnd, röthlich. Die Blätter abwechselnd, etwas gestielt, eyrund-lanzettförmig, spitzig, am Rande eingebogen, ganz, steif, glatt, oberhalb grün, unterhalb fahlgrau, klein, immergrün. Die Blüthen endigen die Stengel und Aeste, sind gestielt, und stehen deren zwey bis drey beisammen. Die Blüthenstiele an der Spitze überhängend, einblüthig, hell purpurfarbig, glänzend, fadenförmig. Der Blumenkelch sehr kurz, viermal eingeschnitten. Die Blumenkrone viermal tief getheilt- überhängend, anfänglich offen, zuletzt zurückgeschlagen, angenehm roth. Die Staubfäden purpurfarben. Die reifen Beeren rund, purpurfärbig, roth, oder aschgrau-braun marmoriert, von der Größe einer starken Erbse, auf Sumpf- oder Torfmoos liegend. Dieser niedliche Strauch kommt hie und da häufig auf nassen Moosgründen, welche mit Torfmoos angefüllt sind, vor, als auf dem Kaltenbrunnen, auf der Herrnwiese am trocknen See, an den Oehlachen, am wilden Hornsee, Mummelsee, auf dem Gniebis, bei Freudenstadt, auf dem Belchen und am Feldberg, bei St. Blasien, auf dem Nonnenmattweyher bei Neuenweg, Tryberg, und Schone, im obern Fürstenthum, am Bodensee, auf den Vogesen, im Elsaß, am See bei Hagenau. In der übrerrheinischen Pfalz, bei Kaiserslautern, und an andern Torfmoos-Stellen, sowohl in ebenen als Gebirgsgegenden. Blühet im May, Juni, reifet seine Beeren im October und November. Die Beeren, nachdem sie den Winter über, unter Schnee gelegen sind, werden im Frühjahr eingesammelt, sind zu dieser Zeit sehr saftreich, angenehm sauer, schmackhaft und gesund, und können auf dieselben Arten, wie die oben beschriebenen rothe Heidelbeeren oder Steinbeeren sehr gut benutzt werden. Sie werden leztern in England weit vorgezogen, das Landvolk sammelt sie daselbst in großer Menge, und führet sie auf die Märkte, zum Verkauf. Daselbst werden sie roh in Torten gebacken, oder mit Rahm und Zucker gegessen. In Rußland und Sibirien werden sie sowohl roh, als auch mit Zucker und Honig eingemacht, verspeist. Der ausgepreßte Saft, giebt mit Wasser vermisch, ein angenehmes und gesundes Getränke, und wird ohne Beimischung mit Wasser, vorzüglich in Petersburg häufig zum Punsch benutzt. Auch läßt sich aus denselben mit Zucker oder Syrup, ein angenehmer Wein bereiten. Diese so wohlthätigen Beeren, sind zur Zeit in unsern und in den benachbarten Gegenden, nicht geachtet, und werden bisdaher nicht benutzt. In den schwedischen Apotheken bereitet man davon einen trefflichen Syrup, Honig, Eingemachtes, und eine beliebte Gallerte. In Nordamerika wächst eine ähnliche Moosbeere (*Vaccinium hispidum* Linn.) in Sümpfen, welche zu Philadelphia häufig verkauft, in Torten gebacken, mit Zucker eingemacht, und nach Westindien und Europa in Menge als eine Delikatesse versendet werden.

***Vaccinium vitis-idaea* L.**

*Synonyms:* *Rhodococcum vitis-idaea* (L.) Avrorin; *Vaccinium jesoense* Miq.; *Vitis-idaea punctata* Moench

**Original name (Gmelin 1817):** *Vaccinium Vitis Idaeae*. Linn. Sp. pl. - Gmel. Flor. Badens. II. p. 149. - 152.

**German names and French names (Gmelin 1817):** Preusselbeere, Steinbeere, Rothe Heidelbeere; Airelle rouge, Airelle ponctué

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Vulnerable, decline

**Botany and Ecology:** A subshrub, from 2.5 to 25 cm tall; branchlets terete, white-hairy; leaves coriaceous, wintering, elliptic or obovate, obtuse or emarginate, slightly denticulate or entire, revolute, 5-27 mm long, 3-12 mm broad, borne on pubescent peduncles 0.5-3 mm long, dark green above, pale and dotted with dark brown glands beneath, flowers on short pubescent reddish pedicels in a terminal short but dense 2-8-flowered clusters on the preceding year's branchlets, with a faint but pleasant scent; calyx 4-toothed, with short rounded reddish teeth, 0.75-1.25 mm long and 0.75-1 mm broad; corolla campanulate, pale pink, 4-6.5 mm long, 4-lobed; stamens 8 with hairy filaments; anthers unappendaged; style exerted; ovary 4-locular; berry subglobose, ripening dark red, edible. Flowering May-June; fruiting August-September. Ural, Caucasus, and Altai. in mostly coniferous mountain forests, in thickets and bogs. in the Caucasus up to 3300 m. (Shishkin and Boborov 1952).

**Contemporary uses:** Hungary: eaten raw, fresh and as pickles, pickled, sweet preserves, put into brandy (palinka) and wine. Romania: Jam, raw, tea; pickle; raw twigs for tea. Eastern Europe: recreational tea; wine, pickle, additive to fermented tree saps. Ukraine: food; juice; raw, juice, syrup, kvas, compote, jam, cakes. Belarus: recreational tea, wine, compote, kissel, syrup, wine, jam; raw. Czech Republic: fruit soups, jams/jellies, juices. Italy: Fresh fruits raw, jams. Slovakia: preserves. Poland: raw, juices, preserves, jellies, sauces. Bulgaria: preserve. Georgia: fruits eaten raw. The leaves of all species are used as tea substitute in the Caucasus, the fruits are eaten and used as jam and juice, and to produce alcohol. The branches are used for tea, the fruits eaten raw. In Adjara the leaves of *motsvi* *ძმგვო* *Vaccinium* sp. were used to cook a kind of dish called *motsvzhveriphkala*. A leaf decoction is used as diuretic, with hypertension, cough, pulmonary tuberculosis, diarrhea, uterine bleeding, gout, nephrolithiasis and rheumatism. In Karachayevo-Cherkesskia the leaf extract serves for catarrhal diseases, and the tincture for wound care. In Altai, the tincture is used for colds, and an infusion of branches and leaves for headache, rheumatism, as an astringent and hemostatic, and for upper respiratory tract infections. The branches are used for liver ailment and to prevent bedwetting in children. The leaves of all species can be used for tanning leather. A leaf extract can be used as fungicide against *Fusarium*. The fruits are used to yield a brown, red and violet dye for cotton, wool and silk. The branches and fruits of are used as dye. Azerbaijan: A coloring solution is made from the leaves and fruits to obtain yellow and purple. The solution is used for dyeing woolen yarn, as well as products from it. Honey is fragrant, pleasant to the taste. (Bussmann et al. 2020w; 2025P; Paniagua-Zambrana et al. 2025V).

**Uses 1817 (Gmelin 1817):** The ripe berries are pleasantly tart, nourishing, and cooling, and are frequently eaten by mountain dwellers. They have often been the only best and most pleasant refreshment for us on our botanical mountain hikes in the Black Forest, the Vosges, Switzerland, and the Pyrenees! They certainly deserve to be better known and more widely used in the regions where they occur. By fermenting them with water, sugar, or syrup, a healthy, pleasant wine-like beverage, as well as an excellent vinegar, can be made. These berries can be made into a healthy, pleasant wine-like beverage, or even an excellent vinegar. Just a few years ago, a strong, pleasant spirit was prepared from the ripe, crushed berries at the Kaltenbrunnen spring, which was sold under the name "Steinbeerengeist" (stone berry spirit), or "Steinbeeren-Wasser" (stone berry water). The ripe berries are preserved with sugar and spices, especially in Saxony and in the northern regions of Sweden, Russia, and Siberia, and eaten as a condiment with meat. They taste extremely pleasant when placed in a boiling sugar syrup, to which are added chopped lemon peel and a few pieces of cinnamon, and allowed to simmer until they become transparent.

**Description and Ecology (Gmelin 1817):** A charming little, evergreen shrub. The stems are prostrate at the base, later becoming erect. The leaves are alternate, stalked, closely spaced, on the branches, obovate, blunt, entire at the edges, slightly recurved, stiff, smooth, vibrant green, pale beneath, and covered with small dots. The flowers are clustered, racemose. The clusters are dense and drooping. The corolla is white, flesh-colored at the base. The ripe berries are round, carmine red, and glossy. This shrub grows in the higher mountain regions, beyond Baden, at the Bühlertal, on the Tobel, the Kaltenbrunnen, near Forbach, Reichenbach, Herrnalb, Frauenalb, Gernsbach, on the Herrnwiese, in the Oppenauer Thal, on the Gniebis, around Freudenstadt, and Griesbach. It grows abundantly in Rippolsau, Krummen-Schiltach, and various other regions of the Baden, Fürstenberg, and Württemberg Black Forests, as well as in Alsace, the Vosges, and Switzerland, especially on weathered gneiss, granite, and sandstone cliffs. It blooms in May and June, and its berries ripen in July and August.

**Original German text Gmelin (Gmelin 1817):** Ein niedlicher kleiner, immer grüner Strauch. Die Stengel am Grunde niederliegend, nachher aufrecht. Die Blätter abwechselnd, gestielt, dicht beisammen, an den Aesten, verkehrt eiförmig,

stumpf, am Rande ganz, etwas zurückgeschlagen, steif, glatt, lebhaft grün, unterhalb blaß, und mit kleinen Punkten besetzt. Die Blüten ausgehend, traubenförmig. Die Trauben dicht, überhängend. Die Blütenkrone weiß, im Schlunde fleischfarben. Die reifen Beeren rund, karminroth, glänzend. Dieser Strauch kommt in den höhern Gebirgs-Gegenden, hinter Baden, am Bühlerthal, auf dem Tobel, dem Kaltenbrunnen, bei Forbach, Reichenbach, Herrnalb, Frauenalb, Gernsbach, auf der Herrnwiese, im Oppenauer Thal, auf dem Gniebis, um Freudenstadt, Griesbach. Rippolsau, Kruppen-Schiltach, und in verschiedenen andern Gegenden des Badischen, Fürstenbergischen und Württembergischen Schwarzwaldes, auch im Elsaß auf den Vogesen und in der Schweiz, vorzüglich auf verwittertem Gneus, Granit, und auf Sandsteinfelsen in Menge vor, blühet im May, Juni, reifet seine Beeren im Juli und August. Die reifen Beeren sind angenehm säuerlich, nährend und kühlend, und werden von den Gebirgsbewohnern häufig gegessen. Oft waren uns dieselben auf unsern Botanischen Gebirgswanderungen im Schwarzwalde, auf den Vogesen, in der Schweiz und auf den Pyreeneen, die einzige beste und angenehmste Labung! Sie verdienen allerdings in den Gegenden, wo sie vorkommen, besser als bisher bekannt und allgemeiner benutzt zu werden. Aus ihnen kann durch Gährung mit Wasser, Zucker, oder Syrup ein gesundes angenehmes weinartiges Getränke, auch ein trefflicher Essig bereitet werden. Aus den reifen gestossenen Beeren, wurde noch vor wenigen Jahren auf dem Kaltenbrunnen ein starker angenehmer Geist bereitet, welcher unter dem Namen Steinbeeregeist, Steinbeeren-Wasser verkauft wurde. Die reifen Beeren werden vorzüglich in Sachsen, und in den nördlichen Gegenden, in Schweden, Rußland und Sibirien mit Zucker und Gewürze eingemacht, und als Zugemüße zum Fleisch verspeist. Aeußerst angenehm schmecken sie, wenn man sie in einen siedenden Zuckersyrup bringt, wozu man zerschnittene Citronenschalen und einige Stücke Zimmt setzt, und damit so lange kochen läßt, bis sie durchsichtig werden.

#### ***Valeriana locusta* L.**

*Synonyms: Fedia caerulea* Aitkin ex Eaton & Wrigh; *Fedia ecalyculata* Stoke; *Fedia locusta* (L.) Rchb; *Fedia olitaria* (L.) Vah; *Fedia olitricia* (L.) Mirb; *Fedia paniculata* Coll; *Fedia striata* Steve; *Locusta communis* Delarbr; *Masema olitorium* (L.) Dula; *Valeriana locusta* var. *olitoria* L; *Valeriana olitoria* (L.) Willd; *Valerianella caerulea* Eaton & Wrigh; *Valerianella locusta* (L.) Betck; *Valerianella locusta* (L.) Laterr.; *Valerianella lusitanica* Pau ex Font Que; *Valerianella olitoria* (L.) Pollic; *Valerianella pusilla* Miégev; *Valerianella rhombicarpa* Aiken ex Torr. & A.Gra; *Valerianella striata* Steven

**Original name (Gmelin 1817):** *Fedia olitoria*. Gmel. Fl. Bad. I. p. 72. 73. - *Valeriana Locusta*. Linn. Sp. pl.

**German names and French names (Gmelin 1817):** Lämmersalat, Ackersalat, Lämmerlattich, Sonnenwürbeln, Töchterlein-Salat, Schmalzkraut; Mache, Blanchette, Salade des Chanoines

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

#### **KR 197592**

**Botany and Ecology:** Annual. Plant 10-40 cm high. Stem at bottom more or less angularly sulcate, along ribs puberulent, more round and also glabrous upward, repeatedly dichotomously branched usually in upper half. Leaves ciliate along margin and sometimes also beneath along main vein; lower leaves spatulate, obtuse, middle leaves oblong-lanceolate, often denticulate at base; upper oblong-linear. Flowers in dense, more or less flat cymes. Fruits about 2-2.5 mm long, irregularly globose-ovate, with indistinct narrow furrows in front and at base, strongly laterally compressed and from each side with two thin ribs and shallow furrows, glabrous or shortly puberulent, often transversely rugose, with fertile locule larger than sterile ones. Calyx limb almost undeveloped, with three indistinct teeth, of which 1-2 often almost disappearing. Flowering April to June. Fruiting May to June. In crops, beds, weedy places. (Flora of Azerbaijan 1950-1961).

**Contemporary uses:** *Used as salad.*

**Uses 1817 (Gmelin 1817):** This plant, well-known in our gardens and kitchens, whose young shoots and leaves, before they shoot into stems, are used as a tasty, nutritious food, grows wild throughout cultivated areas in fields, ploughland, meadows, and especially in vineyards, and can be used extensively as a vegetable and salad throughout the winter, in February and March. In the absence of culinary herbs and poor growth, it should be propagated and grown from seed sown in the fall, especially in vineyards, where it is not detrimental and thrives The young leaves, as well as the plants that have already sprouted into stems, provide the sheep with a very pleasant and healthy food, hence the name lamb's lettuce.

**Description and Ecology (Gmelin 1817):** With an upright, bifid stem, smooth, lanceolate leaves with entire margins, and a crowned, three-lobed seed receptacle. It blooms in April and May, its seeds ripen in July, and is classified as an annual.

**Original German text Gmelin (Gmelin 1817):** Mit aufrechtem zweytheiligem Stengel, glatten lanzettförmigen am Rande ganzen Blättern, gekröntem dreyfächerigen Samenbehältnisse. Blühet im April und May, reifet ihre Samen im Juli, und gehört unter die einjährigen Pflanzen. Diese in unseren Gärten und Küchen bekannte Pflanze, deren junge Sprossen und Blätter, ehe sie in Stengel schiesien, als schmackhafte, nährende Speiße benutzt werden, wächst durchgängig an angebauten Orten auf Feldern, Aeckern, Wiesen und vorzüglich in den Weinbergen wild, und kann den Winter über, im Februar und März, als Gemüse und Salat bestens benutzt werden. Bey Mangel an Küchenkräutern und Mißwachs, sollte sie vorzüglich in den Weinbergen, denen sie nicht nachtheilig ist, und wo sie trefflich gedeiet, aus Samen, welcher im Herbst ausgesaet wird, bestens vermehrt und nachgezogen werden. Die jungen Blätter, so wie die schon in Stengel geschossenen Pflanzen, geben den Schaafen eine sehr angenehme und gesunde Nahrung, daher der Name Lämmersalat.

***Veronica anagallis* L.**

**Original name (Gmelin 1817):** *Veronica Anagallis*. Linn. Sp. pl. - Gmel. Flor. Bad. I. p. 26. 27.

**German names and French names (Gmelin 1817):** Schmalblättrige Bachbungen, Wasser-Gauchheil; Veronique Mouronné

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): No data

**Botany and Ecology:** Perennial herb, up to 1 m high. Flowers in axillary racemes. Upper leaves ovate to narrowly ovate, sessile. Pedicels erect, at least in distal half. Capsule ovate to orbicular. Flowers blue. Annual or short-lived perennial, hydrophytic herb, up to 1.2 m high; stems creeping, rooting at basal nodes, then abruptly erect, hollow, branched at base or above. Leaves up to 100 x 20 mm, opposite, lower ones ovate or lanceolate-oblong, obtuse, petiolate, ± entire or serrulate; upper ones sessile, somewhat clasping. Flowers small, blue, mauve or purple, rarely pink, pedicellate, many in axillary racemes up to 100 mm long. Calyx: tube short, 4-lobed. Corolla: tube short, 4-lobed, lower lobe shorter than others. Flowering time Oct.-Feb. Fruit a 2-celled, ± globose capsule. Brittle-stemmed, thinly glandular-hairy or glabrescent perennial to 50 cm, stem hollow, decumbent and rooting at lower nodes. Leaves opposite, sessile, ovate-lanceolate, serrate. Flowers in ascending, axillary racemes, white or pink to blue, 5-6 mm diam. Annual or short-lived perennial herb, up to 1.2 m high; hydrophytic. Stems creeping, rooting at basal nodes, then abruptly erect, hollow, branched at base or above. Leaves with upper ones sessile, somewhat clasping, narrowly ovate to lanceolate, 50-100 x 5-20 mm; at least in distal half, lower ones petiolate, blade ovate or lanceolate-oblong, apex obtuse, margins ± entire or serrulate. Flowers: in axillary racemes up to 100 mm long; bracts reduced, lanceolate; pedicels < 10 mm long; calyx tube short, 4-lobed; corolla with tube short, 4-lobed, lower lobe shorter than others, blue-mauve or purple, rarely pink.

**Contemporary uses:** *Leaves for unspecified medicinal use in the Caucasus. Iran: diuretic, stomach problems, strengthening. India: shoots and leaves as fodder.* (Mehdiyeva et al. 2025).

**Uses 1817 (Gmelin 1817):** The tender leaves are edible, especially in February, March, and April; they are tasty, nutritious, and healthy. They can be eaten as a vegetable or in salads. The leaves and stems that grow in winter and early spring at the unfreezing mountain springs and trout streams are exceptionally tasty; when prepared as spinach, they far surpass the flavor. The tender leaves, gathered from mountain springs and streams, are known here and there in the Black Forest and Switzerland as mountain spring and alpine lettuce. This plant can also be used fresh for cattle as a good and healthy fodder

**Description and Ecology (Gmelin 1817):** It bears many similarities to the former (*Veronica Beccabunga*) but is immediately distinguishable from it by its more upright stems and narrower, lanceolate leaves, as well as by its purple-red or flesh-colored flowers. It blooms in May, June, and July, and its seeds ripen in August Like the common brooklime, this plant is often found in still waters, ponds, streams, rivers, ditches, and springs, where it is frequently found year-round in both flat and mountainous and valley areas.

**Original German text Gmelin (Gmelin 1817):** Diese Pflanze kommt ebenfalls wie die gemeine Bachbungen häufig an stille stehenden Wassern, Teichen, Bächen, Flüssen, Wassergräben, und Quellen vor, wo sie sowohl in den ebenen, als in den Berg- und Thalgegenden häufig das ganze Jahr über angetroffen wird. Sie hat viele Aehnlichkeit mit ersterer, von welcher sie aber sogleich, durch die mehr aufrecht stehenden Stengel, und die schmälern lanzettförmig zugespitzten Blätter, ferner durch die purpurröthlichten oder fleischfarbenen Blüten, zu unterscheiden ist. Sie blühet im May, Juni und Juli, und reift ihre Samen im August. Die zarten Blätter sind vorzüglich im Februar, März und April eßbar, wohlschmeckend, nährend und gesund. Sie können als Gemüse und Salat verspeist werden. Vorzüglich schmackhaft sind die Blätter und Stengel, die sie im Winter und im ersten Frühjahr, an den nicht zufrierenden Bergquellen und Forellenbächen treibt, welche als Spinat

zubereitet, diesen an Geschmack weit übertreffen. Die Arten, an den Bergquellen und Bächen gesammelten Blätter, sind hier und da im Schwarzwald und in der Schweiz, unter dem Namen Berg- Quell- und Alpenalat bekannt. Diese Pflanze kann auch vorzüglich für das Rindvieh, frisch als gutes und gesundes Futter benutzt werden.

### ***Veronica beccabunga* L.**

*Synonyms: Beccabunga vulgaris* Fourr.; *Cardia beccabunga* (L.) Dulac; *Veronica fontinalis* Salisb.

**Original name (Gmelin 1817):** *Veronica Beceabunga*. Linn. Sp. pl. - Gmelin. Flor. Badensis Alsatica et confinium regionum. I. p. 25. 26.

**German names and French names (Gmelin 1817):** Gemeine Bachbungen, Bachbungen, Wasserbungen, Wasserbohnen, Becabunge; Veronique cressonné, Mouton d'eau

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

### **KR 104174**

**Contemporary uses:** Spain: as vegetable and salad. Slovakia: vegetable for soup. Italia: wild vegetable. Pakistan: Cooked. Italy: diuretic. India: burns, ulcers. Romania: In children for general strengthening, Digestive troubles caused by tooth eruption.

**Uses 1817 (Gmelin 1817):** The flat, juicy, blunt, egg-shaped leaves, with serrated edges, are tender, edible, tasty, nutritious, and healthy, especially in February, March, April, and May. They can therefore be used and eaten as such during times of shortage of salad herbs and vegetables. They also provide good nutrition for cattle and especially pigs, which eat them very willingly. Areas frequently exposed to flooding are often completely covered with this plant. For human use as food, the best plants to choose are those found near springs, streams, and ditches.

**Description and Ecology (Gmelin 1817):** This plant grows in large numbers year-round in still waters, ponds, lakes, streams, rivers, ditches, and springs, both in lowland flatlands and mountainous regions and valleys, especially during wet years. It produces small, attractive, blue flowers in clusters in May and July. The seeds ripen in August. It is a perennial plant

**Original German text Gmelin (Gmelin 1817):** Dies Pflanze kommt an stille stehenden Wassern, Teichen, Seen, Bächen, Flüssen, Wassergräben, und Quellen, sowohl in niedern verflachten, als in Gebirgsgegenden und Thälern, vorzüglich bey nassen Jahrgängen in großer Menge, das ganze Jahr über vor, bringt im May, Juli, kleine, niedliche, in Trauben stehende blaue Blüthen hervor. Die Samen reifen im August. Sie gehört unter die ausdauernden Gewächse. Die flachen, saftigen, stumpfen, eiförmigen, am Rande gesägten Blätter, sind vorzüglich im Februar, März, April und May, zart, eßbar, wohlschmeckend, nährend und gesund. Sie können daher, zu der Zeit, wo Mangel an Salatkräutern und Küchengemüßen ist, als solche angewendet und verspeist werden. Zugleich geben sie dem Rindvieh, und vorzüglich den Schweinen, die sie sehr gern fressen, eine gute Nahrung. Oefteren Ueberschwemmungen ausgesetzte Gegenden, sind nicht selten mit dieser Pflanze ganz überzogen. Zum Gebrauch als Speiße für Menschen, sind vorzüglich diejenigen Bachbungen zu wählen, welche an Quellen, Bächen, und an Wassergräben stehen.

### ***Vicia cracca* L.**

*Synonyms: Cracca major* Gren. & Godr.; *Cracca plumosa* Timb.-Lagr.; *Cracca pyrenaica* Gren. ex Rouy & Fouc.; *Cracca vulgaris* Opiz; *Ervum cracca* (L.) Trautv.; *Vicia australis* Ten.; *Vicia cracca* f. *canescens* Maxim.; *Vicia cracca* f. *cracc*; *Vicia cracca* f. *leucantha* Nakai; *Vicia cracca* f. *macrophylla* Maxim.; *Vicia cracca* f. *pallidiflora* Maxim.; *Vicia cracca* subsp. *cracca* L., *Vicia cracca* subsp. *galloprovincinalis* Asch. & Graebn.; *Vicia cracca* subsp. *imbricata* Rouy; *Vicia cracca* subsp. *vulgaris* Schinz & R.Keller; *Vicia cracca* var. *alpina* Rouy; *Vicia cracca* var. *canescens* (Maxim.) Franch. & Sav.; *Vicia cracca* var. *cracca*, *Vicia cracca* var. *gerardi* (Gaudin) W.D.J.Koch; *Vicia cracca* var. *japonica* Miq.; *Vicia cracca* var. *leucantha* (Nakai) Nakai; *Vicia cracca* var. *linearis* Peterm.; *Vicia cracca* var. *nana* Gaudin; *Vicia cracca* var. *peudocassubica* Klett & Richt.; *Vicia cracca* var. *plumosa* (Timb.-Lagr.) Rouy; *Vicia cracca* var. *vulgaris* W.D.J.Koch; *Vicia douglassii* Torr; *Vicia grenieri* Rouy; *Vicia grossheimii* Ekutim.; *Vicia heteropus* Freyn; *Vicia hiteropus* Freyn; *Vicia kitaibeliana* Rchb.; *Vicia macrophylla* (Maxim.) B.Fedtsch.; *Vicia oiana* Honda; *Vicia oreophila* Zertova; *Vicia pontica* Willd.; *Vicia scheuzeri* Brügger; *Vicia tenuifolia* f. *laxiflora* (Griseb.) Diklic; *Vicia tenuifolia* var. *laxiflora* Griseb.; *Vicia variabilis* var. *subalpina* Grossh.; *Vicia versicolor* Salisb.

**Original name (Gmelin 1817):** *Vicia Cracca*. Linn. Sp. pl. - Gmel. Flor. Badens. III. p. 185. - 189.

**German names and French names (Gmelin 1817):** Vogelwicke, Krake, Aeuglein, Aeugleinwicke; Vesce multiflor

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 208134** (Fig. 89)



Figure 89. *Vicia cracca* L. - KR 208134

**Botany and Ecology:** Perennial; plant 30-150 cm tall, completely glabrous or sparingly pubescent; rootstock with rather long hypogeal stolons; stems usually branching, climbing, ribbed; rachis ending in large strongly branched tendrils; stipules 6-10 mm long, semisagittate in lower leaves, linear and entire in upper leaves, sometimes 1-2-toothed (var. *dahurica* Turcz.); leaflets 6-10(12)-paired, linear-lanceolate or oblong-lanceolate, 1.5-3 cm long, 1-4 mm wide, acuminate or obtuse at apex (var. *aequalis* Serg.), with few oblique nerves, nerves branching at both sides or only beneath, sometimes densely canescent-

hairy (var. *canescens* Maxim.). Peduncles usually not longer than leaves, rarely hardly longer (var. *pseudocassubica* Klet et Rinht.); racemes 20-40-flowered; flowers 10-13mm long; calyx short -campanulate, lower teeth much longer than the upper but still much shorter than tube; corolla lilac or violet, rarely white (var. *albiflora* Trautv.); limb of standard as long as claw; keel and wings much shorter than standard; pods oblong-rhombic, compressed, 15-20 mm long, glabrous, on stipes usually not exceeding calyx; seeds 4-8, globose, nearly black or maculate, hilum one -fourth to one -third of the circumference. Flowering May-July. Ural, Caucasus, Altai, Middle Asia, in open forests, birch thickets, bushland, on meadows, glades, and as weed in crops. (Komarov and Shishkin 1948).

**Contemporary uses:** *Eastern Europe: famine food. Young shoots are eaten cooked. The leaves yield a yellow dye for wool. As fodder for livestock. The seeds can be eaten by poultry. In Middle Asia Vicia is used to treat Botkin's disease, edema, emollient, for wound healing, and as haemostatic. The leaf tincture serves for diarrhea, and as diuretic. Fresh and dried leaves are prepared as poultice for prolapse of the rectum, and inflamed hemorrhoidal nodes. Morocco: The aerial parts decoctions are used for digestive problems; the aerial parts and fruits decoction and powder are used for diabetes and respiratory problems. The fruits are used as chew for digestive problems, as powder for diabetes, cancer, cardiovascular diseases, skin problems, infections and warms, as powder and cooked for infections, and also, the aerial parts powder and maceration are used for skin problems and infections. The underground parts are used as powder and maceration for respiratory problems. Also, the seeds, leaves and fruits, powder, decoction, infusion and cataplasm forms are used for diabetes, ulcers, renal diseases, cardiovascular problems, allergy, bronchitis and colds, and as anti-inflammatory; Algeria: the seeds as decoction are used for heartburn and allergy, as powder for thyroid disorders, and as raw for chronic cough, also, the seeds are used for hyperacidity. Furthermore, the leaves are used as antifungal and for eczema. However, the fruits maceration are used for diabetes and promotes intestinal transit; Israel: the seeds are used for skin diseases, eyes diseases and pains problems; Syria: the seeds are used internally for women in the menopause stage, maintains the level of sugar in the blood, and increased hemoglobin rate, and as tonic, diuretic, beneficial to the heart, and good; Palestine: the plant is used for cancer diseases. (Bussmann et al. 2020x).*

**Uses 1817 (Gmelin 1817):** This plant provides excellent food for cattle, horses, pigs, and sheep, and deserves to be cultivated and propagated more extensively, especially in river regions subject to frequent flooding, where it grows abundantly. The seeds are very popular with poultry, and they were also used in bread during times of high prices.

**Description and Ecology (Gmelin 1817):** The root is creeping and white. The stems are 1.5 - 2 - 4 feet tall, weak, upward-ascending, angular, and branched. The leaves are alternate, stalked, and paired; the pairs are opposite, lanceolate, trifoliate, and entire. The leaf bases are semi-arrow-shaped. The flowers are borne in the axils of the leaves and have long stalks. The stalks are solitary, angular, furrowed, and have 8 - 10 flowers. The flowers are yellow, racemose, and unilateral. The pods are compressed, smooth, black, and multi-seeded. The seeds are round, smooth, and pale gray. Grows in the Rhine, Main, Neckar, and other river regions, often in low-lying, wet, moist, and dry meadows, in fields, and on hedges. Blooms in May, June, and July. Its seeds ripen in August and September and are considered perennial plants.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel weit und tief kriechend. Der Stengel 2 - 3 - 4 Fuß hoch, schwach, aufrecht, oder niederliegend, weichhaarig, zu Zeiten glatt, öfters ästig. Die Blätter abwechselnd, gefiedert, in eine dreygetheilte Rancke sich endigend. Die Blättchen abwechselnd, oder etwas gegenüberstehend, zu 16 - 24 - 26, lanzettförmig, stumpf, zu Zeiten spitzig, sich in eine Granne endigend, ganz, weichhaarig. Die Blattansätze halbpfeilförmig, lanzettförmig, ganz, öfters gezähnel. Die Blumentrauben stehen auf langen, einzelnen, aufrechten, gefurchten Achselstielen, welche vielblüthig, gedrängt, und nach einer Seite hin gerichtet sind. Die Blumenkronen, sind violett-röthlich, blaulich, rosenroth, seltener weiß. Die Hülsen gegen einen Zoll lang, zusammengedrückt, glatt, braungelb, herabhängend, 4 - 8 - 10 samig. Die Samen rundlich, glänzend, schwarz. Wächst auf Getreide- und Brachäckern, am Rande der Waldungen, Wege und Wassergräben, an den Hecken, auf Wiesen, in Weinbergen, und vorzüglich häufig auf sonnenreichen mit Gesträuche bewachsenen Kalksteinhügeln, und dem Abhange derselben. Blühet im Juni, Juli. Reifet ihre Samen im August, September, und gehört unter die ausdauernden Gewächse. Sie ist ein treffliches Futter für Rindvieh und Schaaf, verdient daher in den Gegenden, wo sie häufig vorkommt, bestens benutzt zu werden. Die Samen, die hie und da unter dem Namen Aeuglein bekannt sind, geben dem Hausgeflügel, vorzüglich den Tauben ein angenehmes Futter, und wurden bei Mangel, auch als Nahrung für Menschen empfohlen. Diese schöne Pflanze, welche mit ihren feinen Blättchen, dem schönen grün derselben, und ihren lieblichen Blüten, vorzüglich an den Hecken, Wassergräben, und am Rande der Waldungen das Auge an sich zieht, sollte auf den sandigen Aeckern und Wiesen, vorzüglich aber auf den sonnenreichen mit Hecken bewachsenen Kalkstein- und Thonmergel- Hügeln und Bergen, im Schwarzwalde und im Odenwalde, wo sie häufig wächst, als ergiebige und ganz vorzügliche Futterpflanze angebaut werden, welches auf die leichteste Art, durch Samen, in kurzer Zeit geschehen könnte. Die Blüten geben den Bienen Honig.

***Vicia sepium* L.**

**Synonyms:** *Atossa sepium* (L.) Alef.; *Atossa sepium* var. *angustifolia* Alef.; *Atossa sepium* var. *ochroleuca* (DC.) Alef.; *Atossa sepium* var. *subrotunda* (Ser.) Alef.; *Faba sepium* (L.) Bernh.; *Vicia drymeja* Schur; *Vicia eriocalyx* (Čelak.) Landolt; *Vicia montana* Froel. ex W.D.J.Koch; *Vicia oxyphylla* Schur; *Vicia pratensis* Wallr.; *Vicia pseudosepium* Nyman; *Vicia rotundifolia* Gilib.; *Vicia sepiaria* Dulac; *Vicia sepium* subsp. *ericalyx* (Čelak.) Holub; *Vicia sepium* var. *alba* Gray; *Vicia sepium* var. *albiflora* Gaudin; *Vicia sepium* var. *angustifolia* Schur; *Vicia sepium* var. *angustifolia* W.D.J.Koch; *Vicia sepium* var. *anomala* Boenn.; *Vicia sepium* var. *capsella* Ser.; *Vicia sepium* var. *ericalyx* Čelak.; *Vicia sepium* var. *hartii* Akeroyd; *Vicia sepium* var. *longisepala* Ekutim.; *Vicia sepium* var. *microphylla* Schur; *Vicia sepium* var. *montana* W.D.J.Koch; *Vicia sepium* var. *nana* Gaudin; *Vicia sepium* var. *ochroleuca* DC.; *Vicia sepium* var. *ovata* Schur; *Vicia sepium* var. *parvifolia* Carion; *Vicia sepium* var. *pubescens* Behm; *Vicia sepium* var. *sepium*; *Vicia sepium* var. *subrotunda* Ser.; *Vicia sepium* var. *vulgaris* Gaudin; *Vicia sordida* Salisb.; *Vicia tricolor* Schur; *Vicioides sepium* (L.) Moench; *Wiggersia sepium* (L.) G.Gaertn., B.Mey. & Scherb.

**Original name (Gmelin 1817):** *Vicia sepium*. Kinn. Sp. pl. - Gmel. Flor. Badens. III. p. 194. 195.

**German names and French names (Gmelin 1817):** Heckenwicke, Zaunwicke, Frühe Waldwicke, Wilde Wicke; Vesce des haies

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**Botany and Ecology:** Herbs perennial, 30-100 cm tall. Stem erect or climbing, slender, pilose. Leaves paripinnate, 7-12 cm; stipules semihastate, margin 2-4-toothed; leaflets 5-7-paired, oblong-ovate or oblong-lanceolate, 6-30 × 4-13 mm, pilose, apex obtuse or truncate, mucronate; tendrils branched. Flowers 2-4(-6) in axillary fascicles. Calyx campanulate. Corolla pale violet-purple, red, or nearly purple to pink, 10-15 mm; standard nearly violin-shaped; wings shorter than standard; keel curved inward. Ovary shortly stalked, linear, glabrous; ovules ca. 5. Legume broadly oblong to subrhomboid, slightly curved, 20-40 × 5-7 mm, apex beaked. Seeds 5-7, oblate-spheroid. Flowering March-June, fruiting March-August. (Wu *et al.* 1994-2013).

**Contemporary uses:** Sometimes used as forage.

**Uses 1817 (Gmelin 1817):** This plant, which emerges very early in its life, provides cattle with a pleasant and excellent food. The seeds are eagerly eaten by poultry and have also been recommended as food for humans in times of scarcity. Since this plant is found in the Rhine, Neckar, and Main regions, here and there frequently in open forests and clearings, and especially in the Hardtwald forest, where dark cutting has been introduced, it deserves to be used there as fodder for cattle, both fresh and dried. The flowers provide honey for bees. It should be artificially cultivated as a productive fodder plant in suitable locations, in grassy, open forests, which could be done most simply by seed. How much would the cultivation of suitable fodder plants, and thus the livestock population, be improved if we had the appropriate knowledge of wild plants!

**Description and Ecology (Gmelin 1817):** The root is creeping. The stem is 1.5 - 2 feet tall, erect or slightly prostrate, quadrangular, furrowed, and simple. The leaves are alternate, pinnate, ending in a trifoliate tendril. The leaflets are short-stalked, opposite, sometimes slightly alternate, 8 - 12, oval, blunt, ending in an awn, entire, smooth, with slightly fine hairs along the margins; the lower ones are larger than the upper ones. The leaf bases are rounded, toothed, small, and marked on both sides with a brown spot. The flowers arise from the leaf axils, are short-stalked, have 2 - 4 - 6 flowers, and are drooping. The corollas are whitish, violet, purple, or flesh-colored. The 10 stamens are fused together. The pod is round, compressed, and drooping; the ripening pods are upright and smooth, with 4, 5, or 6 seeds. The seeds are round, brown, smooth, and marked with black spots. Grows along paths, in hedges, fences, at the edges of woodlands, in meadows, and especially common in grassy woodlands, both in low-lying and mountainous regions. It blooms in April, May, and June. Its seeds ripen in July and August, and it is a perennial plant.

**Original German text Gmelin (Gmelin 1817):** Die Wurzel kriechend. Der Stengel 1½ - 2 Fuß hoch, aufrecht, oder etwas niederliegend, viereckig, gefurcht, einfach. Die Blätter abwechselnd, gefiedert, sich in eine dreygetheilte Rancke endigend. Die Blättchen kurzgestielt, gegenüberstehend, zu Zeiten etwas abwechselnd, 8 - 12, eyrund, stumpf, in eine Granne endigend, ganz, glatt, am Rande etwas feinhaarig; die untern größer als die obern. Die Blattansätze rundlich, gezähnt, klein, zu beiden Seiten mit einem braunen Flecke bezeichnet. Die Blüthen kommen aus den Achseln der Blätter, sind kurzgestielt, 2 - 4 - 6 blüthig, niederhängend. Die Blumenkronen weißlich-, violett-, purpur- oder fleischfarb. Die 10 Staubfäden mit einander verwachsen. Die Hülse rundlich, zusammengedrückt, herabhängend, die reifen aufrecht, glatt 4 - 5 - 6 samig. Die Samen rundlich, braun, glatt, mit schwarzen Flecken bezeichnet. Wächst an den Wegen, in Hecken, Zäunen, am Rande der Waldungen, auf Wiesen, und vorzüglich häufig in den mit Gras bewachsenen Waldungen, sowohl in den tieferliegenden als Gebirgsgegenden. Blühet im April, May, Juni. Reifet ihre Samen im Juli, August, und gehört unter die ausdauernden

Gewächse. Diese sehr zeitlich zum Vorschein kommende Pflanze, giebt dem Rindvieh eine angenehme und treffliche Nahrung. Der Same wird von dem Geflügel begierig gefressen, und wurde bei Mangel auch als Nahrungsmittel für Menschen empfohlen. Da diese Pflanze in den Rhein-, Neckar- und Maingegenden, hie und da häufig in lichten Waldungen, in Waldschlägen, und vorzüglich im Hardtwald, wo die Dunkelhebe eingeführt sind, vorkommt, verdient sie daselbst, als Futter für das Rindvieh, sowohl frisch als getrocknet, benutzt zu werden. Die Blüten geben den Bienen Honig. Sie sollte an den dazu geeigneten Stellen, in grasigen lichten Waldungen als ergiebige Futterpflanze künstlich angebaut werden, welches auf die einfachste Art, durch Samen geschehen könnte. Wie sehr würde die Cultur angemessener Futterkräuter, in den verschiedenartigsten Landesgegenden, und dadurch der Viehstand verbessert werden, wenn man die gehörige Kenntnis, von den wildwachsenden Pflanzen hätte!

### ***Vitis vinifera* L.**

*Synonyms: Cissus vinifera* (L.) Kuntze; *Maerklinia viridis* Bronner; *Noachia macrophylla* Bronner; *Palatina dichotoma* Bronner; *Palatina dissecta* Bronner; *Palatina macrocarpa* Bronner; *Palatina oblonga* Bronner; *Palatina septemloba* Bronner; *Palatina sinuata* Bronner; *Palatina sylvestris* Bronner; *Palatina tilicefolia* Bronner; *Palatina wisilocensis* Bronner; *Schamsia ligustrica* Bronner; *Sickleria brevicirrhata* Bronner; *Thalesia rubrivenia* Bronner; *Tyrtamia revoluta* Bronner; *Vitis apiana* Raf.; *Vitis apiifolia* Steud.; *Vitis apiifolia* unr. *laciniosa* Paul; *Vitis apyrena* Schult.; *Vitis bosturgaiensis* Vassilcz.; *Vitis cebennensis* Jord.; *Vitis corinthiaca* Raf.; *Vitis cylindrica* Raf.; *Vitis densiflora* A.Sav.; *Vitis farinosa* Raf.; *Vitis gmelinii* Buttler; *Vitis guilelmi* Poit. & Turpin; *Vitis hyrcanica* Vassilcz.; *Vitis kozmae* Terpó; *Vitis kozmae* var. *zemplenica* Terpó; *Vitis laciniosa* L.; *Vitis laxiflora* A.Sav.; *Vitis mediterranea* András.; *Vitis mensarum* Poit.; *Vitis moschata* Poit. & Turpin; *Vitis praecox* Poit. & Turpin; *Vitis saccharina* Raf.; *Vitis silvestris* Roth; *Vitis singularis* Kov.; *Vitis sinuosa* Bosc; *Vitis subacerifolia* Vassilcz.; *Vitis succinea* Raf.; *Vitis sylvestris* C.C.Gmel.; *Vitis sylvestris* subsp. *anebophylla* (Kolen.) Vassilcz.; *Vitis sylvestris* subsp. *trichophylla* (Kolen.) Vassilcz.; *Vitis sylvestris* var. *sativa* Hagenb.; *Vitis tinctoria* Poit. & Turpin; *Vitis trichophylla* Vassilcz.; *Vitis turbinata* Raf.; *Vitis usunachmatica* Vassilcz.; *Vitis vinifera* f. *apiifolia* (Risso) Rehder; *Vitis vinifera* f. *purpurea* (Bean) Rehder; *Vitis vinifera* subsp. *sativa* Hegi; *Vitis vinifera* subsp. *sylvestris* (Willd.) Hegi; *Vitis vinifera* unr. *silvestris* Vill.; *Vitis vinifera* var. *acerbi* Risso; *Vitis vinifera* var. *alba* Risso; *Vitis vinifera* var. *albida* Risso; *Vitis vinifera* var. *aleatica* Risso; *Vitis vinifera* var. *alexandriae* Risso; *Vitis vinifera* var. *alicantia* Risso; *Vitis vinifera* var. *amarula* Risso; *Vitis vinifera* var. *anebophylla* Kolen.; *Vitis vinifera* var. *apiana* Risso; *Vitis vinifera* var. *apiifolia* Risso; *Vitis vinifera* var. *apyrena* Risso; *Vitis vinifera* var. *baccata* Risso; *Vitis vinifera* var. *balbis* Risso; *Vitis vinifera* var. *bauhinii* Risso; *Vitis vinifera* var. *bicolor* Risso; *Vitis vinifera* var. *bosciana* Risso; *Vitis vinifera* var. *braquet* Risso; *Vitis vinifera* var. *burdigalensis* Risso; *Vitis vinifera* var. *bureli* Risso; *Vitis vinifera* var. *caiana* Risso; *Vitis vinifera* var. *carnosa* Risso; *Vitis vinifera* var. *chaptali* Risso; *Vitis vinifera* var. *columellae* Risso; *Vitis vinifera* var. *compressa* Risso; *Vitis vinifera* var. *corinthiaca* Risso; *Vitis vinifera* var. *corniculata* Risso; *Vitis vinifera* var. *corruptibilis* Risso; *Vitis vinifera* var. *craveiroia* Risso; *Vitis vinifera* var. *densa* Risso; *Vitis vinifera* var. *domina* Risso; *Vitis vinifera* var. *dulcis* Risso; *Vitis vinifera* var. *duracina* Risso; *Vitis vinifera* var. *erbasca* Risso; *Vitis vinifera* var. *foderea* Risso; *Vitis vinifera* var. *fusca* Risso; *Vitis vinifera* var. *gardinellii* Risso; *Vitis vinifera* var. *gargaveo* Risso; *Vitis vinifera* var. *gibbosa* Risso; *Vitis vinifera* var. *gibbosa* Risso; *Vitis vinifera* var. *grisea* Risso; *Vitis vinifera* var. *guillielmia* Risso; *Vitis vinifera* var. *inaequalis* Risso; *Vitis vinifera* var. *infumata* Risso; *Vitis vinifera* var. *italica* Risso; *Vitis vinifera* var. *juliana* Risso; *Vitis vinifera* var. *laconiata* Wallr.; *Vitis vinifera* var. *lambertii* Risso; *Vitis vinifera* var. *latifolia* Risso; *Vitis vinifera* var. *louseleurii* Risso; *Vitis vinifera* var. *luneli* Risso; *Vitis vinifera* var. *macrophylla* Risso; *Vitis vinifera* var. *malvasia* Risso; *Vitis vinifera* var. *maroccana* Risso; *Vitis vinifera* var. *massiliensis* Risso; *Vitis vinifera* var. *maurillona* Risso; *Vitis vinifera* var. *mediifolia* Risso; *Vitis vinifera* var. *microcarpa* Risso; *Vitis vinifera* var. *milleria* Risso; *Vitis vinifera* var. *minuta* Risso; *Vitis vinifera* var. *minuta* Risso; *Vitis vinifera* var. *mollissima* Risso; *Vitis vinifera* var. *mollissima* Risso; *Vitis vinifera* var. *molonis* Risso; *Vitis vinifera* var. *montana* Risso; *Vitis vinifera* var. *morveda* Risso; *Vitis vinifera* var. *muscatella* Risso; *Vitis vinifera* var. *nicaensis* Risso; *Vitis vinifera* var. *nigra* Risso; *Vitis vinifera* var. *nodosa* Risso; *Vitis vinifera* var. *normalis* Kuntze; *Vitis vinifera* var. *orientalis* Risso; *Vitis vinifera* var. *pansa* Risso; *Vitis vinifera* var. *parvifolia* Risso; *Vitis vinifera* var. *pedunculata* Risso; *Vitis vinifera* var. *pellucida* Risso; *Vitis vinifera* var. *pergulana* Risso; *Vitis vinifera* var. *pinea* Risso; *Vitis vinifera* var. *praecox* Risso; *Vitis vinifera* var. *provincialis* Risso; *Vitis vinifera* var. *pulchella* Risso; *Vitis vinifera* var. *punctata* Risso; *Vitis vinifera* var. *purpurea* Bean; *Vitis vinifera* var. *rara* Risso; *Vitis vinifera* var. *rozieri* Risso; *Vitis vinifera* var. *rubella* Risso; *Vitis vinifera* var. *rubra* Risso; *Vitis vinifera* var. *rubra* Risso; *Vitis vinifera* var. *rufa* Risso; *Vitis vinifera* var. *rufescens* Risso; *Vitis vinifera* var. *salernitana* Risso; *Vitis vinifera* var. *sativa* DC.; *Vitis vinifera* var. *semisylvestris* Risso; *Vitis vinifera* var. *serotina* Risso; *Vitis vinifera* var. *smithii* Risso; *Vitis vinifera* var. *sphaerica* Risso; *Vitis vinifera* var. *subhirsuta* Risso; *Vitis vinifera* var. *sylvestris* Willd.; *Vitis vinifera* var. *tabacca* Risso; *Vitis vinifera* var. *tempestiva* Risso; *Vitis vinifera* var. *thouinii* Risso; *Vitis vinifera* var. *tinctorialis* Risso; *Vitis vinifera* var. *trichophylla* Kolen.; *Vitis vinifera* var. *varronia* Risso; *Vitis vinifera* var. *ventricosa* Risso; *Vitis vinifera* var. *verlantina* Risso; *Vitis vinifera* var. *virescens* Risso; *Vitis vinifera* var. *vulgaris* Risso; *Vitis vinifera* var. *wilfordiana* Kuntze; *Zaehringia nobilis* Bronner

**Original name (Gmelin 1817):** *Vitis vinifera*. Linn. Sp. pl. - Gmel. Flor. Badens. I. p. 545-547.

**German names and French names (Gmelin 1817):** Weinrebe, Weintraube; Vigne cultivée

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Not threatened

**KR 194184** (Fig. 90)



Figure 90. *Vitis vinifera* L. - KR 194184

**Botany and Ecology:** Climbers up to 30(43) m tall, with stem up to 1.5 m in circumference; bark usually peeling in strips, branches brown-red to brown-yellow, glabrous or simple-hairy or flocculose, thinly furrowed, nodes usually with septum; leaves orbicular, pentagonal or reniform, entire, 3-5-lobed or dissected, sometimes nearly pinnatisect (var. *laciniosa* (L.) Asch.), 5-20 cm in diameter, usually with narrow acutely angular, sometimes closed petiolar incision, cordate at base, irregularly and usually obtusely dentate at margin, glabrous or short-hirsute or long cobwebby, sometimes pubescence

mixed on individual plants, usually more hairy beneath, sparsely weak-hairy to tomentose. Flowers bisexual or functionally pistillate then with short recurved sterile stamens (purely staminate flowers rare, with stelliform-spreading corolla), arranged in compound loose or more or less dense panicles, sometimes with tendrils, racemes varying in shape, from cylindrical to cylindrical-conical, often winged; fruit much variable, 6-22 mm long, globose, flattened, oval, elliptic, oblong, ovoid to obovoid or irregularly shaped, very variable in color: black-violet, purple, dark red, pink, yellowish, green or greenish, with thick or mucilaginous juicy pulp, usually sweet or sourish; seeds 3-4, averagely 2(6-7) mm long, pyriform or ovoid, beaked, chalaza appearing at about upper third of seed, rarely seeds absent. Flowering May-June, fruiting August-September. Among the older cultivated plants of Eurasia, the cultivation of grapes dates at least 8000 years back in the Caucasus, and almost 600 varieties of grapes are still being grown in the Caucasus. Popular commercial varieties are especially rkatsiteli, mtsvane and saperavi in Kakheti in Esatern Georgia, and tsitska, krakhuna, tsolikauri, and aleksandrouli in Western Georgia. (Shishkin and Boborov 1949).

**Contemporary uses:** Hungary: Unspecified medicinal use; jaundice, wounds, pneumonia. Balkans: immuno-stimulant, hepatitis. Romania: Unspecified medicinal use. Bulgaria: wounds. Serbia: Toothache, bleeding gums; mouth blisters, ulcers. The root bark is used Ural to treat carbuncles and abscess, and as infusion forw diarrhea, vomiting. The fruit juice is used topically to treat skin cancer, internally for, anemia, rickets, gastrointestinal cancer, tuberculosis, chronic bronchitis, nerve diseases, hemorrhoids, kidney disease, liver and gout. Azerbaijan: Grape seeds contain mucilaginous compounds that are used as water decoction as antitussive and expectorant. The fruits and fresh juice are used in general weakness, anemia and for improving of appetite. In gum diseases it is recommended to chew fresh grape leaves and gargle the mouth cavity with a water infusion of leaves. The natural juice from immature grapes (abgora) is ingested to reduce blood sugar. Fresh leaves steamed in the water are used for night baths in rheumatism as analgesic. The juice of the green berries is used in the treatment of malaria, and fruits and fresh juice are applied in podagra and liver diseases. Fresh leaves are put in cold water and taken internally to enhance eyesight. Bekmez (doshab, irchal) is made from fruits of different sorts and is widely applied as strengthening means in anemia, diseases of liver, severe blood loss, shock. Grapes are one of the most traditional and old cultivated plants in the Caucasus, with cultivation and wine making reaching back over 8000 years. Many churches and other buildings are decorated with grape ornaments. In Georgia alone there are still almost 600 grape varieties, although about 40% of the original varieties got lost under soviet occupation. Grapes are grown all over the region, and either eaten raw, as raisins, or turned into wine. The leaves are used to make dolma. A dye solution is made of seed and leaves to obtain grey and beige colors. Solution is used for dyeing wool yarn as well as products made of wool. The wood can be used for utensils. Sometimes planted as ornamental. As silage used as fodder for livestock. Finally, grape vines are ornamental in gardens as trellises, latticework, arbors, etc. Balkans: Leaves widely used for sarma. Eastern Europe: Beverage, distillate, pickle, wine, vinegar, sarma. Yörük: sarma, pickle, jam. Bulgaria: Sarma, sometimes stems tapped for sap. Ukraine: For religious bouquets, trigs for brooms. (Bussmann et al. 2020y; 2025Q; Chaachouay et al. 2024b; Mehdiyeva et al. 2017d; Paniagua-Zambramna et al. 2025W).

**Uses 1817 (Gmelin 1817):** The fresh and dried leaves, and the vines, can be used as excellent fodder for cattle, horses, and pigs. Even sour, unripe grapes can be fermented with syrup, sugar, raisins, spirit, and water to produce a pleasant and healthy wine-like beverage, which is certainly more suitable for wine-growing countries than the best beer. A useful vinegar can also be made from them.

**Original German text Gmelin (Gmelin 1817):** Die frischen und getrockneten Blätter, und die Rancken, können als ein vorzügliches Futter für Rindvieh, Pferde und Schweine, benutzt werden. Auch die sauern nicht reifgewordenen Weintrauben, können noch durch einen Zusatz von Syrup, Zucker, Rosinen, Weingeist und Wasser durch Gährung, zu einem nicht unangenehmen und gesunden Wein-artigen Getränke benutzt werden, welches gewiß dem Weinländer angemessener, als das beste Bier ist. Auch kann ein brauchbarer Essig daraus bereitet werden.

### ***Vitis vinifera* ssp. *sylvestris* L.**

*Synonyms:* Now synonym of *Vitis vinifera* L.

**Original name (Gmelin 1817):** *Vitis sylvestris*. - Gmel. Fl. Bad. I. p. 543-545.

**German names and French names (Gmelin 1817):** Wilde Rebe, Waldrebe, Vogeltraube, Falsche Fuchstraupe, Hertlingstraupe, Trolltraube; Vigne sauvage, Vigne des bois.

**Conservation status** (Breunig & Demuth 2023; <https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>): Protected species - No data

**Botany and Ecology:** See *Vitis vinifera* L.

**Contemporary uses:** Azerbaijan: Grape seeds contain mucilaginous compounds that are used as water decoction as antitussive and expectorant. The fruits and fresh juice are used in general weakness, anemia and for improving of appetite. In gum diseases it is recommended to chew fresh grape leaves and gargle the mouth cavity with a water infusion of leaves. The natural juice from immature grapes (*abgora*) is ingested to reduce blood sugar. Fresh leaves steamed in the water are used for night baths in rheumatism as analgesic. The juice of the green berries is used in the treatment of malaria, and fruits and fresh juice are applied in podagra and liver diseases. Fresh leaves are put in cold water and taken internally to enhance eyesight. *Bekmez* (*doshab*, *irchal*) is made from fruits of different sorts and is widely applied as strengthening means in anemia, diseases of liver, severe blood loss, shock. Azerbaijan: Many national dishes are dressed with *abgora* (a thoroughly boiled and then salted juice of unripe grapes). The fruits are eaten fresh and as rasins, jams, marmalades, compotes. The leaves are used as seasoning for food, especially soups. The seeds are used as coffee surrogate. In the Caucasus the young vines are used for the making "dolmy" (stuffed vine leaves). They are eaten salted in the winter. The seedless grapes are dried and used in jams, juice, concentrated juices, marinades, and rolled in dough (*tklapi*). The juice is used in the making of marmelade and *churchkhela*. The roasted seeds are sometimes used as a substitute for coffee. Many national dishes are dressed with *abgora* (a thoroughly boiled and then salted juice of unripe grapes). Azerbaijan: A dye solution is made of seed and leaves to obtain grey and beige colors. Solution is used for dyeing wool yarn as well as products made of wool. Balkans: Leaves widely used for *sarma*. Hungary: children's snack; vinegar and brandy (*palinka*). (Bussmann et al. 2020y; 2025Q; Chaachouay et al. 2024b; Mehdiyeva et al. 2017d; Paniagua-Zambrana et al. 2025W).

**Uses 1817 (Gmelin 1817):** In times of fodder shortage, the leaves and tendrils of this vine can be used as a healthy, nutritious, and pleasant fodder for cattle, horses, and pigs.

**Description and Ecology (Gmelin 1817):** This vine, which often grows wild in the woods in our Rhine region, is presumably the mother of the grapevine. It climbs trees and hedges, often completely covering them, and is *Vitis Labrusca* of the ancients.

**Original German text Gmelin (Gmelin 1817):** Diese in unseren Rheingegenden in den Waldungen häufig wild wachsende Rebe, ist vermuthlich die Mutter des Weinstocks. Sie steigt an den Bäumen und Hecken hinauf; die sie nicht selten ganz überziehet, und ist *Vitis Labrusca* der Alten. Bey Futter-Mangel können die Blätter und Rancken dieser Rebe, bestens als ein gesundes, nährendes, angenehmes Futter, für Rindvieh, Pferde und Schweine benutzt werden.

## Discussion

The publication of Gmelin is certainly interesting, because it underlines first, that plant blindness is by no means a problem of the 21. century. Apparently over 200 years ago citizens had similar issues. It is however not entirely clear why Gmelin wrote this volume. Certainly, Carl Christian Gmelin was not only Director of the Natural History Museum and the Botanical Gardens in Karlsruhe, but also Privy Councillor of the Grand Duchy of Baden and published his guide at a time when the still young Grand Duchy of Baden was struggling with particularly serious social, economic, ecological, and political conflicts.

The preceding Napoleonic Wars had caused hundreds of thousands of deaths and led to the destruction of rural livelihoods. The economic consequences of the Continental Blockade against the British Empire were still being felt in 1817, and the enormous food shortages due to the weather-related crop failures in 1816 and 1817, which were directly caused by the Tambora volcanic eruption in Indonesia in 1815 were acute.

Thus, the intention of this "emergency aid" volume seems reasonable. Gmelin focused largely on naturally occurring plants and offered tried to outline on which species could be used for human consumption, how they could be prepared, and which species were suitable for animal feed. A large part of the species mentioned is indeed native to the region and must have been comparatively common in 1817. Otherwise, it would have made little sense promoting their use. Nevertheless, the selection does raise some interesting questions, as does the fact that in the early 19th century this would not have been a volume for the poor, partly illiterate populus, but for a literate urban population and landlords trying to find ways for improving the livelihoods of their renters or rural tenants, and naturally their own income. This seems to have been one long-term reason, given that Gmelin included many suggestions for future development of forestry and agriculture in his volume. This is even clearer if one considers Gmelin's 1809 volume "**Über den Einfluss der Naturwissenschaft auf das gesamte Staatswohl vorzüglich auf Land und Zeit berechnet**" that in fact already gives indications as to improving agriculture, forestry and ultimately livelihoods.

*Acer* is a nice example - while focusing on the use of local species, Gmelin also indicated that "Several North American maple species are known, including *Acer dasycarpon*. Ehrh. and *Acer rubrum*. Linn. thrive in the Rhine, Neckar, and Main regions, are fast-growing, and should be planted there on a larger scale." - thus opening the door for exotics to be planted on a larger scale.

The broad inclusion of fungi in this guidebook is also somewhat surprising, given that identifying fungi is generally much more challenging than identifying plants. Grated, the included genera are common and reasonably well known (e.g., *Agaricus*, *Boletus*), but Gmelin must have been aware of the danger mushrooms might pose, highlighting repeatedly that they must be well identified to avoid poisoning., as in "It does not have to be confused with the bulbous leaf mushroom, *Agaric bulbeux*. *Agaricus bulbosus*. Bulliard., which has poisonous properties and is often found in the same places in forests. This mushroom is immediately distinguishable from our common mushroom by its perfect, bulbous, white bulge and narrow white leaflets..." or "Since it is difficult to describe the diverse range of sponges in words and to explain them clearly to others, true-to-life and colored illustrations are the best means of becoming familiar with them. Therefore, to protect everyone from mistakes, I consider it absolutely necessary to include the best illustrations for each sponge found here. I must also advise anyone who is not well acquainted with the various edible sponges not to bother collecting them, in order to avoid possible accidents." and "It must not be confused with the poisonous fly agaric, *Orange fausse*. *Agaricus muscarius*. Linn."

It is also interesting to see the inclusion of fungi (*Boletus* sp.) as forage, including advise to avoid livestock poisoning as in "However, they easily cause disease in oxen and cows if they are eaten in wet weather or when already spoiled and infested with worms."

And finally, in case of fungi, Gmelin was aware of the fact that many species were sold, and had commercial value, and thus might help improving income: "has a pleasant flavor and is frequently eaten, especially in France.", "This leaf sponge is sold in French kitchen markets under the name *Mousseron pied-dur*. *Mousseron d'Automne* but is less expensive than the genuine *Mousseron* and less valued due to its less tender flesh, yet it still has a very good flavor.", and almost curiously on truffles: "It is one of the highly valued edible mushrooms, which are prepared in a variety of ways, especially for the tables of the wealthy. In addition to being collected by humans, they are also commonly sought out by specially trained dogs, who smell them above ground and, by scratching, indicate the places where they find them. In some regions, especially in Italy, pigs are trained for this purpose."

In some parts Gmelin shows his background as widely travelled scientist, including uses of local species that he encountered during his travels, and from literature, but which were not known in 19th century Badenia, as in:

"The roots of this and some other *Orchis* species produce the medicinally known and nutritious *Salep*.

*Butomus umbellatus*: "They are eaten by the Yakuts and other Russian peoples. According to our experiments conducted here several years ago, **they are not recommended as food for Rhinelanders, who might not find them agreeable.**"

*Fallopia* sp.: "This plant deserves optimal use when cereals are scarce. The mealy seeds are easy to collect, produce a tasty, nutritious porridge, and can also be turned into flour."

*Lactuca alpina*: "The young, tender leaves are used in Switzerland and the Pyrenees as a tasty salad, as well as a healthy vegetable."

*Lapsana communis*: "The young, tender leaves can be eaten as a salad or vegetable when food is scarce. In Constantinople, they are often eaten as a salad."

*Lathyrus linifolius*: " The roots taste sweet and are very nutritious and are eaten in Westphalia, Holland, Scotland, and elsewhere."

*Lathyrus tuberosus*: "In Holland, they are cultivated, and the tubers are sold at markets under the name *Aart-Nutt* (*Aart-Müze*), and are eaten. According to J. G. Gmelin, they are one of the most common and excellent foods of the Tartars."

*Melampyrum arvense*: "Some have suggested using it on bread in times of scarcity, **but we cannot recommend it for this purpose.**

*Myrrhis odorata*: "The finely chopped seeds, still green, mixed with lettuce or other salad herbs, impart a pleasant flavor, improve the health, strengthen and warm the stomach, and reduce flatulence, as I have thoroughly observed among the mountain dwellers in Catalonia and the Spanish and French Pyrenees."

*Nupar lutea*: "The roots have a slightly sharp, bitter, and slimy taste and provide good food for pigs. In Sweden, they were consumed by humans during periods of famine and scarcity, without harm, and on the island of Seeskär near Narva, bread was baked from them with spruce bark. **This food would probably not have pleased the Rhinelander.**"

*Oenothera biennis*: "It originates from Virginia, from where it came to Europe in 1614 as an ornamental flower for gardens, and from there it established itself in the wild. The roots are sweet, nourishing, and tasty in the first year."

*Petroselinum rupestre*: "The young, tender leaves can be used as a salad. Therefore, the Dutch and French in particular tend to grow this plant in their kitchen gardens."

*Potamogeton natans*: "The people living along the Jaik River use the root as food, **but this would probably not be to the liking of the Rhinelander.**"

*Sagittaria saggitifolia*: "The tubers are mealy, nutritious, and taste like chestnuts. Therefore, this plant is frequently cultivated in China. Osbeck says during his trip to China that he saw arrowhead, with its elongated tubers."

*Silene vulgaris*: "The young, tender leaves produce a very tasty vegetable in spring. The English grow it in their kitchen gardens and primarily use the young root shoots to make an extremely tasty salad."

*Solanum tuberosum*: "We owe this excellent plant, which best protects us against hunger, to the Peruvians. Although it has been known in Europe for about 250 years, it was only cultivated in our Rhineland and neighboring regions lately, between 1714 and 1724, and has become more widespread with each passing year."

What is of particular interest is the fact that Gmelin seems to have been well aware that all these plants are famine foods, i.e. that they are often not particularly tasty, and that thus they "**would probably not be to the liking of the Rhinelander.**" This is a fact that many modern foraging manuals, and proponents of the inclusion of such species in a wider "sustainable" diet ignore - many species are edible, but people, if they have a chance eating something else, will happily ignore them.

We also learn that the plants mentioned were by no means unknown. In fact, a wide variety of species is described as "**formerly cultivated**" or "**long been known**", highlighting that even hundreds of years ago many species simply had gone out of fashion, because the population did prefer growing tastier, more productive species. Examples are:

*Chenopodium bonus-henricus*: "**In former times, this plant was cultivated in our gardens, in France and England, like spinach.**"

*Elymus repens*: "**Since ancient times, people have sought to prepare food from it for humans. They were washed, dried, chopped, ground, and, with the addition of flour, baked into bread.** This was also done during a brief grain shortage in 1762 in some regions of Saxony, but even more so during the high prices that prevailed for several years at the beginning of the 1770s."

*Glyceria fluitans*: "It is a tasty and nutritious food not only for birds and fish, but also for humans, and as such **has long been known**, even on the tables of the rich and the wealthy, under the names manna porridge."

*Malva pusilla*: "The young leaves can be eaten as a vegetable and salad and should be used for this purpose when food is scarce. **They were once a very popular vegetable among the Romans and Egyptians.**"

*Mespilus germanica*: "Since this beneficial tree is becoming rarer in our country with each passing year, its planting, propagation, and grafting deserves to be favored in suitable locations, especially in the low mountain ranges, above and near vineyards."

*Quercus robur*: "Although they provide excellent fattening for pigs, **they are nevertheless not suitable as food for humans unless absolutely necessary due to their astringent, unpleasant taste.** However, in cases of real scarcity, people have often resorted to acorns."

*Ranunculus ficaria*: "The tender young leaves are very mild, somewhat unappealing, and are eaten in many places in early spring as a tasty vegetable and salad."

*Sium siarium*: "This plant probably originated in China and was **cultivated in large quantities several centuries ago, especially in the Rhine region**, and from there it spread to Italy and Spain, where it is still known to this day under the name *Chirivia Tudesca* (German sugar root)."

Equally interesting is the use of plants long established in horticulture that still are being used for food in surrounding European regions, such as

*Campanula persicifolia* "Since this plant has long been established as one of the most beautiful ornamental plants in gardens, and its roots become much larger, more tender, and more delicious through cultivation, its planting along paths and terraces, in our vineyards, and in other suitable locations, in times of scarcity and high prices, deserves every consideration."

*Chenopodium album* "Since this plant often takes over grain fields, gardens, and vineyards in wet years to such an extent that it often completely suppresses the grain, the German colonists on the Volga, who are often very embarrassed by the frequent poor growth of the grain, help themselves by using this weed instead of cabbage. They also use the seeds that this plant very frequently produces, which, when ground and mixed with a little grain flour, can be used very well for bread as a tasty and healthy porridge.";

*Cirsium* sp.: "The tender leaves and shoots provide a healthy, nutritious, and tasty vegetable in the spring."

or species that have somewhat become fashion foods in the Neomüsli movement:

*Cyperus esculentus*: "These tubers, now known to many of our countrymen as grass almonds, have a pleasant, sweet flavor and can be used both raw and cooked as a nourishing, tasty, and healthy food."

*Fagopyrum tataricum*: "I have often recommended the cultivation of this plant, in full conviction, especially in the higher, sandy regions of the Black Forest, where it would thrive".

*Taraxacum officinale*: "The young, tender leaves can be prepared and eaten in spring, before the plant produces stems, as a healthy, tasty vegetable and as a salad. The roots were used to make bread when food was scarce."

*Valeriana locusta*: This plant, well-known in our gardens and kitchens, whose young shoots and leaves, before they shoot into stems, are used as a tasty, nutritious food, grows wild throughout cultivated areas in fields, ploughland, meadows, and especially in vineyards, and can be used extensively as a vegetable and salad throughout the winter"

A variety of species, including all orchids, but also e.g. *Carlina acaulis* and *Trapa natans* are so rare nowadays that they are threatened and under special protection. here changing land use has clearly led to the decline of species that were formerly so common that they could be harvested.

On the other hand, some species, especially of *Prunus* and *Sorbus* (*Sorbus* now mostly included in *Aria*, *Cormus* and *Torminalis*) were common in the 19th century because they had been planted widely when the city of Karlsruhe had been founded, but their use was in fact not widely known, as in:

*Cormus domestica* : "The wise Grand Duke Carl Friedrich, of blessed memory, had, among others, at the beginning of the 1770s, many hundreds of such young shrubs and trees, along with the following species, transplanted into the pheasant garden, the only one of its kind here. These trees grew excellently and became a source of food for the pheasants and so many songbirds, especially the nightingales, which flock there in large numbers every year. When later in 1784 I had the good fortune to admire with this unforgettable prince the many portable hedges and trees in this complex that struck me, and I could hardly explain how they came to be there in such numbers, he replied: This always gives me pleasure, it was done by several hundred good people to whom I had bread, wine, and other necessities distributed during this expensive time."

In the 21st century most of these fruit species have again disappeared (Obel & Bussmann 2025).

Last, and quite innovative, is the recommendation of Lichens for food and forage, which Gmelin again must have learned from his own travels and literature:

*Cetraria islandica*: "This highly nourishing plant,....made into porridge"

*Cladonia rangiferina*: "In the north, it is the usual food for reindeer. Cattle and pigs eat it willingly, which is why it is also collected in Carniola to fatten the pigs."

What is striking though is that all species that Gmelin mentioned in his 1817 volume are still used in the wider European and Mediterranean region. On the other hand, many of such species, e.g. *Amaranthus* sp., *Allium* sp., *Aruncus dioicus*, *Rumex* sp., to name a few, all of which are common in the area, and were so in 1817, are not mentioned at all (Bussmann 2017; Bussmann, Elachouri & Kikvidze 2024; Bussmann, Paniagua Zambrana & Kikvidze 2025). This again underlines that that Gmelin's book likely was written on order of the Grad Duke, in great haste, and for literate landowners, to present the peasantry with livelihood alternatives, which in turn naturally would benefit the landowners. What is however interesting is

the fact that the peasantry seems to have needed such indications, rather than counting on their own traditional knowledge, which underlines the assumption of prevalent plant blindness in the region in the early 1800s.

## Conclusions

Our review indicates that "plant blindness" is by no means a phenomenon of the 21. century. Already over 200 years ago, a guidebook was necessary to allow "ordinary" citizens, not only in urban, but also rural areas, the identification of wild plants as food and forage, to remedy years of bad harvests. Herbarium collections are essential to allow for a detailed revision of such publications, and have the potential to elucidate both genetic, as well as metabolic changes in species, e.g. important for food and medicine. The foraging and self-medication craze during and after SARS-CoV-2 underlines the dire need for better taxonomic assessment of plants used by the wider public. Our presented Checklist of the Flora of Karlsruhe 1785-2025 will serve as baseline for future analyses of this urban flora.

## Declarations

**List of abbreviations:** N/A

**Ethics approval and consent to participate:** No ethical approval was needed. This study is pure literature and herbarium work.

**Consent for publication:** Not applicable

**Availability of data and materials:** Not applicable

**Competing interests:** Not applicable

**Funding:** Not applicable

**Author contributions:** All authors contributed to study. RWB: Conceptualization of the study, taxonomic revision of herbarium specimens, translation of Gmelin 1817, writing of the manuscript. RWB, LM, SÖ, JB, CO, LB, LS, AL, RP, MR and PM: curation and digitization of herbarium specimens and associated data. JF: manual copy of Gmelin 1817.

## Acknowledgments

Thanks are due to all colleagues who over the decades contributed vouchers to KR.

## Literature cited

- Achurra A. 2022. Plant blindness: A focus on its biological basis. *Frontiers in Education* 7. doi: 10.3389/educ.2022.963448
- Aissa I, Bussmann RW, Elachouri M. 2024b. *Solanum dulcamara* L. *Solanum elaeagnifolium* Cav. *Solanum incanum* L. *Solanum lycopersicum* L. *Solanum linnaeanum* Hepper, P.-M. 2024. L. Jaeger *Solanum melongena* L. *Solanum nigrum* L. *Solanum nigrum* L. subsp. *nigrum* *Solanum tuberosum* L. SOLANACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). *Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante*. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_194. pp. 1901-1947.
- Aissa I, Chaachouay N, Zidane L, Fakchich J, Bussmann RW, Elachouri M. 2024a. *Daucus carota* L. *Daucus crinitus* Desf. APIACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). *Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante*. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_93. pp. 911-918.
- Ali SI, Qaiser M. 1995-2020. *Flora of Pakistan*, Department of Botany, University of Karachi, Pakistan and Missouri Botanical Garden, St. Louis, USA.
- Aliev Muradalievich A, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Müller L, Batsatsashvili K, Sikhharulidze S, Tchelidze D, Maisaia I, Mehdiyeva N, Mursal N, 2025. *Ranunculus ficaria* L., *Ranunculus neapolitanus* Ten., *Ranunculus oxyspermus* Willd., *Ranunculus repens* L. - RANUNCULACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). *Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus*, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Batsatsashvili K, Kikvidze Z, Khutsishvili M, Maisaia I, Sikhharulidze S, Tchelidze D, Paniagua Zambrana NY, Bussmann RW. 2017e. *Lathyrus roseus* Steven In: Bussmann RW. (ed.) *Ethnobotany of the Caucasus*, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_53
- Batsatsashvili K, Kikvidze Z, Khutsishvili M, Maisaia I, Sikhharulidze S, Tchelidze D, Paniagua Zambrana NY, Bussmann RW. 2017b. *Chenopodium album* L., *Chenopodium foliosum* L. In: Bussmann RW. (ed.) *Ethnobotany of the Caucasus*, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_113

- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017k. *Urtica dioica* L. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_140
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017i. *Prunus spinosa* L. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_73
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017h. *Portulaca oleracea* L. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_119
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Alizade V, Aleksanyan A, Paniagua Zambrana NY, Bussmann RW. 2017g. *Mespilus germanica* L. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_93
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Alizade V, Aleksanyan A, Paniagua Zambrana NY, Bussmann RW. 2017f. *Malva neglecta* Wallr., *Malva sylvestris* L. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_115
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017d. *Fagus orientalis* Lipsky. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_70
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017c. *Crataegus curvisepala* Lindm., *Crataegus pentagyna* Waldst. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_123
- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017a. *Sorbus aucuparia* L., *Sorbus torminalis* (L.) Crantz. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_133
- Batsatsashvili K, Mehdiyeva N, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017b. *Cirsium arvense* (L.) Scop. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_62
- Belkasmı S, Bencheikh N, Khojimatov OK, Khamraeva DT, Bussmann RW, Elachouri M. 2024d. *Taraxacum atlanticum* Pomel *Taraxacum campylodes* G.E.Haglund *Taraxacum cyprium* H.Lindb. *Taraxacum erythrospermum* Andr. ex Besser *Taraxacum syriacum* Boiss. *Taraxacum officinale* F.H.Wigg. *Taraxacum obovatum* (Willd.) DC. *Taraxacum phaleratum* G.E.Haglund ASTERACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_203. pp. 1995-2012.
- Belkasmı S, Bussmann RW, Elachouri M. 2024a. *Anchusa azurea* Mill. *Anchusa undulata* L. *Anchusa undulata* subsp. *hybrida* (Ten.) Cout. *Anchusa variegata* Lehm. *Anchusa arvensis* (L.) M. Bieb. BORAGINACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_233. pp. 297-305.
- Belkasmı S, Bussmann RW, Khojimatov OK, Elachouri M. 2024b. *Malus domestica* (Suckow) Borkh. *Malus pumila* Mill. *Malus sylvestris* (L.) Mill. ROSACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_141. pp. 1305-1317.
- Belkasmı S, Elachouri M, Bussmann RW. 2024c. *Sinapis alba* L. *Sinapis arvensis* L. BRASSICACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_193. pp. 1895-1900.
- Benaicha, S, Bussmann RW, Elachouri M. 2024. *Fraxinus angustifolia* Vahl *Fraxinus dimorpha* Coss. & Durieu *Fraxinus excelsior* L. *Fraxinus ornus* L. OLEACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_240. pp. 1073-1080.

- Bencheikh N, Solis, V, Bussmann RW. 2024. *Crataegus laciniata* Ucria *Crataegus laevigata* (Poir.) DC. *Crataegus monogyna* Jacq. ROSACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_85. pp. 829-839.
- Bindu KC, Gyawali S, Luintel S, Sharma HP, Kunwar RM, Bussmann RW, Paniagua-Zambrana NY. 2021. *Sorbus cuspidata* (Spach) Hedl. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_233, pp. 1917-1926
- Boboev M, Ghorbani A, de Boer H, Kool A, Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020. *Bunium persicum* (Boiss.) B. Fedtsch. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_31-1
- Boborov EG, Bush NA. 1939 (English 1970). Flora of the USSR, Volume 8: Capparidaceae, Cruciferae and Resedaceae; Akademia Nauk, Leningrad. 524 pages, 34 b/w plates, 2 maps.
- Boborov EG, Komarov VL. 1936 (English 1970). Flora of the USSR, Volume 5: Dicotyledoneae, Subclass I: Archichlamydeae, Order Piperales-Polygonales; Akademia Nauk, Leningrad. 593 pages, 49 b/w plates;
- Boborov EG, Shishkin BK. 1998. Flora of the USSR, Volume 27: Compositae, Tribes Anthemidea, Senecioneae, Calanduleae, Arctolidae. Akademia Nauk, Leningrad. 913 pages.
- Boborov EG, Tzvelev NN. 1964 (English 2001). Flora of the USSR, Volume 29: Compositae; Akademia Nauk, Leningrad. 832 pages, 34 plates.
- Boborov EG, Tzvelev NN. 2000. Flora of the USSR, Volume 29: Compositae, tribe Cichorieae. Akademia Nauk, Leningrad. 832 pages, 34 plates.
- Bobrov EG, Bush NA. 1939 (English 1970). Flora of the USSR, Volume 8: Capparidaceae, Cruciferae and Resedaceae; Akademia Nauk, Leningrad. 524 pages, 34 b/w plates, 2 maps.
- Bobrov EG, Komarov VL. 1936 (English 1970). Flora of the USSR, Volume 5: Dicotyledoneae, Subclass I: Archichlamydeae, Order Piperales-Polygonales; Akademia Nauk, Leningrad. 593 pages, 49 b/w plates;
- Bonnet, A. 1887. Beiträge zur Karlsruher Flora. Mitteilungen des Botanischen Vereins Kreis Freiburg und Land Baden 37-38: 323-325.
- Borisova AG. 1963 (English 1998). Flora of the USSR, Volume 28: Compositae, Tribes Cynareae and Mustisieae; Akademia Nauk, Leningrad. 810 pages.
- Brahmi F, Mokhtari O, Legssyer B, Touzani R, Fakchich J, Khojimatov OK, Chaachouay N, Bussmann RW. 2024. *Berberis vulgaris* L. *Berberis vulgaris* Subsp. *australis* (Boiss.) Heywood BERBERIDACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_50. pp. 503-515.
- Breunig T, Demuth S. 2023. Rote Liste der Farn- und Blütenpflanzen Baden-Württembergs. - 4.Fassung, Stand 15.06.2021. Naturschutz-Praxis Artenschutz 2. LUBW Landesanstalt für Umwelt Baden-Württemberg (Hrsg.), Karlsruhe.
- Bussmann RW (ed.) 2017. Ethnobotany of the Caucasus. Springer International Publishing International Publishing: Cham; XXVII, 746p. (ISBN 978-3-319-49411-1)
- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020y. *Vitis labrusca* L., *Vitis vinifera* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_145-2
- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020w. *Vaccinium arctostaphylos* L., *Vaccinium myrtillus* L., *Vaccinium oxycoccos* L., *Vaccinium vitis-idaea* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-030-28940-9\_138
- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019g. *Taraxacum confusum* Schischk., *Taraxacum officinale* F.H. Wigg. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds).

Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_133-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020u. *Sonchus asper* (L.) Hill, *Sonchus oleraceus* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_129-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020t. *Solanum melongena* L., *Solanum nigrum* L., *Solanum tuberosum* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_128-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020s. *Sinapis arvensis* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_127-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020r. *Rubus fruticosus* L., *Rubus idaeus* L., *Rubus saxatilis* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_119-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020q. *Robinia pseudoacacia* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_117-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020o. *Prunus avium* (L.) L., *Prunus cerasus* L., *Prunus divaricata* Ledeb., *Prunus domestica* L., *Prunus insititia* L., *Prunus laurocerasus* L., *Prunus padus* L., *Prunus vachuschtii* Bregadze. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_110-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020k. *Malus orientalis* Uglitzk., *Malus pumila* Mill. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_86-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019f. *Lapsana communis* L., *Lapsana grandiflora* M. Bieb. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_79-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020i. *Humulus lupulus* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_73-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019e. *Fraxinus excelsior* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_62-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019d. *Fagopyrum tataricum* (L.) Gaertn. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_58-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Moazzami Farida, SH, Ghorbani, A, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019c. *Daucus carota* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_51-2

Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019b. *Cydonia oblonga* Mill. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_49-2

- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020e. *Cardamine hirsuta* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_36-2
- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019a. *Arum italicum* subsp. *albispalum* (Steven ex Ledeb.) Prime, *Arum maculatum* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_17-2
- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020a. *Arctium lappa* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_14-2
- Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2020b. *Sorbus aucuparia* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_130-2
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020c. *Sorbus aucuparia* L., *Sorbus tianschanica* Rupr. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_131-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020d. *Campanula glomerata* L., *Campanula* sp. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_32-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020f. *Crataegus altaica* (Loudon) Lange, *Crataegus songarica* K. Koch, *Crataegus* sp. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_43-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020g. *Daucus carota* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_47-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020h. *Eryngium caucasicum* Trautv., *Eryngium* sp. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_58-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020i. *Malus orientalis* Uglitzk., *Malus pumila* Mill., *Malus sieversii* (Ledeb.) M. Roem. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_86-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020m. *Onopordum acanthium* L., *Oncopordum* sp. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_94-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020n. *Portulaca oleracea* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_110-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020p. *Prunus avium* Mill. var. *avium*, *Prunus divaricata* Ledeb. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_113-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020v. *Taraxacum officinale* F.H. Wigg. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_137-1
- Bussmann RW, Batsatsashvili K, Kikvidze, Z 2020x. *Vicia cracca* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_151-1

Bussmann RW, Elachouri M, Kikvidze Z. 2024. Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. ISBN 978-3-031-39794-3

Bussmann RW, Fayvush G, Aleksanyan A, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Müller L, Mehdiyeva N, Alizade VM. 2025a. *Acer campestre* L., *Acer cappadocicum* Gled., *Acer laetum* C.A. Mey., *Acer platanoides* L., *Acer pseudoplatanus* L., *Acer trautvetteri* Medw., *Acer velutinum* Boiss. - SAPINDACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Khojimatov OK, Fakchich J, Elachouri M. 2024a. *Cichorium intybus* L. ASTERACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_74. pp. 717-733

Bussmann RW, Mehdiyeva N, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, 2025c. *Astragalus caucasicus* Pall., *Astragalus denudatus* Stev., *Astragalus myriacanthus* Boiss., *Astragalus oleifolius* DC. - FABACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua Zambrana NY, Kikvidze Z. 2025. Ethnobotany of Mountain Regions - Ethnobotany of the Mountain Regions of Eastern Europe. Springer, Cham. ISBN 978-3-030-98744-2

Bussmann RW, Paniagua-Zambrana NY, Fayvush G, Aleksanyan A, Khutsishvili M, Kikvidze Z. 2025m. *Elymus repens* (L.) Gould. - POACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Batsatsashvili K, Maisaia I, Sikharulidze S, Tchelidze D. 2025K. *Sonchus arvensis* L., *Sonchus asper* (L.) Hill., *Sonchus oleraceus* L. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Batsatsashvili K, Maisaia I, Sikharulidze S, Tchelidze D. 2025I. *Sinapis arvensis* L. - BRACSSICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Batsatsashvili K, Maisaia I, Sikharulidze S, Tchelidze D, Mehdiyeva N, Alizade VM, Mursal N. 2025H. *Melandrium balansae* Boiss., *Melandrium divaricatum* Fenzl, *Silene flos-cuculi* L., *Silene lacera* Steven, *Silene sibirica* (L.) Pers., *Silene vulgaris* (Moench) Garcke, *Silene wallichiana* Klotzsch - CARYOPHYLLACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Batsatsashvili K, Maisaia I, Sikharulidze S, Tchelidze D. 2025h. *Cardamine amara* L., *Cardamine hirsuta* L., *Cardamine pratensis* L. - BRASSICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Fayvush G, Aleksanyan A, 2025z. *Nuphar lutea* (L.) Smith - NYMPHAEACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Fayvush G, Aleksanyan A, 2025z. *Nymphaea alba* L. - NYMPHAEACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Fayvush G, Aleksanyan A, Mehdiyeva N, Alizade VM, Zeraatkar A, Khajoei Nasab F, Aliev Muradalievich A, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I. 2025x. *Mespilus germanica* L. - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Müller L, Batsatsashvili K, Sikharulidze S, Tchelidze D,

Maisaia I, Khajoei Nasab F, Zeraatkar A, Mehdiyeva N, Alizade VM, Mursal N, Aliev Muradalievich A, Vagabova Askeralievna F, Rdzhabov Kamaludinovich G, Khojimatov OK, Fayvush G, Aleksanyan A, 2025O. *Urtica dioica* L - URTICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Müller L, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I, Khojimatov OK, Fayvush G, Aleksanyan A, Osmanov Malikovich, R, Anatov Magomedovich, D, Aliev Muradalievich A, Mehdiyeva N, Alizade VM, Mursal N. 2025D. *Prunus amygdalus* Batsch, *Prunus armeniaca* L., *Prunus avium* (L.) L., *Prunus cerasus* L., *Prunus cerasifera* L., *Prunus domestica* L., *Prunus dulcis* D.A. Webb, *Prunus insititia* L., *Prunus laurocerasus* L., *Prunus mahaleb* L., *Prunus padus* L., *Prunus persica* L., *Prunus spinosa* L., *Prunus vachuschtii* Bregadze - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Müller L, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I, Fayvush G, Aleksanyan A, Moazzeni, H, Pirani, A, Motahhari, K, Mehdiyeva N, Alizade VM, Mursal N. 202w5. *Malva neglecta* L., *Malva pusilla* Sm., *Malva sylvestris* L. - MALVACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Müller L, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I, Zeraatkar A, Khajoei Nasab F. 2025c. *Arctium lappa* L., *Arctium tomentosum* Mill. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Mehdiyeva N, Alizade VM, Salimov R, Mursal N, Fayvush G, Aleksanyan A, 2025Q. *Vitis labrusca* L., *Vitis sylvestris* W. Bartram, *Vitis vinifera* L. - VITACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, 2025P. *Vaccinium arctostaphylos* L., *Vaccinium myrtillus* L., *Vaccinium oxycoccus* L., *Vaccinium uliginosum* L., *Vaccinium vitis-idaea* L. - ERICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1 In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Sikharulidze S, Tchelidze D, Khojimatov OK, Khamraeva DT. 2025M. *Taraxacum confusum* Schischk., *Taraxacum officinale* Wigg. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Sikharulidze S, Tchelidze D, Khojimatov OK, Khamraeva DT. 2025N. *Taraxacum confusum* Schischk., *Taraxacum officinale* Wigg. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, Mehdiyeva N, Alizade, VM. 2025L. *Symphytum caucasicum* M. Bieb., *Symphytum grandiflorum* DC., *Symphytum officinale* L. - BORAGINACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Mehdiyeva N, Alizade, VM, Mursal N, Fayvush G, Aleksanyan A. 2025J. *Solanum dulcamara* L., *Solanum lycopersicum* L., *Solanum melongena* L., *Solanum nigrum* L., *Solanum tuberosum* L. - SOLANACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025F. *Robinia pseudoacacia* L. - FABACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze

Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, Aliev Muradalievich A, Rdzhabov Kamaludinovich G, Mehdiyeva N, Alizade VM, Mursal N. 2025E. *Pyrus caucasica* Fed., *Pyrus communis* L., *Pyrus pyraster* (L.) Burgsd., *Pyrus salicifolia* Pall. - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Mehdiyeva N, Alizade VM, Mursal N, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025C. *Primula luteola* Rupr., *Primula macrocalyx* Bunge, *Primula auricula* L., *Primula auriculata* Lam., *Primula elatior* Hill, *Primula farinifolia* Rupr., *Primula farinosa* L., *Primula luteola* Rupr., *Primula macrocalyx* Bunge, *Primula veris* L., *Primula veris* subsp. *macrocalyx* (Bunge) Lüdi–, *Primula ruprechtii* Kusnez., *Primula vulgaris* subsp. *rubra* (Sm.) Arcang, *Primula vulgaris* Huds, *Primula woronovii* (Standl.) Bruniera & C.M.Taylor, *Primula woronowii* Losinsk. - PRIMULACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Mehdiyeva N, Alizade VM, Maisaia I, Sikharulidze S, Tchelidze D, Khajoei Nasab F, Zeraatkar, A. 2025B. *Portulaca oleracea* L. - PORTULACACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Mediyeva, NP, Mursal N. 2025u. *Malus baccata* Loisel, *Malus domestica* Borkh, *Malus orientalis* Uglizk., *Malus pumila* Mill., *Malus sylvestris* (L.) Miller, *Malus sieversii* M. Roem. ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Mediyeva, NP, Mursal N. 2025v. *Malus baccata* Loisel, *Malus domestica* Borkh, *Malus orientalis* Uglizk., *Malus pumila* Mill., *Malus sylvestris* (L.) Miller, *Malus sieversii* M. Roem. ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025t. *Lathyrus aphaca* L., *Lathyrus cicera* L., *Lathyrus niger* (L.) Bernh., *Lathyrus roseus* Steven, *Lathyrus sylvestris* L., *Lathyrus tuberosus* L. - FABACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025s. *Lapsana communis* L., *Lapsana communis* subsp. *grandiflora* (M. Bieb) P.D Sell. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Mehdiyeva N, Mursal N, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, 2025r. *Humulus lupulus* L. - CANNABACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Mehdiyeva N, Alizade VM, Mursal N, Maisaia I, Sikharulidze S, Tchelidze D, Moazzami Farida, SH. 2025b. *Anchusa arvensis* ssp. *orientalis* (L.) Nordh., *Anchusa azurea* Mill., *Anchusa italica* Retz., *Anchusa ochroleuca* M. Bieb., *Anchusa officinalis* L. - BORAGINACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Mehdiyeva N, Alizade VM, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025p. *Filipendula ulmaria* (L.) Mill., *Filipendula vulgaris* Moench -

ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze D, Mehdiyeva NP, Alizade VM, 2025o. *Fagus orientalis* Lipsky, *Fagus sylvatica* L. - FABACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, 2025n. *Fagopyrum esculentum* Moench, *Fagopyrum tataricum* (L.) Gaertn. - POLYGONACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, 2025l. *Daucus carota* L. - APIACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze D, Mehdiyeva NP, Alizade VM, 2025k. *Cirsium arvense* (L.) Scop., *Cirsium incanum* (S.G. Gmel.) Fisch. ex M. Bieb., *Cirsium vulgare* L. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Mehdiyeva N, Alizade VM, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze D, 2025i. *Castanea sativa* Mill. - FAGACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, 2025g. *Campanula pendula* M.Bieb., *Campanula lactiflora* M. Bieb., *Campanula latifolia* L., *Campanula persicifolia* L., *Campanula rapunculoides* L., *Campanula saxifraga* subsp. *aucheri* (A.DC.) Ogan., *Campanula trachelium* L. - CAMPANULACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze D, Mehdiyeva N, Alizade VM, Mursal N, 2025d. *Sorbus aria* Crantz, *Sorbus aucuparia* L. *Sorbus caucasigena* Kom., *Sorbus domestica* L., *Sorbus graeca* (Spach) Lodd. ex S.Schauer, *Sorbus intermedia* (Ehrh.) Pers., *Sorbus rupicola* (Syme.) Hedl., *Sorbus subfusca* Boiss., *Sorbus torminalis* (L.) Crantz - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Mehdiyeva N, Alizade VM, Salimov R, Mursal N, Khajoei Nasab F, Zeraatkar A, Aliev Muradalievich A, Fayvush G, Aleksanyan A, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, 2025G. *Rubus caesius* L., *Rubus hirtus* Waldst. & Kit., *Rubus idaeus* L., *Rubus sanctus* Schreb., *Rubus saxatilis* L., *Rubus ulmifolius* Schott - *Rubus vulgaris* Weihe & Nees. - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Mehdiyeva NP, Alizade VM, Mursal N, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, 2025j. *Chenopodium album* L., *Chenopodium bonus-henricus* L., *Chenopodium botrys* L., *Chenopodium foliosum* Asch., *Chenopodium polyspermum* L., *Chenopodium urbicum* L. - AMARANTHACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Müller L, Mehdiyeva N, Mursal N, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, 2025q. *Fraxinus angustifolia* Vahl - Oleaceae, *Fraxinus excelsior* L., *Fraxinus ornus* L. - *Fraxinus oxycarpa* M. Bieb. ex Willd. - OLEACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

- Bussmann RW, Paniagua-Zambrana NY, Mehdiyeva N, Alizade VM, Salimov R, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, Khajoei Nasab F, Moazzeni, H, Pirani, A, Motahhari, K. 2025A. *Persicartia alpina* Gross., *Persicaria amphibia* (L.) Delarbre, *Persicaria hydropiper* (L.) Spach, *Persicaria lapathifolia* (L.) Delarbre, *Persicaria maculosa* Gray, *Polygonum aviculare* L., *Polygonum carneum* C. Koch, *Polygonum panjutinii* Kharkev. - POLYGONACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Bussmann RW, Paniagua-Zambrana NY, Mehdiyeva N, Mursal N, Müller L, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A. 2025e. *Arum elongatum* Stev., *Arum italicum* subsp. *albispatum* (Steven ex Ledeb.) Prime, *Arum orientale* M. Bieb. - ARACEAE in: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Bussmann RW, Paniagua-Zambrana NY, Njoroge G, 2021a. *Portulaca oleracea* L. In: Bussmann RW, Ed. Ethnobotany of the Mountain Regions of Africa. Springer International Publishing: Cham. doi: 10.1007/978-3-319-77086-4\_127-1, pp. 845-850.
- Bussmann RW, Paniagua-Zambrana NY, Njoroge G, 2021b. *Sonchus asper* L, *Sonchus oleraceus* L. In: Bussmann RW, Ed. Ethnobotany of the Mountain Regions of Africa. Springer International Publishing: Cham. doi: 10.1007/978-3-319-77086-4\_147\_1, pp. 975-982.
- Bussmann RW, Paniagua-Zambrana, NY. 2025a. *Morchella esculenta* (L.) Pers., *Morchella semilibera* DC. - MORECHELLACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Chaachouay N, Elachouri M, Bussmann RW. 2024a. *Portulaca oleracea* L. PORTULACACEAE In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_256. pp. 1661-1666.
- Chaachouay N, Elachouri M, Bussmann RW. 2024b. *Vitis labrusca* L. *Vitis vinifera* L. VITACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_250. pp. 2159-2175.
- Clouse C. 2022. The resurgence of urban foraging under COVID-19. Landscape Research 47(3):285-299. doi: 10.1080/01426397.2022.2047911
- Dangol DR, Jan HA, Abbasi AM, Kunwar RM, Bussmann RW, Paniagua-Zambrana, NY. 2021. *Chenopodium album* L. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_54, pp. 515-526.
- Döll JC. 1843. Rheinische Flora. Brönnner, Frankfurt.
- Döll JC. 1857. Flora des Großherzogtums Baden. Vol. 1, G. Braun'sche Hofbuchhandlung Karlsruhe.
- Döll JC. 1859. Flora des Großherzogtums Baden. Vol. 2, G. Braun'sche Hofbuchhandlung Karlsruhe.
- Döll JC. 1863. Flora des Großherzogtums Baden. Vol. 3 G. Braun'sche Hofbuchhandlung Karlsruhe.
- Elachouri M, Ajjoun M, Aissa I, Fakchich J, Bussmann RW. 2024a. *Cydonia oblonga* Mill. ROSACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_87. pp. 863-869.
- Fahd K, Gseyra N, Fakchich J, Bussmann RW. 2024. *Chenopodium album* L. *Chenopodium murale* L. AMARANTHACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_71. pp. 699-710.
- Fan Y, Zhang Y, Tariq A, Jiang X, Ahmad Z, Zhihao Z, Idrees M, Azizullah A, Adnan M, Bussmann, RW. 2020. Food as medicine: a possible preventive measure against coronavirus disease (COVID-19). Phytotherapy Research. doi: 10.1002/ptr.6770
- Fayvush G, Aleksanyan A, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze, Z. 2025a. *Epilobium angustifolium* L., *Epilobium collinum* C. C. Gmelin, *Epilobium hirsutum* L., *Epilobium montanum* L., *Epilobium palustre* L., *Epilobium parviflorum* Schreber - ONAGRACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Flora of Azerbaijan 1950-1961. volumes. I-VIII. Baku, AS of Azerbaijani SSR; (in Russian).

Gmelin CC. 1805. Flora Badensis Alsatica et confinium regionum cis et transrhenana plantas a lacu Bodamico usque ad confluentem Mosellae et Rheni sponte nascentes exhibens secundum systema sexuale cum iconibus ad naturam delineates. Vol. 1. Muelleriana, Karlsruhe.

Gmelin CC. 1806. Flora Badensis Alsatica et confinium regionum cis et transrhenana plantas a lacu Bodamico usque ad confluentem Mosellae et Rheni sponte nascentes exhibens secundum systema sexuale cum iconibus ad naturam delineates. Vol. 2. Muelleriana, Karlsruhe.

Gmelin CC. 1808. Flora Badensis Alsatica et confinium regionum cis et transrhenana plantas a lacu Bodamico usque ad confluentem Mosellae et Rheni sponte nascentes exhibens secundum systema sexuale cum iconibus ad naturam delineates. Vol. 3. Muelleriana, Karlsruhe.

Gmelin CC. 1809. Über den Einfluss der Naturwissenschaft auf das gesamte Staatswohl vorzüglich auf Land und Zeit berechnet. Muelleriana, Karlsruhe.

Gmelin CC. 1817. Nothülfe gegen Mangel aus Mißwachs oder Beschreibung wildwachsender Pflanzen welche bei Mangel der angebauten als ergiebige und gesunde Nahrung für Menschen und Thiere gebraucht werden können. Nebst Vorschlägen den Folgen des Mißwachses vorzubeugen und die Landes-Kultur zu verbessern. Carlsruhe, C. F. Müllerschen Hofbuchdruckerey.

Gmelin CC. 1826. Flora Badensis Alsatica et confinium regionum cis et transrhenana plantas a lacu Bodamico usque ad confluentem Mosellae et Rheni sponte nascentes exhibens secundum systema sexuale cum iconibus ad naturam delineates. Vol. 4. Muelleriana, Karlsruhe.

Hruby J. 1950. Die Brombeeren des Karlsruher Florengebiets. Beiträge zur naturkulichen Forschung Südwest-Deutschlands 9(2):15-25.

<https://www.lubw.baden-wuerttemberg.de/natur-und-landschaft/besonders-und-streng-geschuetzte-arten>

Ilijin MM. 1934 (English 1968). Flora of the USSR, Volume 1: Archegoniatae and Embryophyta; Akademia Nauk, Leningrad. 244 pages, 14 b/w plates, 2 maps.

Jan HA, Abbasi AM, Turi MA, Bussmann RW, Paniagua-Zambrana, NY. 2021d. *Urtica dioica* L. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_252, pp. 2067-2078.

Jan HA, Bussmann RW, Paniagua-Zambrana, NY. 2021b. *Epilobium angustifolium* L., *Epilobium latifolium* L. ssp. *latifolium* L., *Epilobium leiophyllum* Hausskn., *Epilobium royleanum* Hausskn. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_93, pp. 875-878.

Jan HA, Hussain, W, Abbasi AM, Bussmann RW, Paniagua-Zambrana, NY. 2021a. *Cichorium intybus* L. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_56, pp. 541-546.

Jan HA, Turi MA, Kunwar RM, Bussmann RW, Paniagua-Zambrana, NY. 2021c. *Malva neglecta* Wallr. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_148, pp. 1239-1246.

Jauch, F. 1938. Fremdpflanzen auf den Karlsruher Güterbahnhöfen Beiträge zur naturkulichen Forschung Südwest-Deutschlands 3(1): 76-147.

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025a. *Agaricus arvensis* Schaeff., *Agaricus campestris* L., *Agaricus sylvaticus* Schaeff., *Agaricus tabularis* Peck, *Agaricus xanthodermus* Genev., *Agaricus urinascens* (Jul. Schäff. & F.H. Møller) Singer - AGARICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025b. *Amanita caesarea* (Scop.) Pers., *Amanita rubescens* Pers.. - AMANITACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025c. *Boletus aereus* Bull., *Boletus edulis* Bull. - BOLETACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025d. *Neoboletus erythropus* (Pers.) C. Hahn - BOLETACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025e. *Suillus granulatus* (L.) Roussel, *Suillus luteus* (L.) Roussel - SUILLACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025f. *Cantharellus cibarius* Fr. - CANTHARELLACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025g. *Hydnum repandum* Fr. - HYDNACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025h. *Hypholoma fasciculare* (Huds.) P. Kumm., *Hypholoma lateritium* (Schaeff.) P. Kumm. - STROPHARIACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025i. *Lactarius deliciosus* (L. ex Fr.) S.F. Grey, *Lactarius flexuosus* (Pers.) Gray, *Lactarius piperatus* (L.) Pers., *Lactarius scrobiculatus* (Scop.) Fr., *Lactarius torminosus* (Schaeff.) Gray, *Lactarius vellereus* (Fr.) Fr., *Lactarius volemus* (Fr.) Fr., *Lactarius zonarius* (Bull.) Fr. - RUSSULACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025k. *Leccinum scabrum* (Bull.) Gray - BOLETACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025l. *Leccinum aurantiacum* (Bull.) Gray, *Leccinum scabrum* (Bull.) Gray - BOLETACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025l. *Leccinellum crocipodium* (Letell.) Della Maggiora & Trassin., *Leccinellum griseum* (Quél.) Bresinsky & Manfr. Binder - BOLETACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025m. *Macrolepiota procera* (Scop.) Springer - AGARICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Jorjadze A, Kupradze A, Batsatsashvili K, Bussmann RW. 2025n. *Sarcodon imbricatus* (L.) P. Karst. - BANKERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Khajoei Nasab F, Zeraatkar A, Mehdiyeva NP, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z. 2025. *Lythrum salicaria* L. - LYTHRACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Khaniya L, Bhattarai R, Kunwar RM, Jan HA, Hussain W, Abbasi AM, Bussmann RW, Paniagua-Zambrana NY. 2021. *Rubus ellipticus* Sm., *Rubus foliolosus* Weihe and Nees, *Rubus fruticosus* L., *Rubus irritans* Focke In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_208, pp. 1717-1734.

Kharchoufa L, Elachouri M, Bussmann RW. 2024. *Malva aegyptia* L. *Malva hispanica* L. *Malva neglecta* Wallr. *Malva nicaeensis* All. *Malva parviflora* L. *Malva pusilla* Sm, *Malva sylvestris* L. MALVACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_142. pp. 1319-1331.

Khojimatov OK, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Batsatsashvili K, Maisaia I, Sikhharulidze

- S, Tchelidze D, Moazzami Farida SH. 2025a. *Elwendia persica* (Boiss.) Pimenov & Kljuykov - BRASSICACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Khojimatov OK, Bussmann RW. 2023a. *Arctium lappa* L., *Arctium tomentosum* Mill. In: Khojimatov OK, Gaffrov Y, Bussmann RW. (eds). Ethnobiology of Uzbekistan, Springer Nature Publishing, Cham, pp. 133-139. doi: 10.1007/978-3-031-23031-8\_11
- Khojimatov OK, Bussmann RW. 2023a. *Cichorium intybus* L. In: Khojimatov OK, Gaffrov Y, Bussmann RW. (eds). Ethnobiology of Uzbekistan, Springer Nature Publishing, Cham, pp. 241-248. doi: 10.1007/978-3-031-23031-8\_22
- Khojimatov OK, Bussmann RW. 2023b. *Crataegus pontica* K. Koch, *Crataegus songarica* K. Koch, *Crataegus turkestanica* Pojark. In: Khojimatov OK, Gaffrov Y, Bussmann RW. (eds). Ethnobiology of Uzbekistan, Springer Nature Publishing, Cham, pp. . doi: 10.1007/978-3-031-23031-8\_
- Khojimatov OK, Bussmann RW. 2023c. *Urtica dioica* L. In: Khojimatov OK, Gaffrov Y, Bussmann RW. (eds). Ethnobiology of Uzbekistan, Springer Nature Publishing, Cham, pp. 747-758. doi: 10.1007/978-3-031-23031-8\_77
- Khojimatov OK, Elachouri M, Bussmann RW. 2024. *Urtica dioica* L. *Urtica urens* L. URTICACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_215. pp. 2087-2103.
- Khojimatov OK, Khamraeva Dilovar T, Bussmann RW. 2023c. *Taraxacum brevirostre* Hand.-Mazz., *Taraxacum juzepczukii* Schischk., *Taraxacum macrochlamydeum* Kovalevsk., *Taraxacum officinale* F.H. Wigg, *Taraxacum pseudominutilobum* Kovalevsk., *Taraxacum sonchoides* (D. Don) Sch. Bip. In: Khojimatov OK, Gaffrov Y, Bussmann RW. (eds). Ethnobiology of Uzbekistan, Springer Nature Publishing, Cham, pp. 699-713. doi: 10.1007/978-3-031-23031-8\_71
- Kneucker, A. 1886. Führer durch die Flora von Karlsruhe. J.J. Reiff, Karlsruhe.
- Kneucker, A. 1887. Weitere Beiträge zur Flora von Karlsruhe. Mitteilungen des Botanischen Vereins Kreis Freiburg und Land Baden 39: 339-343.
- Kneucker, A. 1888. Beiträge zur Flora von Karlsruhe. Mitteilungen des Botanischen Vereins Kreis Freiburg und Land Baden 47-48: 411-420.
- Kneucker, A. 1891. Beiträge zur Karlsruher Flora. Mitteilungen des Botanischen Vereins Kreis Freiburg und Land Baden 86: 296-299.
- Kneucker, A. 1895. Nachträge und Berichtigungen zur Flora der Umgegend von Karlsruhe mit Berücksichtigung von Funden aus anderen badischen Landesteilen und der angrenzenden bayrischen Rheinpfalz. Mitteilungen des Botanischen Vereins Kreis Freiburg und Land Baden 133-134:295-312.
- Komarov VL, Shishkin BK. 1935 (English 1964). Flora of the USSR, Volume 3: Cyperaceae-Palmae Spathiflorae, Farinosae, Lilliflorae, Akademia Nauk, Leningrad. 512 pages, 30 b/w plates, 2 maps.
- Komarov VL, Shishkin BK. 1936 (English 1970). Flora of the USSR, Volume 6: Centrospermae; Akademia Nauk, Leningrad. 731 pages, 55 b/w plates, 2 maps.
- Komarov VL, Shishkin BK. 1945 (English 1971). Flora of the USSR, Volume 11: Papilionatea, Ceasalpinoideae, Mimosoideae; Akademia Nauk, Leningrad. 327 pages, 25 b/w plates, 2 maps.
- Komarov VL, Shishkin BK. 1946 (English 1965). Flora of the USSR, Volume 12: Leguminosae: Astragalus; Akademia Nauk, Leningrad. 681 pages, 50 b/w plates, 2 maps.
- Komarov VL, Shishkin BK. 1948 (English 1972). Flora of the USSR, Volume 13: Leguminosae: Oxytropis, Hedysarum; Akademia Nauk, Leningrad. 455 pages, 26 b/w plates, 2 maps.
- Komarov VL. 1935 (English 1968). Flora of the USSR, Volume 4: Lilliflorae, Microspermae; Akademia Nauk, Leningrad. 586 pages, 44 b/w plates, 2 maps.
- Li W, Liu B, Bussmann RW, Batsatsashvili K, Kikvidze Z 2020. *Urtica cannabina* L., *Urtica dioica* L. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_146-1

Luintel S, Gyawali S, Kunwar, RTM, Abbasi AM, Bussmann RW, Paniagua-Zambrana, NY. 2021. *Taraxacum campyloides* G.E. Haglund, *Taraxacum officinale* F.H. Wigg., *Taraxacum sikkimense* Hand.-Mazz. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_422, pp. 1977-1990.

Mehdiyeva N, Aliev Muradalievich A, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze, Z. 2025j. *Tragopogon buphthalmoides* (DC.) Boiss., *Tragopogon coloratus* C. A. Meyer, *Tragopogon orientalis* L., *Tragopogon porrifolius* L. subsp. *longirostris* (Sch. Bip.) Greuter, *Tragopogon pratensis* L., *Tragopogon pterocarpus* DC., *Tragopogon reticulatus* Boiss. et Huet, *Tragopogon serotinus* Sosn.. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Alizade V, Batsatsashvili K, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Paniagua Zambrana NY, Bussmann RW. 2017b. *Primula macrocalyx* Bunge, *Primula woronowii* Losinsk. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_85

Mehdiyeva N, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017a. *Orchis caspia* Trautv., *Orchis mascula* (L.) L., *Orchis palustris* Jacq., *Orchis picta* Loisel., *Orchis simia* Lam. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_83

Mehdiyeva N, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017c. *Trapa hyrcana* Woronow. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_41

Mehdiyeva N, Alizade V, Paniagua Zambrana NY, Bussmann RW. 2017d. *Vitis sylvestris* C. C. Gmel. In: Bussmann RW. (ed.) Ethnobotany of the Caucasus, Springer International Publishing, Cham. doi: 10.1007/978-3-319-49412-8\_86

Mehdiyeva N, Alizade VM, Bussmann RW, Paniagua-Zambrana NY. 2025k. *Trapa hyrcana* Woronow - LYTHRACEAE in: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Alizade VM, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025a. *Orchis caspia* Trautv., *Orchis coriophora* L., *Orchis mascula* (L.) L., *Orchis palustris* Jacq., *Orchis picta* Loisel., *Orchis simia* Lam. - ORCHIDACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Alizade VM, Salimov R, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Khutsishvili M, Batsatsashvili K, Khutsishvili M, Fayvush G, Aleksanyan A, Maisaia I, Sikharulidze S, Tchelidze, D. 2025f. *Hylotelephium maximum* (L.) Holub, *Hylotelephium maximum* subsp. *ruprechtii* (Jalas) Dostál, *Sedum acre* L., *Sedum caucasicum* Boriss., *Sedum spurium* M.Bieb., *Sedum stoloniferum* S.G.Gmel. - CRASSULACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Alizade VM, Salimov R, Mursal N, Bussmann RW. 2025h. *Onopordum acanthium* L. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze, Z. 2025l. *Veronica anagalis* L., *Veronica anagallis-aquatica* L. - PLANTAGINACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Fayvush G, Aleksanyan A, 2025g. *Lotus corniculatus* L., *Lotus gebelia* Vent, *Lotus tenuis* Kit. - FABACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Mehdiyeva N, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Batsatsashvili K, Maisaia I, Sikharulidze S, Tchelidze, D. 2025d. *Eryngium biebersteinianum* Nevski, *Eryngium caeruleum* M.Bieb., *Eryngium nigromontanum* Boiss. et Buhse - APIACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

- Mehdiyeva N, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z, Batsatsashvili K, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Fayvush G, Aleksanyan A, 2025c. *Cydonia oblonga* L. - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Mehdiyeva N, Mursal N, Bussmann RW. 2025b. *Anthoxanthum odoratum* L. - POACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Mehdiyeva N, Salimov R, Mursal N, Bussmann RW, Paniagua Zambrana NY. 2025i. *Potamogeton crispus* L., *Potamogeton natans* L., *Potamogeton pectinatus* L., *Potamogeton pusillus* L. - POTAMOGETONACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Mehdiyeva NP, Alizade VM, Fayvush G, Aleksanyan A, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Moazzeni, H, Pirani, A, Motahhari, K, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I, Khojimatov OK. 2025b. *Cichorium intybus* L. - ASTERACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Mehdiyeva NP, Mursal N, Bussmann RW. 2025. *Fallopia convolvulus* (L.) A.Löve – POLYGONACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1
- Mehiou A, Dib I, Berraouan A, Ziyat A, Elachouri M, Bussmann RW. 2024. *Rubus idaeus* L. *Rubus ulmifolius* Schott *Rubus vulgaris* Weihe & Nees ROSACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_181. pp. 1807-1821.
- Moazzami Farida, SH, Ghorbani, A, Bussmann RW, Batsatsashvili K, Kikvidze Z, Paniagua-Zambrana NY, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze, D 2019. *Bunium persicum* (Boiss.) B. Fedtsch. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Far Eastern Europe. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77088-8\_30-1
- Nakhutsrishvili IG. 1986. Flora of Spore-producing Plants of Georgia (Summary). Tbilisi: Metsniereba (in Russian).
- Nakhutsrishvili IG. 2007. Fungi of Georgia. Tbilisi: Buneba Printi. (in Russian)
- Obel C, Bussmann RW. 2025. Occurrence and use of tree species in the Hardtwald forest stands close to the city of Karlsruhe compared to the early 19th century. Ethnobotany Research and Applications 31:30. doi: 10.32859/era.31.30.1-32.
- Oberdorfer E. 1934 Zur Geschichte der Sümpfe und Wälder zwischen Karlsruhe und Mannheim. Festschrift Jahrhundertfeier des Vereins für Naturkunde, 100/101. Gengenbach & Hahn, Mannheim.
- Ouasti I, Chaachouay N, Bussmann RW, Elachouri M. 2024b. *Raphanus raphanistrum* L. *Raphanus sativus* L. BRASSICACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_173. pp. 1725-1731.
- Ouasti I, Chaachouay N, Elachouri M, Bussmann RW, Khojimatov OK. 2024a. *Prunus armeniaca* L. *Prunus dulcis* (Mill.) D. A. Webb *Prunus cerasus* L. *Prunus domestica* L. *Prunus persica* (L.) Batsch ROSACEAE In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_168. pp. 1667-1689.
- Ouasti, M, Bussmann RW, Elachouri M. 2024c. *Spergularia diandra* (Guss.) Heldr. *Spergularia marina* (L.) Besser *Spergularia media* (L.) C.Presl *Spergularia rubra* (L.) J.Presl & C. Presl CARYOPHYLLACEAE. In: Bussmann RW, Elachouri M, Kikvidze Z. (eds). Ethnobotany of Mountain regions - Ethnobotany of Northern Africa and the Levante. Springer, Cham. doi: 10.1007/978-3-031-43105-0\_196. pp. 1949-1953.
- Paniagua Zambrana, NY, Bussmann RW, Echeverría J, Romero C. 2020b. *Chenopodium album* L., *Chenopodium hircinum* Schrad. ssp. *hircinum*, *Chenopodium murale* (L.) S. Fuentes, Uotila and Borsch, *Chenopodium quinoa* Willd. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_67-1

- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020. *Taraxacum officinale* F.H. Wigg. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_280-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020a. *Cetraria islandica* (L.) Ach. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_64-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020c. *Cydonia oblonga* Mill. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_92-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020d. *Daucus carota* L., *Daucus montanus* Humb. and Bonpl. ex Spreng. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_95-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020e. *Lathyrus odoratus* L. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_163-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020f. *Malva parviflora* L., *Malva sylvestris* L. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_179-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020g. *Portulaca oleracea* L. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_21-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020h. *Solanum melongena* L., *Solanum tuberosum* L. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_271-1
- Paniagua Zambrana, NY, Bussmann RW, Romero C. 2020i. *Sonchus asper* (L.) Hill, *Sonchus oleraceus* L. In: Paniagua Zambrana, NY, Bussmann, RW (Eds.) Ethnobotany of Mountain Regions – Ethnobotany of the Andes. Springer International Publishing, Cham. doi: 10.1007/978-3-319-77093-2\_272-1
- Paniagua-Zambrana NY, Bussmann RW, Khojimatov OK. 2025d. *Arctium lappa* L. - ASTERACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 309-316. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Bussmann RW, Kikvidze Z, Khojimatov OK. 2025D. *Persicaria amphibia* (L.) Delabre, *Polygonum aviculare* L., *Persicaria bistorta* Samp., *Persicaria hydropiper* (L.) Spach, *Persicaria maculosa* Gray - - POLYGONACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2069-2096. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Bussmann RW, Kikvidze Z, Khojimatov OK. 2025k. *Crataegus monogyna* Jacq., *Crataegus laevigata* (Poir.) DC., *Crataegus pentagyna* Waldst. - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 843-862. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Bussmann RW, Kikvidze Z, Khojimatov OK. 2025. *Cichorium intybus* L. - ASTERACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 709-726. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Bussmann RW, Kikvidze Z, Khojimatov OK. 2025f. *Berberis vulgaris* L. - BERBERIDACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 419-434. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025. *Cardamine amara* L., *Cardamine hirsuta* L., *Cardamine pratensis* L. - BRASSICACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 603-608. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025a. *Acer campestre* L., *Acer platanoides* L., *Acer pseudoplatanus* L. - SAPINDACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 37-54. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025A. *Nuphar lutea* L. - NYMPHAEACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1827-1830. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025b. *Aesculus hippocastanum* L. - SAPINDACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 107-116. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025B. *Nymphaea alba* L. - NYMPHAEACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1831-1836. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025c. *Anchusa arvensis* ssp. *orientalis* (L.) Nordh., *Anchusa azurea* Mill., *Anchusa officinalis* L. - BORAGIANCAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 239-244. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025C. *Onopordum acanthium* L. - ASTERACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1857-1862. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025E. *Portulaca oleracea* L. - PORTULACACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2113-2118. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025e. *Sorbus aria* Crantz, *Sorbus aucuparia* L., *Sorbus domestica* L., *Sorbus intermedia* (Ehrh.) Pers., *Sorbus rupicola* (Syme.) Hedl., *Sorbus torminalis* (L.) Crantz - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2703-2722. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025F. *Primula auricula* L., *Primula auriculata* Lam., *Primula elatior* Hill, *Primula farinifolia* Rupr., *Primula farinosa* L., *Primula macrocalyx* Bunge, *Primula veris* L., *Primula vulgaris* Huds, *Primula woronovii* (Standl.) Bruniera & C.M.Taylor - PRIMULACAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2143-2164. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025g. *Brassica cretica* Lam., *Brassica napus* L., *Brassica nigra* (L.) K. Koch, *Brassica oleracea* L., *Brassica rapa* L. - BRASSICACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 485-500. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025G. *Prunus amygdalus* Batsch, *Prunus armeniaca* L., *Prunus avium* (L.) L., *Prunus cerasus* L., *Prunus cerasifera* L., *Prunus domestica* L., *Prunus dulcis* D.A. Webb, *Prunus insititia* L., *Prunus laurocerasus* L., *Prunus mahaleb* L., *Prunus padus* L., *Prunus persica* L., *Prunus spinosa* L., *Prunus vachuschtii* Bregadze - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2171-2226. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025h. *Campanula persicifolia* L. - CAMPANULACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 559-568. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025H. *Pulmonaria officinalis* L. - BORAGINACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2237-2242. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025I. *Pyrus amygdaliformis* Vill., *Pyrus communis* L., *Pyrus elaeagnifolia* Pall., *Pyrus pyrastrer* (L.) Burgsd. - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds)

Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2257-2274. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025j. *Castanea sativa* Mill. - FAGACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 637-644. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025k. *Chenopodium album* L., *Chenopodium bonus-henricus* L., *Chenopodium polyspermum* L., *Chenopodium urbicum* L. - AMARANTHACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 689-704. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025K. *Quercus cerris*, *Quercus frainetto* Ten., *Quercus robur* L., *Quercus rubra* L. - FAGACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2275-2308. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025l. *Cydonia oblonga* L. - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 903-910. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025L. *Ranunculus ficaria* L., *Ranunculus neapolitanus* Ten. - RANUNCULACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2309-2330. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025m. *Daucus carota* L. - APIACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 957-968. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025M. *Robinia pseudoacacia* L. - FABACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2389-2394. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025n. *Elymus repens* (L.) Gould. - POACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1045-1051. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025N. *Rubus caesius* L., *Rubus idaeus* L., *Rubus saxatilis* L., *Rubus ulmifolius* Schott - *Rubus vulgaris* Weihe & Nees - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2428-2448. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025p. *Eryngium campestre* L., *Eryngium planum* L. - APIACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1101-1128. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025P. *Silene flos-cuculi* L., *Silene vulgaris* (Moench) Garcke - CARYOPHYLLACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2607-2634. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025q. *Fagopyrum esculentum* Moench - POLYGONACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1143-1148. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025Q. *Solanum dulcamara* L., *Solanum lycopersicum* L., *Solanum melongena* L., *Solanum nigrum* L., *Solanum tuberosum* L. - SOLANACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2643-2692. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025r. *Fagus orientalis*, Lipsky, *Fagus sylvatica* L. - FAGACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1149-1158. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025R. *Sonchus arvensis* L., *Sonchus asper* (L.) Hill., *Sonchus oleraceus* L. - ASTERACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2693-2702. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025s. *Filipendula ulmaria* L., *Filipendula vulgaris* Moench - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1175-1180. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025S. *Symphytum officinale* L. - BORAGINACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2751-2760. Eastern Europe, doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025t. *Fraxinus angustifolia* Vahl - Oleaceae, *Fraxinus excelsior* L., *Fraxinus ornus* L. - OLEACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1225-1234. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025T. *Trapa natans* L. - LYTHRACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp.2845-2848. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025U. *Urtica dioica* L., *Urtica urens* L. - URTICACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2931-2948. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025v. *Lotus corniculatus* L. - FABACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1641-1648. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025V. *Vaccinium myrtillus* L., *Vaccinium oxycoccos*, *Vaccinium uliginosum* L., *Vaccinium vitis-idaea* L. - ERICACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 2949-2968. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025w. *Lythrum salicaria* L. - LYTHRACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1655-1660. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025W. *Vitis labrusca* L., *Vitis vinifera* L. - VITACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 3099-3116. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025x. *Malus baccata*, *Malus domestica* Borkh, *Malus sylvestris* (L.) Miller, *Malus sieversii* M. Roem. - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1665-1682. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025y. *Malva neglecta* Wallr., *Malva pusilla* Sm., *Malva sylvestris* L. - MALVACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1683-1696. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW, Kikvidze, Z. 2025z. *Mespilus germanica* L. - ROSACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 1781-1786. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW. 2025a. *Butomus umbellatus* L. - BUTOMACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 537-540. doi: 10.1007/978-3-030-98744-2\_XXX-1

Paniagua-Zambrana NY, Bussmann RW. 2025b. *Carlina acaulis* L. - ASTERACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham.pp. 609-616. doi: 10.1007/978-3-030-98744-2\_XXX-1

- Paniagua-Zambrana NY, Bussmann RW. 2025c. *Hylotelephium maximum* (L.) Holub. - CRASSULACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham. pp. 2589-2596. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Bussmann RW. 2025u. *Lathyrus aphaca*, *Lathyrus cicera* L., *Lathyrus tuberosus* L.- FABACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham. pp. 1555-1564. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Jan HA, Bussmann RW. 2025o. *Epilobium angustifolium* L., *Epilobium collinum* C. C. Gmelin, *Epilobium hirsutum* L., *Epilobium montanum* L., *Epilobium palustre* L., *Epilobium parviflorum* Schreber - ONAGRACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham. pp. 1055-1062. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paniagua-Zambrana NY, Solis, V, Bussmann RW. 2025O. *Sagittaria sagittifolia* L. - ASLISMATACEAE. In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds) Ethnobotany of the Mountain Regions of Eastern Europe, Springer, Cham. pp. 2477-2480. doi: 10.1007/978-3-030-98744-2\_XXX-1
- Paudel, HR, Poudel, P, Kunwar RM, Sher H, Ur Rahman I, Abbasi AM, Bussmann RW, Paniagua-Zambrana, NY. 2021. *Aesculus indica* (Wall. ex Cambess.) Hook. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_13, pp. 163-170.
- Ranjitkar, S, Sujakhu, NM, Kunwar RM, Sher H, Ur Rahman I, Hussain, W, Bussmann RW, Paniagua-Zambrana, NY. 2021. *Morchella conica* Pers. ex Fr., *Morchella esculenta* (Fr.) I.R. Hazll In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_152, pp. 1279-1294.
- Seubert M, Klein L. 1891. Exkursionsflora für das Grossherzogtum Baden, Ulmer, Stuttgart.
- Seubert M. 1885. Exkursionsflora für das Großherzogthum Baden. - 4. ed. Eugen Ulmer, Stuttgart.
- Sher H, Bussmann RW, Paniagua-Zambrana, NY. 2021. *Fraxinus hookeri* Wenzig, *Fraxinus xanthoxyloides* (G. Don) DC. In: Kunwar. RM, Sher H, Bussmann RW. (eds). Ethnobotany of the Himalayas. Springer, Cham. doi: 10.1007/978-3-030-57408-6\_104, pp. 951-956.
- Shishkin BK, Boborov EG. 1949 (English 1974). Flora of the USSR, Volume 14: Geraniales, Sapindales, Rhamnales; Akademia Nauk, Leningrad. 616 pages, 39 b/w plates, 2 maps.
- Shishkin BK, Boborov EG. 1952 (English 1967). Flora of the USSR, Volume 18: Metachlamydeae; Akademia Nauk, Leningrad. 600 pages.
- Shishkin BK, Boborov EG. 1957 (English 1972). Flora of the USSR, Volume 24: Dipsacaceae, Cucurbitaceae, Campanulaceae; Akademia Nauk, Leningrad. 370 pages, 27 b/w plates, 2 maps.
- Shishkin BK, Boborov EG. 1962 (English 1996). Flora of the USSR, Volume 27: Compositae, Tribes Anthemidea, Senecioneae, Calanduleae, Arctolidae; Akademia Nauk, Leningrad. 913 pages.
- Shishkin BK, Bobrov EG. 1937 (English 1970). Flora of the USSR, Volume 7: Ranales to Rhoedales; Akademia Nauk, Leningrad. 615 pages.
- Shishkin BK. 1950 (English 1973). Flora of the USSR, Volume 16: Umbelliflorae; Akademia Nauk, Leningrad. 478 pages, 37 b/w plates, 2 maps.
- Shishkin BK. 1951 (English 1974). Flora of the USSR, Volume 17: Umbelliflorae (continued) Peucedaneae-Dauceae & Nyassaceae, Cornaceae; Akademia Nauk, Leningrad. 285 pages, 25 plates with b/w line drawings; 2 b/w fold-out maps.
- Wang, Z., Liu, B, Bussmann, RW 2020. *Acer tataricum* L. subsp. *ginnala* (Maxim.) Wesmael, *Acer truncatum* Bunge. In: Batsatsashvili K, Kikvidze Z, Bussmann RW. (eds). Ethnobotany of Mountain Regions Central Asia and Altai. Springer International Publishing International Publishing. doi: 10.1007/978-3-319-77087-1\_10-1
- Wirth V. 2008. Naturschutz-Praxis, Artenschutz 13: Rote Liste und Artenverzeichnis der Flechten Baden-Württembergs – Stand 2008, LUBW Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg, Karlsruhe
- Wu Z, Raven PH, Hong D. (eds). 1994–2013. Flora of China. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis

Yuzepchuk SV, Shishkin BK. 1953 (English 1974). Flora of the USSR, Volume 19: Tubiflorae; Akademia Nauk, Leningrad. 563 pages, 40 b/w plates, 2 maps.

Yuzepchuk SV. 1939 (English 1971). Flora of the USSR, Volume 9: Rosales and Sarraceniales; Akademia Nauk, Leningrad. 425 pages, 30 plates with b/w line drawings, 2 b/w fold-out maps.

Zeraatkar A, Khajoei Nasab F, Bussmann RW, Paniagua-Zambrana NY, Khojimatov OK, Mehdiyeva N, Alizade VM, Mursal N, Aliev Muradalievich A, Fayvush G, Aleksanyan A, Kikvidze Z, Müller L, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I. 2025. *Crataegus caucasica* K. Koch, *Crataegus curvisepala* Lindm., *Crataegus kyrtostyla* Fingerh., *Crataegus microphylla* C. Koch, *Crataegus monogyna* Jacq., *Crataegus nigra* Waldst. & Kit., *Crataegus orientalis* Pall. ex Bieb., *Crataegus pentagyna* Waldst., *Crataegus pontica* C. Koch - ROSACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

Zeraatkar A, Khajoei Nasab F, Mehdiyeva NP, Alizade VM, Ramazanova Abakarovna, B, Aliev Muradalievich A, Mursal N, Bussmann RW, Paniagua-Zambrana NY, Khutsishvili M, Kikvidze Z, Müller L, Khojimatov OK, Batsatsashvili K, Sikharulidze S, Tchelidze D, Maisaia I, Fayvush G, Aleksanyan A, 2025. *Berberis iberica* Steven, *Berberis integerrima* Bunge, *Berberis vulgaris* L. - BERBERIDACEAE In: Bussmann RW, Paniagua-Zambrana NY, Kikvidze Z. (eds). Ethnobotany of Mountain Regions - Ethnobotany of the Caucasus, Springer, Cham. doi: 10.1007/978-3-319-50009-6\_XXX-1

## Appendix - Preliminary Checklist of the Flora of Karlsruhe

This list contains 2587 species, subspecies and hybrids of flowering plants and ferns in the region of Karlsruhe vouchered in KR.

1773 species present 2025 (68,53%)

815 only collected prior to 2000, current presence not confirmed (31,5%)

435 only collected in the last decades (16,81%)

## Color code:

Species collected already in the 18, 19 or 20 centuries and still present or likely present

New addition to the flora: Species collected only in the last decades (since 1990) 435

Species with historic collection, no longer registered at present (not collected after 2000) 815

Species	Year of first collection	Year of last collection
<i>Abies alba</i> Mill.	1852	2025
<i>Abies cephalonica</i> Loudon	2025	
<i>Abies concolor</i> (Gord.) Hildebr.	1997	2000
<i>Abutilon theophrasti</i> Medik.	1936	2015
<i>Acer buergerianum</i> Miq.	2025	
<i>Acer campestre</i> L.	1918	2025
<i>Acer capadocicum</i> Gled.	1935	1943
<i>Acer carpinifolium</i> Siebert & Zucc.	1936	
<i>Acer circinatum</i> Pursh.	1935	1948
<i>Acer creticum</i> L.	1786	
<i>Acer crispum</i> Moench	1786	
<i>Acer japonicum</i> Thunb.	1934	2025
<i>Acer monspessulanum</i> L.	1786	1935
<i>Acer negundo</i> L.	1786	2025
<i>Acer palmatum</i> Thunb.	1935	2025
<i>Acer pictum</i> Thunb.	1935	1942
<i>Acer platanoides</i> L.	1786	2025
<i>Acer pseudoplatanus</i> L.	1790	2025
<i>Acer rubrum</i> L.	2025	
<i>Acer saccharinum</i> L.	1786	2025
<i>Acer tataricum</i> L.	1997	2025
<i>Achillea filipendulina</i> Lam.	2025	
<i>Achillea ligustica</i> All.	1935	1937
<i>Achillea millefolium</i> L.	1805	2025
<i>Achillea nobilis</i> L.	1907	1969
<i>Achillea ptarmica</i> L.	1790	2019
<i>Achillea seidlitzii</i> J.Presl & C.Presl	1936	2020
<i>Achillea setacea</i> W & K	1813	1903
<i>Aconitum napellus</i>	1799	2013
<i>Acorus calamus</i> L.	1843	1993
<i>Actaea spicata</i> L.	1790	2025
<i>Adonis aestivalis</i> L.	1790	1989
<i>Adonis annua</i> L.	2019	
<i>Adonis flammea</i> Jacq.	1862	1899
<i>Adoxa moschatellina</i> L.	1899	2022
<i>Aegilops cylindrica</i> Host	2020	
<i>Aegilops truncata</i> Ledeb. ex Trautv.	2020	
<i>Aegonychon purpureocaeruleum</i> (L.) Holub	1979	2025
<i>Aegopodium podagraria</i> L.	1790	2025
<i>Aesculus carnea</i> Zeyh.	2025	
<i>Aesculus flava</i> Ait.	1819	1935
<i>Aesculus hippocastanum</i> L.	1790	2025
<i>Aesculus parviflora</i> Walter	1808	2025
<i>Aesculus pavia</i> L.	1786	1930

<i>Aethionema saxatilis</i> (L.) R.Br.	1884	1891
<i>Aethusa cynapium</i> L.	1790	2025
<i>Agapanthus africanus</i> (L.) Hoffmanns.	2025	
<i>Agapanthus praecox</i> Willd.	2025	
<i>Agastache foeniculum</i> (Oursh) Kuntze	2025	
<i>Agastache rugosa</i> (Fisch. & C.A. Mey.) Kuntze	2025	
<i>Ageratum houstonianum</i> Mill.	2025	
<i>Agrimonia eupatoria</i> L.	1790	2025
<i>Agrimonia procera</i> Wallr.	2003	2013
<i>Agrostemma githago</i> L.	1791	2025
<i>Agrostis canina</i> L.	1894	2012
<i>Agrostis capillaris</i> L.	1843	2025
<i>Agrostis gigantea</i> Roth	1894	2014
<i>Agrostis stolonifera</i> L.	1897	2015
<i>Agrostis vinealis</i> Schreb.	1971	2015
<i>Ailanthus altissima</i> (Mill.) Swingle	1790	2025
<i>Aira caryophyllea</i> L.	1837	2022
<i>Aira praecox</i> L.	1814	2022
<i>Ajuga chamaepitys</i> (L.) Schreb.	1835	1979
<i>Ajuga genevensis</i> L.	1885	2022
<i>Ajuga reptans</i> L.	1790	2025
<i>Akebia quinata</i> (Thunb. ex Houtt.) Decne.	2025	
<i>Alcea rosea</i> L.	2000	2025
<i>Alchemilla arvensis</i> (L.) Scop.	1790	2023
<i>Alchemilla australis</i> (Rydb.) BOMBLE	1999	
<i>Alchemilla glabra</i> Neygenf.	2014	
<i>Alchemilla mollis</i> (Buser) Rothm.	2009	
<i>Alchemilla vulgaris</i> L.	1790	2008
<i>Alchemilla xanthochlora</i> Rothm.	1993	2013
<i>Alisma gramineum</i> Lej.	1820	1998
<i>Alisma lanceolatum</i> With.	1857	2023
<i>Alisma plantago-aquatica</i> L.	1790	2007
<i>Alkekengi officinarum</i> Moench	1835	2025
<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	1814	2025
<i>Allium angulosum</i> L.	1835	1993
<i>Allium carinatum</i> L.	1936	
<i>Allium cristophii</i> Trautv.	2025	
<i>Allium cyaneum</i> Regel	1936	
<i>Allium moly</i> L.	1897	
<i>Allium oleraceum</i> L.	1843	2021
<i>Allium parviflorum</i> Viv.	1894	
<i>Allium rotundum</i> L.	1886	1897
<i>Allium sativum</i> L.	2014	2025
<i>Allium schoenoprasum</i> L.	1887	2025
<i>Allium scorodoprasum</i> L.	2009	2025
<i>Allium sphaerocephalon</i> L.	2020	
<i>Allium ursinum</i> L.	1834	2025
<i>Allium vineale</i> L.	1790	2021
<i>Alnus cordata</i> (Loisel.) Duby	1997	
<i>Alnus glutinosa</i> (L.) P. Gaertn.	1790	2023
<i>Alnus incana</i> (L.) Moench.	1843	2025
<i>Alnus pubescens</i> Tausch	1843	1899
<i>Alopecurus aequalis</i> Sobol.	1791	2013
<i>Alopecurus geniculatus</i> L.	1825	1996
<i>Alopecurus myosuroides</i> Huds.	1830	2015
<i>Alopecurus pratensis</i> L.	1866	2025
<i>Alopecurus rendlei</i> Eig	1935	1939
<i>Alopecurus utriculatus</i> Banks & Sol.	1935	
<i>Alyssoides utriculata</i> (L.) Med.	1896	2025

<i>Alyssum alyssoides</i> (L.) L.	1790	2016
<i>Alyssum montanum</i> L.	1792	1893
<i>Amaranthus albus</i> L.	1790	2019
<i>Amaranthus australis</i> (A. Gray) Sauer	2008	
<i>Amaranthus blitoides</i> S. Watson	1900	2001
<i>Amaranthus blitum</i> L.	1790	2025
<i>Amaranthus bouchonii</i> Thell.	1987	2006
<i>Amaranthus caudatus</i> L.	1790	2019
<i>Amaranthus crispus</i> Terracc.	1950	
<i>Amaranthus cruentus</i> L.	1790	2019
<i>Amaranthus deflexus</i> L.	1925	2025
<i>Amaranthus emarginatus</i> Moq. ex Uline & W. L. Bray	1990	2021
<i>Amaranthus graecizans</i> L.	1900	2015
<i>Amaranthus hybridus</i> L.	1790	2025
<i>Amaranthus hypochondriacus</i> L.	1790	1936
<i>Amaranthus powellii</i> S. Watson	1988	2019
<i>Amaranthus retroflexus</i> L.	1790	2025
<i>Amaranthus spinosus</i> L.	1790	
<i>Amaranthus viridis</i> L.	1902	2025
<i>Ambrosia artemisiifolia</i> L.	1792	2025
<i>Ambrosia psilostachya</i> DC.	1836	2013
<i>Amelanchier lamarckii</i> F. G. Schroed.	2001	2025
<i>Amelanchier ovalis</i> Medik.	1790	
<i>Amethystea caerulea</i> L.	1790	2025
<i>Ammi majus</i>	1893	2025
<i>Amorpha fruticosa</i> L.	2013	2014
<i>Anacamptis coriophora</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase	1843	1899
<i>Anacamptis morio</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase	1790	2015
<i>Anacamptis palustris</i> (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase	1900	1944
<i>Anacamptis pyramidalis</i> (L.) Rich.	1968	2023
<i>Anacyclus clavatus</i> (Desf.) Pers.	1814	1935
<i>Anchusa arvensis</i> (L.) M. Bieb.	1790	2025
<i>Anchusa azurea</i> Mill.	1889	1932
<i>Anchusa hispida</i> Forsk.	1903	1905
<i>Anchusa ochroleuca</i> M. Bieb.	1932	1935
<i>Anchusa officinalis</i> L.	1791	2009
<i>Anemone nemorosa x ranunculoides</i>	1880	1947
<i>Anemonoides blanda</i> (Schott & Kotschy) Holub	2002	2025
<i>Anemonoides nemorosa</i> (L.) Holub.	1814	2025
<i>Anemonoides ranunculoides</i> (L.) Holub	1837	2021
<i>Anemonoides sylvestris</i> (L.) Galasso, Banfi & Soldano	1790	1990
<i>Anethum graveolens</i> L.	1938	2005
<i>Angelica archangelica</i>	1790	1930
<i>Angelica sylvestris</i> L.	1790	2011
<i>Antennaria dioica</i> (L.) P. Gaertn.	1886	1899
<i>Anthemis arvensis</i> L.	1897	2016
<i>Anthemis cotula</i> L.	1884	1944
<i>Anthemis marschalliana</i>	2025	
<i>Anthemis ruthenica</i> M. Bieb.	1808	2020
<i>Anthemis triumfettii</i> All.	1938	1943
<i>Anthericum liliago</i> L.	1840	1926
<i>Anthericum ramosum</i> L.	1828	2022
<i>Anthoxanthum aristatum</i> Boiss.	1934	2018
<i>Anthoxanthum odoratum</i> L.	1790	2025
<i>Anthriscus caucalis</i> M. Bieb.	1790	2025
<i>Anthriscus cerefolium</i> Hoffm.	2011	2025
<i>Anthriscus nitida</i> (Wahlenb.) Garcke	1928	1934

<i>Anthriscus sylvestris</i> (L.) Hoffm.	1790	<b>2025</b>
<i>Anthyllis vulneraria</i> L.	1890	2023
<i>Antirrhinum majus</i> L.	1790	<b>2025</b>
<i>Apera interrupta</i> (L.) P. Beauv.	2018	
<i>Apera spica-venti</i> (L.) P. Beauv.	1830	<b>2025</b>
<i>Apium graveolens</i> L.	1878	<b>2025</b>
<i>Apium nodiflorum</i> (L.) Lag.	1976	
<i>Apocynum cannabinum</i> L.	1874	1880
<i>Aquilegia vulgaris</i> L.	1888	2023
<i>Arabia alpina</i> L.	1808	1885
<i>Arabidopsis arenosa</i> (L.) Lawalrée	1790	1993
<i>Arabidopsis halleri</i> (L.) Hayek	1885	1936
<i>Arabidopsis thaliana</i> (L.) Heynh.	1791	<b>2025</b>
<i>Arabis caucasica</i> Willd.	2000	2010
<i>Arabis hirsuta</i> (L.) Scop.	1791	2017
<i>Arabis planisiliqua</i> Pers ex Rchb.	1938	1939
<i>Arabis procurrens</i> Waldst. & Kit.	1818	1937
<i>Arabis recta</i> L.	1843	
<i>Arabis serpyllifolia</i> Vill.	2002	
<i>Arctium lappa</i> L.	1790	<b>2025</b>
<i>Arctium minus</i> (Hill) Bernh.	1790	2023
<i>Arctium tomentosum</i> Mill.	1989	2015
<i>Arenaria serpyllifolia</i> L.	1790	<b>2025</b>
<i>Arenaria serpyllifolia</i> ssp. <i>leptocladus</i> (Rchb.) Nyman	1976	2020
<i>Argemone mexicana</i> L.	1790	1940
<i>Argentina anserina</i> (L.) Rydb.	1979	<b>2025</b>
<i>Argyranthemum frutescens</i> (L.) Sch. Bip.	2025	
<i>Aria edulis</i> (Willd.) M.Roem. (Sorbus aria (L.) Crantz)	1899	<b>2025</b>
<i>Aristolochia clematitis</i> L.	1790	<b>2025</b>
<i>Armeria maritima</i> (Willd.) Mild.	1936	
<i>Armeria pseudarmeria</i> (Murray) Mansf.	2025	
<i>Armoracia rusticana</i> G. Gaertn. B. Mey. & Scherb.	1790	2019
<i>Arnoseris minima</i> (L.) Schweigg. & Korte	1800	1969
<i>Aronia melanocarpa</i> (Michx.) Elliott	1790	<b>2025</b>
<i>Arrhenatherum elatius</i> (L.) P. Beauv. ex J. Presl & C. Presl	1931	<b>2025</b>
<i>Artemisia abrotanum</i> L.	1791	2021
<i>Artemisia absinthium</i> L.	1935	1936
<i>Artemisia annua</i> L.	1813	1925
<i>Artemisia austriaca</i> Jacq.	1904	1937
<i>Artemisia biennis</i> Willd.	1806	1940
<i>Artemisia campestris</i> L.	1863	2020
<i>Artemisia dracunculus</i> L.	1791	1927
<i>Artemisia pontica</i> L.	1843	1936
<i>Artemisia scoparia</i> Waldst. & Kit.	2007	2018
<i>Artemisia verlotiorum</i> Lamotte	1997	2021
<i>Artemisia vulgaris</i> L.	1790	<b>2025</b>
<i>Arum italicum</i> Mill.	2010	2021
<i>Arum maculatum</i> L.	1790	<b>2025</b>
<i>Aruncus dioicus</i> (Walter) Fernald	1792	1899
<i>Asclepias syriaca</i> L.	2006	
<i>Asparagus officinalis</i> L.	1940	<b>2025</b>
<i>Asperugo procumbens</i> L.	1792	1944
<i>Asperula arvensis</i> L.	1843	1905
<i>Asperula tinctoria</i> L.	1806	
<i>Asplenium adiantum-nigrum</i> L.	1886	2020
<i>Asplenium ceterach</i> L.	1855	2022
<i>Asplenium ruta-muraria</i> L.	1790	<b>2025</b>
<i>Asplenium scolopendrium</i> L. (	1886	2023
<i>Asplenium septentrionale</i> (L.) Hoffm.	1855	2021
<i>Asplenium septentrionale</i> x <i>A. trichomanes</i> ssp.	1790	

<i>quadrivalens</i>		
<i>Asplenium trichomanes</i> L.	1790	<b>2025</b>
<i>Asplenium x alternifolium</i> Wulfen	2007	
<i>Asplenium x murbeckii</i> Dörfl.	2007	2012
<i>Aster amellus</i> L.	1899	<b>2025</b>
<i>Aster tradescanti</i> Hoffm.	2011	
<i>Astilbe japonica</i> (C. Morren & Decne.) A. Gray	<b>2025</b>	
<i>Astragalus glycyphyllos</i> L.	1790	<b>2025</b>
<i>Athyrium filix-femina</i> (L.) Roth	1840	<b>2025</b>
<i>Atriplex dimorphostegia</i> Kar. & Kit.	1903	
<i>Atriplex littoralis</i> L.	1900	
<i>Atriplex micrantha</i> Ledeb.	1988	2019
<i>Atriplex oblongifolia</i> Waldst. & Kit.	1790	2014
<i>Atriplex patula</i> L.	1930	<b>2025</b>
<i>Atriplex prostrata</i> Boucher ex DC.	1790	2013
<i>Atriplex rosea</i> L.	1790	1884
<i>Atriplex sagittata</i> Borkh.	2006	<b>2025</b>
<i>Atriplex tatarica</i> L.	1942	
<i>Atropa belladonna</i> L.	1846	2014
<i>Aubrieta deltoidea</i> DC	1826	<b>2025</b>
<i>Aucuba japonica</i> Thunb.	<b>2025</b>	
<i>Aurinia petraea</i> (Aud.) Schur.	1814	1887
<i>Aurinia saxatilis</i> Desv.	1788	<b>2025</b>
<i>Aurinia sinuata</i> (L.) Med.	1817	1885
<i>Avena barbata</i> Pott ex Link	1935	2008
<i>Avena brevis</i> Roth	1892	1909
<i>Avena byzantina</i> K. Koch	1937	
<i>Avena fatua</i> L.	1934	2015
<i>Avena nuda</i> L.	1909	
<i>Avena sativa</i> L.	1897	1937
<i>Avenella flexuosa</i> (L.) Drejer	1790	2014
<i>Avenula pubescens</i> (Huds.) Dumort	1894	<b>2025</b>
<i>Azolla filiculoides</i> Lam.	1949	<b>2025</b>
<i>Badsia scoparia</i> (L.) A.J. Schott	1810	1935
<i>Ballota nigra</i> L.	1790	<b>2025</b>
<i>Barbarea intermedia</i> Boreau	2006	
<i>Barbarea stricta</i> Andr.	1932	2015
<i>Barbarea verna</i> (Mill.) Asch.	1814	1948
<i>Barbarea vulgaris</i> W.T. Aiton	1791	<b>2025</b>
<i>Bassia hyssopifolia</i> (Pall.) Kuntze	1900	
<i>Bassia scoparia</i> (L.) A.J. Schott	1934	1936
<i>Beaucarnea recurvata</i> (K. Koch & Fintelm.) Lehm.	<b>2025</b>	
<i>Bellis perennis</i> L.	1790	<b>2025</b>
<i>Berberis aquifolium</i> Pursh.	1894	<b>2025</b>
<i>Berberis bealei</i> Fortune	<b>2025</b>	
<i>Berberis chinensis</i> Poir.	1927	
<i>Berberis empetrifolia</i> Lam.	<b>2025</b>	
<i>Berberis julianae</i> C.K. Schneid.	<b>2025</b>	
<i>Berberis oiwakensis</i> (Hayata) Laferr.	<b>2025</b>	
<i>Berberis thunbergii</i> DC.	1949	<b>2025</b>
<i>Berberis vulgaris</i> L.	1790	<b>2025</b>
<i>Bergenia crassifolia</i> (L.) Fritsch	<b>2025</b>	
<i>Berteroa incana</i> (L.) DC.	1883	<b>2025</b>
<i>Berula erecta</i> (Huds.) Coville	1804	2021
<i>Beta vulgaris</i> L.	1846	1997
<i>Betonica officinalis</i> L.	1790	2012
<i>Betula pendula</i> Roth	1845	<b>2025</b>
<i>Betula pubescens</i> Ehrh.	1988	2012
<i>Bidens aurea</i> Sherff.	<b>2025</b>	

<i>Bidens biternata</i> (Lour.) Merr. & Sherff	1840	
<i>Bidens cernua</i> L.	1883	2018
<i>Bidens connata</i> Muhl. ex Willd.	1790	1993
<i>Bidens frondosa</i> L.	1790	2019
<i>Bidens pilosa</i> L.	1938	2025
<i>Bidens tripartita</i> L.	1803	2025
<i>Biscutella auriculata</i> L.	1792	1884
<i>Blackstonia acuminata</i> (W. D. J. Koch & Ziz) Domin	1830	2009
<i>Blackstonia perfoliata</i> (L.) Huds.	1859	1988
<i>Blysmus compressus</i> (L.) Panz. ex Link	1899	2009
<i>Bolboschoenus maritimus</i> (L.) Palla	1899	2014
<i>Borago officinalis</i> L.	1792	2025
<i>Bothriochloa ischaemum</i> (L.) Keng	1857	2015
<i>Botrychium lunaria</i> (L.) Sw.	1886	2003
<i>Bouteloua curtipendula</i>	2025	
<i>Bowlesia incana</i> R & P.	1884	
<i>Brachypodium distachyon</i> (L.) P. Beauv.	1939	1941
<i>Brachypodium pinnatum</i> (L.) P. Beauv.	1838	2021
<i>Brachypodium sylvaticum</i> (Huds.) P. Beauv.	1814	2023
<i>Brassica carinata</i> A. Braun	1840 TYPE	
<i>Brassica elongata</i> Ehrh.	1897	1914
<i>Brassica juncea</i> (L.) Czern.	1790	2010
<i>Brassica napus</i>	1790	2025
<i>Brassica nigra</i> (L.) W. D. J. Koch	1886	2025
<i>Brassica oleracea</i> L.	1790	2007
<i>Brassica oleracea</i> var. <i>sabellica</i> L.	2025	
<i>Brassica rapa</i> L.	1933	2025
<i>Briza maxima</i> L.	1850	1942
<i>Briza media</i> L.	1840	2025
<i>Briza minor</i> L.	1898	2025
<i>Bromus arvensis</i> L.	1825	2025
<i>Bromus benekenii</i> (Lange) Trimen	1790	2018
<i>Bromus carinatus</i> Hook. & Arn.	1935	2022
<i>Bromus catharticus</i> Vahl	1884	2025
<i>Bromus commutatus</i> Schrad.	1893	2020
<i>Bromus diandrus</i> Roth	1935	2023
<i>Bromus erectus</i> Huds.	1800	2022
<i>Bromus grossus</i> Desf. ex DC.	1814	2006
<i>Bromus hordeaceus</i> L.	1885	2025
<i>Bromus inermis</i> Leyss.	1843	2025
<i>Bromus japonicus</i> ssp. <i>japonicus</i>	1899	2020
<i>Bromus lanceolatus</i> Roth	1934	1996
<i>Bromus madritensis</i> L.	1935	2018
<i>Bromus racemosus</i> L.	1894	2009
<i>Bromus ramosus</i> Huds.	1885	2014
<i>Bromus riparius</i> Rehm.	2018	2020
<i>Bromus scoparius</i> L.	1937	
<i>Bromus secalinus</i> L.	1864	2020
<i>Bromus squarrosus</i> L.	1893	2022
<i>Bromus sterilis</i> L.	1866	2025
<i>Bromus tectorum</i> L.	1825	2025
<i>Brugmansia arborea</i> (L.) Sweet	1809	2025
<i>Brunnera macrophylla</i> (Adams) I. M. Johnst.	2000	2025
<i>Bryonia alba</i> L.	1790	1935
<i>Bryonia cretica</i> ssp. <i>dioica</i> (Jacq.) Tutin	1853	2025
<i>Buddleja alternifolia</i> Maxim.	2025	
<i>Buddleja davidii</i> Franch.	1922	2025
<i>Buglossoides arvensis</i> (L.) I. M. Johnst.	1935	2023
<i>Bunias erucago</i> L.	1790	

<i>Bunias orientalis</i> L.	1790	<b>2025</b>
<i>Bunium bulbocastanum</i> L.	1790	1990
<i>Bupleurum falcatum</i> L.	1899	1930
<i>Bupleurum lancifolium</i> Hornem.	1930	
<i>Bupleurum nodiflorum</i> Sibth. & Sm.	1899	
<i>Bupleurum rotundifolium</i> L.	2019	
<i>Bupleurum veronense</i> Turra	1893	
<i>Butomus umbellatus</i> L.	1790	2021
<i>Buxus sempervirens</i> L.	1791	<b>2025</b>
<i>Calamagrostis arundinacea</i> (L.) Roth	1790	1934
<i>Calamagrostis canescens</i> (Weber) Roth	1894	1995
<i>Calamagrostis epigejos</i> (L.) Roth	1790	<b>2025</b>
<i>Calamagrostis pseudophragmites</i> (Haller f.) Koeler	1894	1998
<i>Calceolaria scabiosifolia</i> Sims.	1831	1910
<i>Calendula arvensis</i> L.	1805	1961
<i>Calendula officinalis</i> L.	1805	<b>2025</b>
<i>Calepina irregularis</i> (Asso) Thell.	1997	2019
<i>Calibrachoa</i> (cultigen)	<b>2025</b>	
<i>Callicarpa americana</i> L.	<b>2025</b>	
<i>Callistephus chinensis</i> (L.) Nees	2009	<b>2025</b>
<i>Callitriche cophocarpa</i> Sendtner	1947	
<i>Callitriche hamulata</i> Kütz. ex W. D. J. Koch	1790	1994
<i>Callitriche hermaphroditica</i> L.	1989	2002
<i>Callitriche obtusangula</i> Le Gall	1934	2007
<i>Callitriche palustris</i> L.	1898	2013
<i>Callitriche platycarpa</i> Kütz.	1879	1916
<i>Callitriche stagnalis</i> Scop.	1899	1944
<i>Calluna vulgaris</i> (L.) Hill	1790	<b>2025</b>
<i>Caltha palustris</i> L.	1798	<b>2025</b>
<i>Calycanthus floridus</i>	1812	<b>2025</b>
<i>Calystegia sepium</i> (L.) R. Br.	1794	<b>2025</b>
<i>Camelina alyssum</i> Thell.	1803	1940
<i>Camelina sativa</i> (L.) Crantz	1897	2021
<i>Camellia japonica</i> L.	<b>2025</b>	
<i>Campanula glomerata</i> L.	1888	2013
<i>Campanula patula</i> L.	1790	2022
<i>Campanula persicifolia</i> L.	1790	<b>2025</b>
<i>Campanula portenschlagiana</i> Roem. & Schult.	2007	<b>2025</b>
<i>Campanula poscharskyana</i> Degen	2005	<b>2025</b>
<i>Campanula rapunculoides</i> L.	1821	2021
<i>Campanula rapunculus</i> L.	1886	2023
<i>Campanula rotundifolia</i> L.	1843	2014
<i>Campanula trachelium</i> L.	1790	2014
<i>Campsis radicans</i>	1791	<b>2025</b>
<i>Canna indica</i> L.	<b>2025</b>	
<i>Cannabis sativa</i> L.	1938	<b>2025</b>
<i>Capsella bursa-pastoris</i> Medik	1790	<b>2025</b>
<i>Capsella rubella</i> Reut.	1825	<b>2025</b>
<i>Capsicum annuum</i> L.	1792	<b>2025</b>
<i>Cardamine amara</i> L.	1787	2023
<i>Cardamine bulbifera</i> Crantz	1790	2021
<i>Cardamine flexuosa</i> With.	1790	2020
<i>Cardamine hirsuta</i> L.	1787	<b>2025</b>
<i>Cardamine impatiens</i> L.	1814	<b>2025</b>
<i>Cardamine pratensis</i> L.	1790	<b>2025</b>
<i>Carduus acanthoides</i> L.	1790	2017
<i>Carduus crispus</i> L.	1844	<b>2025</b>
<i>Carduus nutans</i> L.	1976	2000
<i>Carex acuta</i> L.	1790	2015
<i>Carex acutiformis</i> Ehrh.	1843	2015

<i>Carex alba</i> Scop.	1945	2013
<i>Carex appropinquata</i> Schumach.	1899	
<i>Carex bohemica</i> Schreb.	1899	
<i>Carex brizoides</i> L.	1790	2015
<i>Carex brizoides x remota</i>	1891	1935
<i>Carex caryophyllea</i> Latourr.	1837	2012
<i>Carex cespitosa</i> L.	1945	1969
<i>Carex curvata</i> Knaf	2020	
<i>Carex davalliana</i> Sm.	1843	1932
<i>Carex demissa</i> Hornem.	1790	2012
<i>Carex demissa x flava</i>	1896	
<i>Carex diandra</i> Schrank	1837	1944
<i>Carex diandra x paniculata</i>	1913	
<i>Carex digitata</i> L.	1843	2009
<i>Carex distans</i> L.	1836	2020
<i>Carex disticha</i> Huds.	1882	2022
<i>Carex divulsa</i> Stokes	1899	2021
<i>Carex echinata</i> Murray	1899	
<i>Carex elata</i> All.	1854	2012
<i>Carex elongata</i> L.	1837	2020
<i>Carex flacca</i> Schreb.	1790	2022
<i>Carex flava</i> L.	1889	2018
<i>Carex flava x viridula</i>	1891	
<i>Carex grayi</i> J. Carey	2015	
<i>Carex hirta</i> L.	1790	2025
<i>Carex hostiana</i> DC.	1899	1944
<i>Carex lepidocarpa</i> Tausch	1899	1944
<i>Carex lepidocarpa x viridula</i>	1898	
<i>Carex leporina</i> L.	1790	2021
<i>Carex limosa</i> L.	1899	
<i>Carex montana</i> L.	1820	2025
<i>Carex muricata</i>	1790	2025
<i>Carex muskingumensis</i> Schweinitz	2015	2019
<i>Carex nigra</i> (L.) Reichard	1843	2012
<i>Carex oederi</i> var. <i>oederi</i>	1790	1996
<i>Carex ornithopoda</i> Willd.	1837	2014
<i>Carex otrubae</i> Podp.	1899	2014
<i>Carex otrubae x remota</i>	1800	1935
<i>Carex pairae</i> F. W. Schultz	1989	2022
<i>Carex pallescens</i> L.	1843	2014
<i>Carex panicea</i> L.	1843	2014
<i>Carex paniculata</i> L.	1899	2009
<i>Carex pendula</i> Huds.	1837	2025
<i>Carex pilosa</i> Scop.	1790	2004
<i>Carex pilulifera</i> L.	1791	2014
<i>Carex polyphylla</i> Kar. & Kir.	2000	2016
<i>Carex praecox</i> Schreb.	1839	2022
<i>Carex pseudobrizoides</i> Clavaud	2004	
<i>Carex pseudocyperus</i> L.	1792	2018
<i>Carex pulicaris</i> L.	1787	1899
<i>Carex remota</i> L.	1843	2020
<i>Carex riparia</i> Curtis	1837	2023
<i>Carex rostrata</i> Stokes	1846	1944
<i>Carex spicata</i> Huds.	1899	2019
<i>Carex stellulata</i> Good.	1843	
<i>Carex strigosa</i> Huds.	1847	2022
<i>Carex sylvatica</i> Huds.	1790	2025
<i>Carex tomentosa</i> L.	1840	2020
<i>Carex turfosa</i> Fr.	1896	1926
<i>Carex umbrosa</i> Host	1899	2014

<i>Carex vesicaria</i> L.	1899	2014
<i>Carex vulpina</i> L.	1790	1993
<i>Carex vulpinoidea</i> Michx.	1943	
<i>Carex x jaegeri</i>	1895	1893
<i>Carex x prolixa</i> Fr.	1932	
<i>Carlina acaulis</i> L.	1790	
<i>Carlina vulgaris</i> L.	1899	2014
<i>Carpinus betulus</i> L.	1842	2025
<i>Carthamus tinctorius</i> L.	1790	1942
<i>Carum carvi</i>	1890	2025
<i>Carum verticillatum</i> (L.) Koch	1790	
<i>Carya alba</i> (L.) Koch	1930	1935
<i>Carya ovata</i> (Mill.) K. Koch	1985	
<i>Carya tomentosa</i> (Lam.) Nutt.	1790	1930
<i>Caryopteris incana</i> (Thunb. ex Houtt.) Miq.	2025	
<i>Castanea sativa</i> Mill.	1790	2025
<i>Catabrosa aquatica</i> (L.) P. Beauv.	1790	1993
<i>Catalpa bignonioides</i> Walter	1786	2025
<i>Catalpa ovata</i> G. Don	1993	2025
<i>Catapodium rigidum</i> (L.) C. E. Hubb. ex Dony	1942	2022
<i>Cedrus atlantica</i> (Endl.) Manetti ex Carrière	2025	
<i>Celastrus orbiculatus</i> Thunb.	2019	
<i>Celtis australis</i> L.	1791	2025
<i>Celtis occidentalis</i> L.	1791	2025
<i>Cenchrus alopecuroides</i> (L.) Thunb.	2013	
<i>Cenchrus americanus</i> L.	1791	1932
<i>Cenchrus ciliaris</i> L.	2025	
<i>Cenchrus longisetus</i> M.C. Johnst.	2025	
<i>Centaurea benedicta</i> (L.) L.	1825	1933
<i>Centaurea calcitrapa</i> L.	1790	1944
<i>Centaurea cyanus</i> L.	1790	2025
<i>Centaurea diffusa</i> Lam.	1810	2011
<i>Centaurea diluta</i> Aiton	1803	2014
<i>Centaurea jacea</i> L.	1791	2025
<i>Centaurea jacea</i> ssp. <i>angustifolia</i> (DC.)	2000	2019
<i>Centaurea montana</i> L.	1790	2023
<i>Centaurea nigra</i> ssp. <i>nemoralis</i> (Jord.) Grelli	1933	2025
<i>Centaurea orientalis</i> L.	1796	1908
<i>Centaurea psammogena</i> Gáyer	2016	
<i>Centaurea pseudophrygia</i> C.A. Mey. ex Rupr.	1923	1933
<i>Centaurea rhaetica</i> Moritzi	1907	1908
<i>Centaurea scabiosa</i> L.	1791	2014
<i>Centaurea solstitialis</i> L.	1790	1969
<i>Centaurea stoebe</i> L.	1905	2020
<i>Centaurea zimmermanniana</i> Zinsm.	1981	
<i>Centaurium erythraea</i> Rafn	1886	2020
<i>Centaurium pulchellum</i> (Sw.) Druce	1830	2020
<i>Centranthus ruber</i> (L.) DC.	1791	2025
<i>Cephalanthera damasonium</i> (Mill.) Druce	1790	2017
<i>Cephalanthera longifolia</i> (L.) Fritsch	1886	1996
<i>Cerastium arvense</i> L.	1845	2025
<i>Cerastium brachypetalum</i> Desp. ex Pers.	1887	2020
<i>Cerastium diffusum</i> Pers.	1935	
<i>Cerastium fontanum</i> Baumg.	1790	2007
<i>Cerastium fontanum</i> ssp. <i>lucorum</i> (Schur) Soó	1935	
<i>Cerastium fontanum</i> ssp. <i>vulgare</i> (Hartm.) Greuter & Burdet	1970	2020
<i>Cerastium glomeratum</i> Thuill.	1843	2025
<i>Cerastium glutinosum</i> Fr.	1885	2020
<i>Cerastium holosteoides</i> Fr.	1884	2025

<i>Cerastium inflatum</i> Link	1903	1907
<i>Cerastium pumilum</i> Curtis	1899	1995
<i>Cerastium pumilum</i> var. <i>glutinatum</i> (Fries) E.Rico	1890	1995
<i>Cerastium semidecandrum</i> L.	1883	2025
<i>Cerastium tenoreanum</i> Ser.	1936	
<i>Cerastium tomentosum</i> L.	1999	2013
<i>Ceratophyllum demersum</i> L.	1883	2019
<i>Ceratophyllum submersum</i> L.1845	2007	
<i>Ceratostigma plumbaginoides</i>	2025	
<i>Cercidiphyllum japonicum</i>	2025	
<i>Cercis canadensis</i> L.	1814	2025
<i>Cerithe glabra</i> L.	1884	
<i>Cerithe major</i> L.	1786	1907
<i>Cerithe minor</i> L.	1791	1887
<i>Chaenomeles japonica</i> (Thunb.) Lindl. ex Spach.	1893	2025
<i>Chaenomeles speciosa</i> (Sweet) Nakai	2025	
<i>Chaenorhinum minus</i> (L.) Lange	1790	2025
<i>Chaenostoma cordatum</i> (Thunb.) Benth	2001	2025
<i>Chaerophyllum aureum</i> L.	1790	2025
<i>Chaerophyllum bulbosum</i> L.	1990	2000
<i>Chaerophyllum hirsutum</i> L.	1790	2020
<i>Chaerophyllum temulum</i> L.	1888	2025
<i>Chamaecyparis lawsoniana</i>	1935	2025
<i>Chamaecyparis nutkaensis</i> (D. Don.) Sudw.	1935	
<i>Chamaecyparis obtusa</i> (S. & Z.) Endl.	1947	1951
<i>Chamaecyparis pisifera</i> (S. & Z.) Endl.	1947	1951
<i>Chamaecyparis thuyoides</i> (L.) P.S.B.	1935	1949
<i>Chamaemelum mixtum</i> (L.) All.	1937	1940
<i>Chamaemelum nobile</i> (L.) All.	1790	2025
<i>Chamaerops humilis</i> L.	1786	2025
<i>Charophyllum villarsii</i> Koch	1931	1946
<i>Chasmanthium latifolium</i> (Michx.) H.O.Yates	1847	
<i>Chelidonium majus</i> L.	1790	2025
<i>Chenopodium album</i> L.	1790	2025
<i>Chenopodium aristatum</i> L.	1801	1803
<i>Chenopodium berlandieri</i> Moq.	1937	
<i>Chenopodium bonus-henricus</i> L.	1790	1944
<i>Chenopodium borbasioides</i> A.Ludw. ex Asch. & Graebn.	1936	
<i>Chenopodium capitatum</i> (L.) Asch.	1805	1940
<i>Chenopodium chenopodioides</i> (L.) Aellen	1932	1941
<i>Chenopodium desiccatum</i> A. Nelson	1935	1936
<i>Chenopodium ficifolium</i> Sm.	1837	2025
<i>Chenopodium foliosum</i> L.	1887	1936
<i>Chenopodium giganteum</i> D. Don	2025	
<i>Chenopodium glaucum</i> L.	1790	2006
<i>Chenopodium hircinum</i> Schrad.	1940	
<i>Chenopodium hybridum</i> L.	1790	2019
<i>Chenopodium murale</i> L.	1837	2025
<i>Chenopodium opulifolium</i> Schrad. ex W. D. J. Koch & Ziz	1857	2005
<i>Chenopodium polyspermum</i> L.	1810	2025
<i>Chenopodium rubrum</i> L.	1884	2023
<i>Chenopodium striatifforme</i> Murr	2001	
<i>Chenopodium strictum</i> Roth	1932	2021
<i>Chenopodium suecicum</i> Murr	2006	2008
<i>Chenopodium urbicum</i> L.	1887	1943
<i>Chenopodium vulvaria</i> L.	1820	2019
<i>Chionanthus fragrans</i> Lindl.	1808	1937
<i>Chondrilla juncea</i> L.	1837	2025

<i>Chrysanthemum indicum</i> L.	2025	
<i>Chrysosplenium alternifolium</i> L.	1883	2008
<i>Chrysosplenium oppositifolium</i> L.	1893	2005
<i>Cicer arietinum</i> L.	1790	1884
<i>Cicerbita macrophylla</i> Wallr.	1937	1944
<i>Cichorium endivia</i> L.	1935	
<i>Cichorium intybus</i> L.	1791	2025
<i>Cichorium pumilum</i> Jacq.	1935	
<i>Cicuta virosa</i> L.	1791	2022
<i>Circaea alpina</i> L.	2012	
<i>Circaea lutetiana</i> L.	1937	2025
<i>Cirsium acaulon</i> Scop.	1830	
<i>Cirsium arvense</i> (L.) Scop.	1813	2025
<i>Cirsium eriophorum</i> Scop.	1790	
<i>Cirsium oleraceum</i> Scop.	1791	2011
<i>Cirsium palustre</i> Scop.	1791	2025
<i>Cirsium rivulare</i> (Jacq.) All.	1791	
<i>Cirsium tuberosum</i> All.	1792	1994
<i>Cirsium vulgare</i> (Savi) Ten.	1791	2025
<i>Citrullus lanatus</i> L.	1790	1942
<i>Citrus aurantium</i> L.	2025	
<i>Citrus limon</i> (L.) Osbeck	1935	1937
<i>Cladanthus mixtus</i> (L.) Chevall.	1937	
<i>Clarkia amoena</i> (Lehm.) A. Nelson & J.F. Macbride	2025	
<i>Clarkia unguiculata</i> Lindl.	2025	
<i>Claytonia perfoliata</i> Donn ex Willd.	1790	2025
<i>Clematis montana</i>	2025	
<i>Clematis vitalba</i> L.	1790	2025
<i>Clinopodium acinos</i> (L.) Kuntze	1790	2020
<i>Clinopodium menthifolium</i> (Host) Merino	1979	2021
<i>Clinopodium nepeta</i> (L.) Kuntze	2009	2025
<i>Clinopodium vulgare</i> L.	1848	2025
<i>Cnidium silauifolium</i> Fiori & Paol.	1790	1948
<i>Cochlearia danica</i> L.	1792	2020
<i>Coincya monensis</i> ssp. <i>cheiranthos</i> (Vill.) Aedo, Leadlay & Muñoz Garm.	1790	2022
<i>Colchicum autumnale</i> L.	1840	2013
<i>Colocasia esculenta</i> (L.) Schott	1790	2025
<i>Colutea arborescens</i> L.	1790	2015
<i>Comarum palustre</i> L.	1824	1899
<i>Commelina africana</i> L.	1796	
<i>Commelina benghalensis</i> L.	1790	
<i>Commelina communis</i> L.	1790	2021
<i>Conium maculatum</i> L.	1790	2025
<i>Conringia orientalis</i> (L.) Dumort.	1790	1944
<i>Convallaria majalis</i> L.	1790	2025
<i>Convolvulus arvensis</i> L.	1892	2025
<i>Convolvulus cneorum</i> L.	1790	2025
<i>Coreopsis grandiflora</i> Hogg ex Sweet	1936	2025
<i>Coreopsis tinctoria</i> Nutt.	2021	
<i>Coriandrum sativum</i> L.	1786	2025
<i>Corispermum hyssopifolium</i>	1790	1909
<i>Corispermum intermedium</i> Schweigg.	1934	
<i>Corispermum pallasii</i> ssp. <i>membranaceum</i> (Bisch. ex Shnittspalm) Tzvelev	1952	
<i>Cornus domestica</i> (L.) Spach	1899	2010
<i>Cornus alba</i> L.	1790	2020
<i>Cornus kousa</i> Bürger ex Hance	2025	
<i>Cornus mas</i> L.	1883	2025

<i>Cornus nuttallii</i> Audubon	2025	
<i>Cornus sanguinea</i> L.	1790	2025
<i>Cornus sanguinea</i> ssp. <i>australis</i> (C. A. Mey.) Jáv.	2003	2025
<i>Cornus sanguinea</i> ssp. <i>hungarica</i> (Kárpáti) Soó	2003	2011
<i>Cornus sericea</i> L.	2002	2013
<i>Coronilla cretica</i> L.	1798	1898
<i>Coronilla scorpioides</i> (L.) W. D. J. Koch	1933	1937
<i>Coronilla varia</i> L.	1790	2023
<i>Coronopus didymus</i> (L.) Sm.	1793	2013
<i>Coronopys squamatus</i> (L.) Aschers.	1792	1845
<i>Corrigiola litoralis</i> L.	1899	1992
<i>Cortaderia selloana</i> (Schult. & Schult. f.) Asch. & Graebn.	2025	
<i>Corydalis cava</i> (L.) Schweigg. & Körte	1814	2025
<i>Corydalis solida</i> (L.) Clairv.	1908	2025
<i>Corylus avellana</i> L.	1844	2025
<i>Corylus colurna</i> L.	1840	2025
<i>Corylus maxima</i> Mill.	1790	2008
<i>Corynephorus canescens</i> (L.) P. Beauv.	1843	2009
<i>Cosmos bipinnatus</i> Cav.	1810	2025
<i>Cota altissima</i> (L.) J.Gay	1790	1993
<i>Cota austriaca</i> (Lacq.) Sch. Bip.	1932	1938
<i>Cota tinctoria</i> (L.) J.Gay	1837	2025
<i>Cotinus coggygria</i> Scop.	2003	2025
<i>Cotoneaster bullatus</i> Bois	1995	
<i>Cotoneaster dammeri</i> Schneid.	2003	2025
<i>Cotoneaster divaricatus</i> Rehder & E. Wilson	1997	2025
<i>Cotoneaster frigidus</i>	2025	
<i>Cotoneaster horizontalis</i> Decne.	2002	2018
<i>Cotoneaster niger</i> Waldst & Kit	1790	1949
<i>Cotoneaster salicifolius</i> Franch.	2000	2025
<i>Crassula tillaea</i> Lest.-Garl.	1992	2020
<i>Crataegus germanica</i> (L.) Kuntze	1790	2025
<i>Crataegus laevigata</i> (Poir.) DC.	1790	2025
<i>Crataegus lindmannii</i> Cinovskis	2018	
<i>Crataegus macrocarpa</i> Hegetschw.	1998	
<i>Crataegus monogyna</i> Jacq.	1790	2025
<i>Crataegus pentagyna</i> Waldst. & Kit. ex Willd.	1790	1948
<i>Crataegus rhipidophylla</i> Gand.	2010	2014
<i>Crepis biennis</i> L.	1790	2025
<i>Crepis capillaris</i> (L.) Wallr.	1792	2025
<i>Crepis dioscoridis</i> L.	1791	1884
<i>Crepis foetida</i> L.	1791	2025
<i>Crepis mollis</i> Asch.	1976	
<i>Crepis nicaeensis</i> Balb.	1825	1947
<i>Crepis paludosa</i> (L.) Moench	1838	1993
<i>Crepis pontana</i> (L.) DT	1930	1937
<i>Crepis praemorsa</i> (L.) Walther	1857	2000
<i>Crepis pulchra</i> L.	1821	2020
<i>Crepis sancta</i> L.	1935	
<i>Crepis setosa</i> Haller f.	1790	1976
<i>Crepis tectorum</i> L.	1882	2001
<i>Crepis vesicaria</i> ssp. <i>taraxacifolia</i> (Thuill.) Thell.	1837	2005
<i>Crocus flavus</i> Weston	2020	
<i>Crocus tommasinianus</i> Herb.	2009	2021
<i>Cruciata glabra</i> ssp. <i>glabra</i> .	2012	
<i>Cruciata laevipes</i> Opiz	1900	2025
<i>Crupina vulgaris</i> Pers. ex. Cass.	1935	1938
<i>Cucumis melo</i> L.	1790	2022
<i>Cucumis sativus</i> L.	1790	1905
<i>Cucurbita pepo</i> L.	1790	1910

<i>Cupressus sempervirens</i>	2025	
<i>Cuscuta campestris</i> Yunck.	1986	2019
<i>Cuscuta epithymum</i> L.	1790	1994
<i>Cuscuta europaea</i> L.	1790	2011
<i>Cuscuta gronovii</i> Willd.	1843	1954
<i>Cydonia oblonga</i> Mill.	1790	2025
<i>Cymbalaria muralis</i> G. Gaertn. B. Mey. & Scherb.	1883	2025
<i>Cynanchica pyrenaica</i> ssp. <i>cynanchica</i> (L.) P.Caputo & Del Guacchio	1790	1984
<i>Cynara cardunculus</i> L.	1907	
<i>Cynodon dactylon</i> (L.) Pers.	1915	2025
<i>Cynoglossum barrelieri</i> (All.) Vural & Kit Tan	1814	1915
<i>Cynoglossum lanceolatum</i> Forsk.	1840	
<i>Cynoglossum officinale</i> L.	1878	2021
<i>Cynosurus cristatus</i> L.	1790	2014
<i>Cynosurus echinatus</i> L.	1911	2023
<i>Cyperus congestus</i> Vahl	1909	1910
<i>Cyperus eragrostis</i> Lam.	2019	2021
<i>Cyperus esculentus</i> L.	1790	2025
<i>Cyperus flavescens</i> L.	1899	2021
<i>Cyperus fuscus</i> L.	1949	2015
<i>Cyperus glaber</i> L.	1931	1995
<i>Cyperus longus</i> L.	2002	2009
<i>Cyrtomium fortunei</i>	2025	
<i>Cystopteris fragilis</i> (L.) Bernh.	1840	2023
<i>Cytisus scoparius</i> (L.) Link	1883	2025
<i>Cytisus x adami</i>	1790	1894
<i>Dactylis glomerata</i>	1790	2025
<i>Dactylis glomerata</i> ssp. <i>lobata</i> (Drejer) H.Lindb.	1790	2025
<i>Dactylorhiza incarnata</i> (L.) Soó	1844	1910
<i>Dactylorhiza maculata</i> (L.) Soó	1790	2012
<i>Dactylorhiza maculata</i> ssp. <i>fuchsii</i> (Druce) Hyl.	1886	2021
<i>Dactylorhiza majalis</i> (Rchb.) P.F. Hunt & Summerh.	1790	2014
<i>Dahlia pinnata</i> Cav.	2025	
<i>Danthonia decumbens</i> (L.) DC.	1843	2021
<i>Daphne mezereum</i> L.	1814	2004
<i>Dasiphora fruticosa</i> (L.) Rydb.	2025	
<i>Dasyphyrum villosum</i> (L.) Borbás	1935	1937
<i>Dasyphyrum villosum</i> (L.) P. Candargy	2008	2009
<i>Datura ferox</i> L.	1790	
<i>Datura innoxia</i> Mill.	2013	
<i>Datura metel</i> L.	1790	
<i>Datura stramonium</i> L.	1790	2025
<i>Daucus carota</i> L.	1790	2025
<i>Delphinium ajacis</i> L.	1790	2019
<i>Delphinium consolida</i> L.	1790	2025
<i>Delphinium hispanicum</i> Willk. ex Costa	2006	2022
<i>Deschampsia cespitosa</i> (L.) P. Beauv.	1790	2025
<i>Deschampsia media</i> (Gouan) Roem. & Schult.	1845	
<i>Descurainia millefolia</i> (Jacq.) Webb & Berthel.	1788	
<i>Descurainia sophia</i> (L.) Webb ex Prantl	1791	2014
<i>Deutzia gracilis</i> Siebold & Zucc.	1894	2025
<i>Deutzia scabra</i> Thunb.	1927	2025
<i>Dianthus armeria</i> L.	1861	2021
<i>Dianthus barbatus</i> L.	1907	2001
<i>Dianthus carthusianorum</i> L.	1885	2025
<i>Dianthus caryophyllus</i> L.	2025	
<i>Dianthus deltoides</i> L.	1899	2025
<i>Dianthus giganteus</i> d'Urv.	2019	
<i>Dianthus gratianopolitanus</i> L.	1890	1898

<i>Dianthus superbus</i> L.	1883	2020
<i>Dichondra argentea</i> Humb. & Bonpl. ex Willd.	2025	
<i>Digitalis grandiflora</i> Mill.	1791	1996
<i>Digitalis purpurea</i> L.	1790	2025
<i>Digitaria ischaemum</i> (Schreb. ex Schweigg.) Muhl.	1894	2007
<i>Digitaria sanguinalis</i> (L.) Scop.	1810	2025
<i>Diphasiastrum tristachyum</i> (Pursh) Holub	1899	
<i>Diplachne dubia</i> Schibner	1903	
<i>Diplachne fusca</i> (L.) Stapf	1902	
<i>Diplotaxis eruroides</i> (L.) DC.	1797	1942
<i>Diplotaxis muralis</i> DC.	1890	1996
<i>Diplotaxis tenuifolia</i> (L.) DC.	1790	2025
<i>Diplotaxis viminea</i> DC.	1896	1969
<i>Dipsacus fullonum</i> L.	1790	2025
<i>Dipsacus laciniatus</i> L.	1997	2014
<i>Dipsacus pilosus</i> L.	1843	2020
<i>Dipsacus strigosus</i> Willd. ex Roem. & Schult.	2002	2018
<i>Dittrichia graveolens</i> (L.) Greuter	1992	2019
<i>Doronicum pardalianches</i> L.	1790	1943
<i>Draba boerhaavii</i> H. Hall	2003	2020
<i>Draba muralis</i> L.	1930	2020
<i>Draba praecox</i> Steven	1890	2020
<i>Draba verna</i> L.	1790	2025
<i>Dracocephalum moldavica</i> L.	1840	2007
<i>Dryopteris affinis</i> (Lowe) Fraser-Jenk.	1790	2010
<i>Dryopteris carthusiana</i> (Vill.) H. P. Fuchs	1846	2014
<i>Dryopteris dilatata</i> (Hoffm.) A. Gray	1790	2021
<i>Dryopteris erythrosora</i> (D.C. Eaton) Kunzle	2025	
<i>Dryopteris filix-mas</i> (L.) Schott	1838	2025
<i>Dryopteris remota</i> (A. Braun ex Döll) Druce	1840 TYPE??	
<i>Dysphania ambrosioides</i> (L.) Mosyakin & Clemants	1801	2025
<i>Dysphania botrys</i> (L.) Mosyakin & Clemants	1791	2025
<i>Dysphania pumilio</i> (R. Br.) Mosyakin & Clemants	1990	2025
<i>Ecballium elaterium</i> (L.) A. Rich.	1790	1949
<i>Echinacea purpurea</i> (L.) Moench	1791	2025
<i>Echinochloa crus-galli</i> (L.) P. Beauv.	1934	2025
<i>Echinochloa muricata</i> (P. Beauv.) Fernald	2001	
<i>Echinops bannaticus</i> Rochel ex Schrad.	2025	
<i>Echinops exaltatus</i> Schrad.	2013	
<i>Echinops sphaerocephalus</i> L.	1790	1999
<i>Echium italicum</i> L.	1792	1943
<i>Echium plantagineum</i> L.	1895	
<i>Echium violaceum</i> L.	1791	1896
<i>Echium vulgare</i> L.	1790	2025
<i>Ehrharta erecta</i> Lam	1801	1935
<i>Elaeagnus angustifolia</i> L.	1790	2008
<i>Elaeagnus latifolia</i> L.	1786	1953
<i>Elatine alsinastrum</i> L.	1899	
<i>Elatine hexandra</i> (Lapierre) DC.	1873	1899
<i>Elatine hydropiper</i> L.	1899	
<i>Elatine triandra</i> Schkuhr	1873	1899
<i>Eleocharis acicularis</i> (L.) Roem. & Schult.	1899	2015
<i>Eleocharis mamillata</i> (H. Lindb.) H. Lindb.	2003	
<i>Eleocharis mamillata</i> ssp. <i>austriaca</i> (Hayek) Strandh.	1899	2003
<i>Eleocharis obtusa</i> (Willd.) Schult.	2013	2018
<i>Eleocharis ovata</i> (Roth) Roem. & Schult.	1899	1996
<i>Eleocharis palustris</i> (L.) Roem. & Schult.	1790	2014
<i>Eleocharis uniglumis</i> (Link) Schult.	1899	1993
<i>Eleusine indica</i> (L.) P. Gaertn.	2006	2022
<i>Ellisia nyctelea</i> L.	1904	

<i>Elodea canadensis</i> Michx.	1883	2007
<i>Elodea densa</i> (Planch.) Casp.	1932	1937
<i>Elodea nuttallii</i> (Planch.) H. St. John	1790	2015
<i>Elyleymus strictus</i> (Dethard. ex Rchb.) Conert	1934	
<i>Elymus campestris</i> (Gren. & Godr.) Kerguélen	1897	2021
<i>Elymus caninus</i> (L.) L.	1790	2020
<i>Elymus repens</i> (L.) Gould	1790	2025
<i>Elymus virginicus</i> L.	1806	1903
<i>Epilobium angustifolium</i> L.	1790	2025
<i>Epilobium brachycarpum</i> C. Presl	2014	2020
<i>Epilobium ciliatum</i> Raf.	1790	2025
<i>Epilobium collinum</i> C. C. Gmel.	1945	1990
<i>Epilobium dodonaei</i> Vill.	1878	1993
<i>Epilobium hirsutum</i> L.	1889	2021
<i>Epilobium lanceolatum</i> Sebast. & Mauri	1935	2020
<i>Epilobium montanum</i> L.	1884	2019
<i>Epilobium palustre</i> L.	1804	2011
<i>Epilobium parviflorum</i> (Schreb.) Schreb.	1885	2025
<i>Epilobium roseum</i> (Schreb.) Schreb.	1917	2025
<i>Epilobium schmidtianum</i> Rostk.	1936	2019
<i>Epilobium tetragonum</i> L.	1947	2025
<i>Epilobium tetragonum</i> ssp. <i>lamyi</i> (F.W.Schultz) Nyman	1936	2019
<i>Epilobium</i> x <i>limosum</i> Schur.	2003	
<i>Epimedium alpinum</i> L.	1791	1935
<i>Epimedium pinnatum</i> Fisch. ex DC	2025	
<i>Epipactis atrorubens</i> (Hoffm.) Besser	1886	1996
<i>Epipactis helleborine</i> (L.) Crantz	1837	2014
<i>Epipactis leptochila</i> (Godfery) Godfery	1790	1996
<i>Epipactis palustris</i> (L.) Crantz	1851	1998
<i>Epipactis purpurata</i> Sm.	1790	1996
<i>Epipogium aphyllum</i> Sw.	1886	
<i>Equisetum arvense</i> L.	1838	2025
<i>Equisetum fluviatile</i> L. (1886)	1899	2011
<i>Equisetum hyemale</i> L.	1785	1859
<i>Equisetum litorale</i> Kühlew. ex Rupr.	1996	
<i>Equisetum moorei</i> Newman	1888	1953
<i>Equisetum palustre</i> L.	1843	2018
<i>Equisetum pratense</i> Ehrh.	1997	2025
<i>Equisetum ramosissimum</i> Desf.	2012	
<i>Equisetum sylvaticum</i> L.	1790	2009
<i>Equisetum telmateia</i> Ehrh.	1886	2025
<i>Equisetum trachyodon</i> (A. Braun) W.D.J. Koch	1846	1990
<i>Equisetum variegatum</i> Schleich. ex Weber & D. Mohr	1790	1969
<i>Equisetum</i> x <i>alsaticum</i> (H.P.Fuchs & Geissert) G.Phil ex Lubienski & Benner	1859	1935
<i>Equisetum</i> x <i>meridionale</i> (Milde) Chiov.	1895	
<i>Eradrostis rotifer</i> Rendle	1914	
<i>Eragrostis barrelleri</i> Daveau	1910	
<i>Eragrostis biflora</i> Hack	1914	
<i>Eragrostis cilianensis</i> (All.) Vignolo ex Janch.	1826	1892
<i>Eragrostis curvula</i> (Schrad.) Nees	1976	1992
<i>Eragrostis minor</i> Host	1876	2025
<i>Eragrostis multicaulis</i> Steud.	1887	2020
<i>Eragrostis neo-mexicana</i> Vasey	1910	1936
<i>Eragrostis paniciformis</i> Steud.	1840	
<i>Eragrostis pilosa</i> (L.) P. Beauv.	1885	2013
<i>Eragrostis sarmentosa</i> (Thunb.) Trin.	1912	
<i>Eragrostis tef</i> (Zuccagni) Trotter	1936	1955
<i>Eranthis hyemalis</i> (L.) Salisb.	1786	2025
<i>Erica carnea</i> L.	2025	

<i>Erica verticillata</i> P.J. Bregius	2025	
<i>Erigeron acris</i> L.	1838	2022
<i>Erigeron acris</i> ssp. <i>angulosus</i> (Gaudin) Vacc.	1837	1899
<i>Erigeron acris</i> ssp. <i>serotinus</i> (Weihe) Greuter	2011	
<i>Erigeron annuus</i> (L.) Pers.	1814	2025
<i>Erigeron bonariensis</i> L.	1790	2025
<i>Erigeron canadensis</i> L.	1790	2025
<i>Erigeron karvinskianus</i> DC.	1903	2025
<i>Erigeron speciosus</i> (Lindl.) DC.	1843	1937
<i>Erigeron strigosus</i> Muhl. ex Willd.	2025	
<i>Erigeron sumatrensis</i> Retz.	2008	2023
<i>Eriobotrya japonica</i>	1933	2025
<i>Eriocapitella hupehensis</i> (Lemoine) Christenh. & Byng	2005	2025
<i>Eriophorum angustifolium</i> Honck.	1899	
<i>Eriophorum latifolium</i> Hoppe	1899	
<i>Erodium ciconium</i> (L.) L'Hér.	1790	2009
<i>Erodium cicutarium</i> (L.) L'Hér.	1790	2025
<i>Eruca vesicaria</i> ssp. <i>sativa</i> (Mill.) Hegi	1810	2025
<i>Erucastrum gallicum</i> (Willd.) O. E. Schulz	1790	2020
<i>Erucastrum nasturtifolium</i> (Poir.) O. E. Schulz	1913	2019
<i>Eryngium campestre</i> L.	1790	2015
<i>Erysimum cheiranthoides</i> L.	1814	2012
<i>Erysimum marschallii</i> Bois.	1933	
<i>Erysimum odoratum</i> L.	1795	1947
<i>Erysimum pulchellum</i> J. Gay.	1894	
<i>Erysimum repandum</i> L.	1885	1944
<i>Erysimum rhaeticum</i> DC	1890	1893
<i>Erysimum smyrnaeum</i> Boiss. & Balans.	1887	
<i>Erysimum virgatum</i> Roth	1790	2012
<i>Erysimum x cheiri</i> (L.) Crantz	1791	2025
<i>Erythranthe guttata</i> (DC.) G.L.Nesom	1791	1911
<i>Eschscholzia californica</i> Cham.	1832	2025
<i>Eucalyptus viminalis</i> ssp. <i>viminalis</i>	2025	
<i>Euclidium syriacum</i> (L.) W.T. Aiton	1912	1913
<i>Euonymus europaeus</i> L.	1822	2025
<i>Euonymus fortunei</i> (Turcz.) Hand.-Mazz.	1997	2025
<i>Euonymus latifolius</i> (L.) Mill.	2011	
<i>Euonymus lucidus</i> D. Don.	2025	
<i>Euonymus slata</i> Koch.	1933	1936
<i>Eupatorium cannabinum</i> L.	1790	2025
<i>Euphorbia chamaesyce</i> L.	1798	1905
<i>Euphorbia cyparissias</i> L.	1893	2025
<i>Euphorbia dulcis</i> L.	1951	2004
<i>Euphorbia esula</i> L.	1941	1969
<i>Euphorbia exigua</i> L.	1813	2025
<i>Euphorbia falcata</i> L.	1900	1944
<i>Euphorbia helioscopia</i> L.	1907	2025
<i>Euphorbia humifusa</i> Willd. ex Schlecht.	1925	2019
<i>Euphorbia lathyris</i> L.	1888	2025
<i>Euphorbia maculata</i> L.	1887	2019
<i>Euphorbia marginata</i> Pursh.	2001	
<i>Euphorbia myrsinites</i> L.	2006	
<i>Euphorbia nutans</i> Lag.	1893	1999
<i>Euphorbia palustris</i> L.	1790	2011
<i>Euphorbia peplus</i> L.	1936	2025
<i>Euphorbia platyphyllos</i> L.	1814	1990
<i>Euphorbia prostrata</i> Aiton	2007	2021
<i>Euphorbia saratoi</i> Ardoino	2009	
<i>Euphorbia segetalis</i> L.	1935	

<i>Euphorbia seguieriana</i> Neck.	1853	2011
<i>Euphorbia serpens</i> Kunth.	2019	2021
<i>Euphorbia stricta</i> L.	1840	2020
<i>Euphorbia verrucosa</i> L.	1899	1944
<i>Euphorbia virgata</i> Waldst. & Kit.	1900	1995
<i>Euphrasia nemorosa</i> (Pers.) Wallr.	1888	1896
<i>Euphrasia officinalis</i> L.	1896	2012
<i>Euphrasia rostkoviana</i> Hayne	1939	
<i>Eurybia divaricata</i> (L.) G.L. Nelson	2025	
<i>Fagopyrum esculentum</i> Moench	1790	2025
<i>Fagopyrum tataricum</i> (L.) P. Gaertn.	1790	1943
<i>Fagus sylvatica</i> L.	1790	2025
<i>Falcaria vulgaris</i> Bernh.	1790	2022
<i>Fallopia baldschuanica</i> (Regel) Holub	2000	2025
<i>Fallopia convolvulus</i> (L.) Å. Löve	1790	2025
<i>Fallopia dumetorum</i> (L.) Holub	1790	2025
<i>Fallopia sachalinensis</i> (F. Schmidt) Ronse Decr.	1790	2012
<i>Festuca altissima</i> All.	1888	2014
<i>Festuca ambigua</i> Le Gall	1940	2022
<i>Festuca brevipila</i> Tracey	1943	2022
<i>Festuca bromoides</i> L.	1802	2025
<i>Festuca duvalii</i> (St. Yves) Stohr	1925	
<i>Festuca filiformis</i> Pourr.	1913	2010
<i>Festuca guestfalica</i> Boenn. ex Rchb.	1790	2004
<i>Festuca heterophylla</i> Lam.	1895	2015
<i>Festuca membranacea</i> (L.) Druce	2020	
<i>Festuca myuros</i> L.	1843	2025
<i>Festuca ovina</i>	1837	2025
<i>Festuca pallens</i> Host	1867	
<i>Festuca pulchra</i> Schur	1999	2020
<i>Festuca rubra</i> L.	1790	2025
<i>Festuca rupicola</i> Heuff.	1925	
<i>Festuca trachyphylla</i> (Hack.) Krajina	1982	
<i>Festulolium ascendens</i> Aschers. & Graebn.	1840	
<i>Fibigia calypeata</i> (L.) Medik.	1791	2025
<i>Ficus carica</i> L.	1938	2025
<i>Filago arvensis</i> L.	1880	2016
<i>Filago gallica</i> L.	1845	1899
<i>Filago germanica</i> (L.) Huds.	1790	2021
<i>Filago lutescens</i> Jord.	1841	2021
<i>Filago minima</i> (Sm.) Pers.	1808	2022
<i>Filipendula ulmaria</i> (L.) Maxim.	1790	2025
<i>Filipendula vulgaris</i> Moench	1899	2012
<i>Foeniculum vulgare</i> Mill.	1897	2025
<i>Forsythia viridissima</i> Lindl.	1997	
<i>Forsythia x intermedia</i> Zabel	2001	
<i>Fourraea alpina</i> (L.) Greuter & Burdet	1929	
<i>Fragaria ananassa</i> (Duchesne) Decaisne & Naudin	2001	2025
<i>Fragaria moschata</i> (Duchesne) Weston	1899	
<i>Fragaria vesca</i> L.	1790	2025
<i>Fragaria viridis</i> Weston	1983	2012
<i>Frangula alnus</i> Mill.	1879	2025
<i>Fraxinus angustifolia</i>	2025	
<i>Fraxinus excelsior</i> L.	1790	2025
<i>Fraxinus ornus</i> L.	1790	2025
<i>Fraxinus pennsylvanica</i> Marshall	1790	2018
<i>Fritillaria imperialis</i> L.	2025	
<i>Fritillaria meleagris</i> L.	1825	1919
<i>Fritillaria persica</i>	2025	

<i>Fumaria capreolata</i> L.	1888	2019
<i>Fumaria officinalis</i> L.	1790	<b>2025</b>
<i>Fumaria officinalis</i> ssp. <i>wirtgenii</i> (W.D.J.Koch) Arcang.	2000	2020
<i>Fumaria parviflora</i> Lam.	1899	
<i>Fumaria vaillantii</i> Loisel.	1790	<b>2025</b>
<i>Gagea lutea</i> (L.) Ker Gawl.	1895	2011
<i>Gagea pratensis</i> (Pers.) Dumort.	1857	<b>2025</b>
<i>Gagea villosa</i> (M. Bieb.) Sewwt	1883	<b>2025</b>
<i>Gaillardia grandiflora</i> Hort. ex Van Houtte	2006	2008
<i>Gaillardia pulchella</i> Fougier	1843	1946
<i>Galanthus elwesii</i> Hook.f.	1935	2021
<i>Galanthus nivalis</i> L.	1890	<b>2025</b>
<i>Galatella linosyris</i> (L.) Rchb. f.	1837	1899
<i>Galega officinalis</i> L.	1790	2019
<i>Galeopsis angustifolia</i> Ehrh. ex Hoffm.	1790	2021
<i>Galeopsis bifida</i> Boenn.	1838	1993
<i>Galeopsis ladanum</i> L.	1896	1986
<i>Galeopsis pubescens</i> Besser	1838	2019
<i>Galeopsis segetum</i> Neck.	1814	1968
<i>Galeopsis tetrahit</i> L.	1790	<b>2025</b>
<i>Galinsoga ciliata</i> (Raf.) S. F. Blake	1927	1997
<i>Galinsoga parviflora</i> Cav.	1837	<b>2025</b>
<i>Galinsoga quadriradiata</i> Ruiz & Pav.	1790	<b>2025</b>
<i>Galium album</i> Mill.	1790	<b>2025</b>
<i>Galium aparine</i> L.	1790	<b>2025</b>
<i>Galium boreale</i> L.	1857	2012
<i>Galium elongatum</i> C. Presl	2019	
<i>Galium hypnoides</i> Vill.	1897	
<i>Galium mollugo</i> L.	2000	<b>2025</b>
<i>Galium odoratum</i> (L.) Scop.	1790	<b>2025</b>
<i>Galium palustre</i> L.	1918	2020
<i>Galium parisiense</i> L.	1790	2008
<i>Galium pomeranicum</i> Retz.	1862	1993
<i>Galium rotundifolium</i> L.	1790	2010
<i>Galium saxatile</i> L.	1790	2006
<i>Galium spurium</i> L.	1893	1942
<i>Galium sylvaticum</i> L.	1838	2020
<i>Galium tricornutum</i> Dandy	1790	1938
<i>Galium uliginosum</i> L.	1790	2020
<i>Galium verrucosum</i> Huds.	1930	1938
<i>Galium verum</i> L.	1886	<b>2025</b>
<i>Gastroidium ventricosum</i> (Gouan) Schinz. & Thell.	1935	
<i>Gaudinia fragilis</i> (L.) P. Beauv.	1901	1938
<i>Gazania rigens</i> (L.) Gaertn.	<b>2025</b>	
<i>Genista germanica</i> L.	1886	2013
<i>Genista pilosa</i> L.	1790	2002
<i>Genista sagittalis</i> L.	1886	1899
<i>Genista stenopetala</i>	<b>2025</b>	
<i>Genista tinctoria</i> L.	1886	2022
<i>Gentiana cruciata</i> L.	1843	1899
<i>Gentiana pneumonanthe</i> L.	1830	1899
<i>Gentianella amarella</i> (L.) Börner	1830	
<i>Gentianella germanica</i> (Willd.) Börner	1855	1899
<i>Gentianopsis ciliata</i> (L.) Ma	1886	1994
<i>Geranium aequale</i> (Bab.) Aedo	2019	
<i>Geranium argenteum</i> L.	1895	
<i>Geranium columbinum</i> L.	1910	2021
<i>Geranium dissectum</i> L.	1879	<b>2025</b>
<i>Geranium divaricatum</i> Ehrh.	1912	
<i>Geranium endressii</i> J. Gay	2007	

<i>Geranium macrorrhizum</i> L.	1893	<b>2025</b>
<i>Geranium molle</i> L.	1806	<b>2025</b>
<i>Geranium nodosum</i> L.	1790	2017
<i>Geranium palustre</i> L.	1997	2014
<i>Geranium phaeum</i> L.	1876	1930
<i>Geranium pratense</i> L.	1787	<b>2025</b>
<i>Geranium purpureum</i> Vill.	1994	2021
<i>Geranium pusillum</i> L.	1892	<b>2025</b>
<i>Geranium pyrenaicum</i> Burm.f.	1882	<b>2025</b>
<i>Geranium robertianum</i> L.	1790	<b>2025</b>
<i>Geranium rotundifolium</i> L.	1883	2022
<i>Geranium sanguineum</i>	1790	<b>2025</b>
<i>Geranium sylvaticum</i> L.	1976	2010
<i>Geranium thunbergii</i> Siebold & Zucc.	1907	1943
<i>Geum japonicum</i>	<b>2025</b>	
<i>Geum rivale</i> L.	1790	2018
<i>Geum urbanum</i> L.	1790	<b>2025</b>
<i>Ginkgo biloba</i> L.	1997	<b>2025</b>
<i>Gladiolus muriei</i> Kelway	<b>2025</b>	
<i>Glandora diffusa</i> (Lag.) D.C. Thomas	<b>2025</b>	
<i>Glandora prostrata</i> (Loisel.) D.C. Thomas	<b>2025</b>	
<i>Glaucium corniculatum</i> (L.) Rud.	1787	1936
<i>Glaucium flavum</i> L.	1790	1937
<i>Glebionis segetum</i> (L.) Fourr.	1791	2007
<i>Glechoma hederacea</i> L.	1890	<b>2025</b>
<i>Gleditsia triacanthos</i> L.	2000	<b>2025</b>
<i>Glyceria declinata</i> Bréb.	1965	
<i>Glyceria fluitans</i> (L.) R. Br.	1790	2011
<i>Glyceria maxima</i> (Hartm.) Holmb.	1790	2008
<i>Glyceria notata</i> Chevall.	1894	2013
<i>Glyceria spectabilis</i> Mert. & W. D. J. Koch	1947	
<i>Gnaphalium sylvaticum</i> L.	1804	1993
<i>Gnaphalium uliginosum</i> L.	1835	2018
<i>Gomphrena globosa</i> L.	<b>2025</b>	
<i>Goodyera repens</i> (L.) R. Br.	1899	
<i>Gratiola officinalis</i> L.	1821	1899
<i>Groenlandia densa</i> (L.) Fourr.	1843	1944
<i>Guizotia abyssinica</i> (L.f.) Cass.	1933	1934
<i>Gymnadenia conopsea</i> (L.) R. Br.	1790	1995
<i>Gymnadenia odoratissima</i> (L.) Rich.	1886	
<i>Gymnocarpium dryopteris</i> (L.) Newman	1886	1984
<i>Gymnocarpium robertianum</i> (Hoffm.) Newman	1785	2006
<i>Gymnocladus dioica</i> (L.) K. Koch.	1935	<b>2025</b>
<i>Gypsophila elegans</i> M. Bieb	<b>2025</b>	
<i>Gypsophila muralis</i> L.	1878	2020
<i>Gypsophila paniculata</i> L.	1912	<b>2025</b>
<i>Gypsophila pilosa</i> Huds.	1791	1908
<i>Hamamelis japonica</i> Sieb. & Zucc.	1922	<b>2025</b>
<i>Hedera helix</i> L.	1947	<b>2025</b>
<i>Hedypnois rhagadioloides</i> (L.) F.W.Schmidt	1791	1942
<i>Helenium autumnale</i> L.	1790	<b>2025</b>
<i>Helianthemum nummularium</i> (L.) Mill.	1888	2014
<i>Helianthus annuus</i> L.	1935	<b>2025</b>
<i>Helianthus hirsutus</i> Raf.	1949	1963
<i>Helianthus tuberosus</i> L.	1790	<b>2025</b>
<i>Helichrysum arenarium</i> (L.) Moench	1814	2015
<i>Helichrysum italicum</i> (Roth.) G. Don. f.	1791	
<i>Helictotrichon pratensis</i> (L.) Romero Zarco	1886	
<i>Heliopsis helianthoides</i> Sweet	<b>2025</b>	

<i>Heliotropium europaeum</i> L.	1786	1941
<i>Helleborus foetidus</i> L.	1878	2022
<i>Helleborus orientalis</i> Lam.	2008	2023
<i>Helminthotheca echioides</i> (L.) Holub	1915	2008
<i>Helosciadium nodiflorum</i> (L.) W. D. J. Koch	1899	
<i>Helosciadium repens</i> (Jacq.) W. D. J. Koch	1797	1944
<i>Hemerocallis fulva</i> (L.) L.	1786	2010
<i>Hemerocallis lilioasphodelus</i>	1879	2025
<i>Heracleum mantegazzianum</i> Sommier & Levier	1790	2025
<i>Heracleum sphondylium</i> L.	1790	2025
<i>Herminium monorchis</i> (L.) RBr.	1788	1902
<i>Herniaria glabra</i> L.	1790	2025
<i>Herniaria hirsuta</i> L.	1899	2020
<i>Hesperis matronalis</i> L.	1791	2025
<i>Heuchera sanguinea</i> Engelm.	2025	
<i>Hibiscus syriacus</i> L.	1800	2025
<i>Hibiscus trionum</i> L.	1790	1937
<i>Hieracium amplexicaule</i> L.	1893	1946
<i>Hieracium bifidum</i> Kit. ex Hornem.	1912	
<i>Hieracium brachiatum</i> Bertol	1885	1912
<i>Hieracium brevifolium</i> ssp. <i>hundsdorferianum</i> Greuter	1932	1946
<i>Hieracium brunopolitanum</i> Murr.	1897	
<i>Hieracium bupleuroides</i> C.C. Gmel.	1887	1918
<i>Hieracium diaphanoides</i> Lindeb.	1947	2012
<i>Hieracium glaucinum</i> Jord.	1900	2018
<i>Hieracium hypochoeroides</i> ssp. <i>kalmutinum</i> (Zahn) Schuhw. & Feulner	1927	1944
<i>Hieracium kneuckerianum</i> Zahn	1897	1913
<i>Hieracium lachenalii</i> ssp. <i>cruentifolium</i> (Dahlst. & Lübeck) Zahn	1804	2014
<i>Hieracium laevigatum</i> Froel.	1840	2012
<i>Hieracium laevigatum</i> ssp. <i>rigidum</i> (Hartm.) Čelak.	1843	
<i>Hieracium lycopifolium</i> Froel.	1840	1899
<i>Hieracium maculatum</i> Schrank	1900	2020
<i>Hieracium murorum</i> L.	1792	2014
<i>Hieracium sabaudum</i> L.	1817	2013
<i>Hieracium sparsum</i> ssp. <i>grisebachii</i> (A.Kern.) Zahn	1914	1916
<i>Hieracium umbellatum</i> L.	1899	2012
<i>Hieracium vasconicum</i> Jord. ex Martrin-Donos	1922	1985
<i>Himantoglossum hircinum</i> (L.) Spreng.	1899	2023
<i>Hippocrepis comosa</i> L.	1899	2020
<i>Hippophae rhamnoides</i> L.	1810	2025
<i>Hippuris vulgaris</i> L.	1810	2019
<i>Hirschfeldia incana</i> (L.) Lagr.-Foss.	1791	1966
<i>Holcus lanatus</i> L.	1790	2025
<i>Holcus mollis</i> L.	1790	2014
<i>Holosteum umbellatum</i> L.	1790	2021
<i>Hordelymus europaeus</i> (L.) Jessen ex Harz	1890	2025
<i>Hordeum jubatum</i> L.	1997	
<i>Hordeum marinum</i> Huds.	1934	
<i>Hordeum murinum</i> L.	1790	2025
<i>Hordeum secalinum</i> Schreb.	1857	
<i>Hordeum vulgare</i> L.	1999	2025
<i>Hostia ventricosa</i> Stearn	1824	2025
<i>Hottonia palustris</i> L.	1790	2016
<i>Hugueninia tanacetifolia</i> (L.) Rchb.	1901	
<i>Humulus lupulus</i> L.	1790	2025
<i>Hyacinthoides hispanica</i> (Mill.) Rothm.	2005	2025
<i>Hyacinthus non-scripta</i> (L.) Choudart ex Rothm.	1792	1919

<i>Hyacinthus orientalis</i> L.	2008	2025
<i>Hydrangea arborescens</i> L.	2025	
<i>Hydrangea aspera</i> Buch. Ham. ex D. Don.	2025	
<i>Hydrangea macrophylla</i> (Thunb.) Ser.	2025	
<i>Hydrangea petiolaris</i> Siebold & Zucc.	1997	
<i>Hydrocharis morsus-ranae</i> L.	1814	2015
<i>Hydrocotyle vulgaris</i> L.	1790	1969
<i>Hylotelephium maximum</i> (L.) Holub	2001	2017
<i>Hylotelephium sieboldii</i> (Regel) H. Ohba	2025	
<i>Hylotelephium spectabile</i> (Boreau) H. Ohba	2001	2025
<i>Hylotelephium telephium</i> (L.) H. Ohba	1790	2025
<i>Hyoscyamus niger</i> L.	1814	2006
<i>Hyoscyamus pusillus</i> L.	1903	
<i>Hypericum androsaemum</i> L.	1877	2025
<i>Hypericum calycinum</i> L.	1806	2025
<i>Hypericum hirsutum</i> L.	1791	2019
<i>Hypericum humifusum</i> L.	1937	2023
<i>Hypericum maculatum</i> Crantz.	1790	2025
<i>Hypericum maculatum</i> ssp. <i>obtusiusculum</i> (Tourlet) Hayek	2012	2020
<i>Hypericum montanum</i> L.	1866	1990
<i>Hypericum perforatum</i> L.	1790	2025
<i>Hypericum pulchrum</i> L.	1899	2014
<i>Hypericum tetrapterum</i> Fr.	1889	2014
<i>Hypericum x desetangsii</i> Lamotte	2019	
<i>Hypochaeris glabra</i> L.	1835	2020
<i>Hypochaeris maculata</i> L.	1807	1837
<i>Hypochaeris radicata</i> L.	1790	2025
<i>Hyssopus officinalis</i> L.	1791	1946
<i>Iberis amara</i> L.	1791	2020
<i>Iberis pinnata</i> L.	1935	
<i>Iberis sempervirens</i> L.	1791	2025
<i>Iberis umbellata</i> L.	2001	2025
<i>Ilex aquifolium</i> L.	1790	2025
<i>Impatiens balsamina</i> L.	2017	
<i>Impatiens capensis</i> Meerb.	2005	
<i>Impatiens glandulifera</i> Royle	1934	2025
<i>Impatiens noli-tangere</i> L.	1790	2014
<i>Impatiens parviflora</i> DC.	1790	2025
<i>Inula britannica</i> L.	1797	2018
<i>Inula conyza</i> DC.	1790	2020
<i>Inula germanica</i> L.	1814	
<i>Inula salicina</i> L.	1790	2020
<i>Ipheion uniflorum</i> (Graham) Raf.	1935	2025
<i>Ipomoea purpurea</i> (L.) Roth	2008	2025
<i>Ipomoea triloba</i> L.	2006	
<i>Iris germanica</i> L.	1805	2025
<i>Iris pseudacorus</i> L.	1837	2023
<i>Iris sibirica</i> L.	1843	2020
<i>Iris variegata</i> L.	1930	
<i>Isatis tinctoria</i> L.	1886	2019
<i>Ismelia carinata</i> (Schousb.) Sch. Bip.	1806	1944
<i>Isolepis setacea</i> (L.) R. Br.	1945	1999
<i>Iva xanthiifolia</i> Nutt.	2019	
<i>Jacobaea aquatica</i> (Hill) G. Gaertn., B. Mey. & Scherb.	1837	2019
<i>Jacobaea erratica</i> (Bertol.) Fourr.	2004	
<i>Jacobaea erucifolia</i> (L.) P. Gaertn., B. Mey. & Schreb.	1837	2025
<i>Jacobaea maritima</i>	2025	
<i>Jacobaea maritima</i> ssp. <i>bicolor</i> (Willd.) B. Nord. & Greut.	2007	
<i>Jacobaea paludosa</i> (L.) G. Gaertn., B. Mey. & Scherb.	1837	2018

<i>Jacobaea vulgaris</i> Gaertn.	1864	<b>2025</b>
<i>Jasione laevis</i> Lam.	2005	2010
<i>Jasione montana</i> L.	1933	2017
<i>Jasminum nudiflorum</i> Lindl.	2025	
<i>Juglans nigra</i> L.	1797	<b>2025</b>
<i>Juglans regia</i> L.	1879	<b>2025</b>
<i>Juncus acutiflorus</i> Ehrh. ex Hoffm.	1857	2014
<i>Juncus alpinoarticulatus</i> Chaix	1883	1993
<i>Juncus articulatus</i> L.	1878	2014
<i>Juncus bufonius</i> L.	1843	2014
<i>Juncus bulbosus</i> L.	1867	1880
<i>Juncus capitatus</i> Weigel	1806	
<i>Juncus compressus</i> Jacq.	1847	2014
<i>Juncus conglomeratus</i> L.	1866	2014
<i>Juncus effusus</i> L.	1899	2014
<i>Juncus inflexus</i> L.	1806	2018
<i>Juncus sphaerocarpus</i> Nees	1980	1993
<i>Juncus subnodulosus</i> Schrank	1883	2015
<i>Juncus tenageia</i> Ehrh. ex L. f.	1830	
<i>Juncus tenuis</i> Willd.	1790	<b>2025</b>
<i>Juniperus communis</i> L.	1790	2002
<i>Juniperus horizontalis</i> Moench	2025	
<i>Juniperus sabina</i> L.	1886	<b>2025</b>
<i>Kalanchoe blossfeldiana</i> Poelln.	2025	
<i>Kerria japonica</i> (Thunb.) DC.	1810	<b>2025</b>
<i>Kickxia elatine</i> (L.) Dumort.	1800	2021
<i>Kickxia spuria</i> (L.) Dumort.	1800	2019
<i>Knautia arvensis</i> (L.) Coult.	1843	<b>2025</b>
<i>Knautia dipsacifolia</i> Kreutzer	1899	2020
<i>Kniphofia uvaria</i> (L.) Oken	2025	
<i>Koeleria glauca</i> (Spreng.) DC.	1899	
<i>Koeleria macrantha</i> (Ledeb.) Schult.	1790	2022
<i>Koeleria pyramidata</i> (Lam.) P. Beauv.	1790	2021
<i>Koelreuteria paniculata</i> Laxm.	1801	<b>2025</b>
<i>Laburnum anagyroides</i> Medik.	1790	<b>2025</b>
<i>Lactuca muralis</i> (L.) Gaertn.	1790	<b>2025</b>
<i>Lactuca perennis</i> L.	1792	1948
<i>Lactuca sativa</i>	1791	<b>2025</b>
<i>Lactuca serriola</i> L.	1790	<b>2025</b>
<i>Lactuca virosa</i> L.	1791	1936
<i>Lagurus ovatus</i> L.	1933	<b>2025</b>
<i>Lallemantia iberica</i> (M. Bieb.) Fisch. & C. A. Mey.	1791	1924
<i>Lamium album</i> L.	1790	<b>2025</b>
<i>Lamium amplexicaule</i> L.	1908	<b>2025</b>
<i>Lamium galeobdolon</i> ssp. <i>argentatum</i> (Smejkal) J. Duvign.	1997	2023
<i>Lamium galeobdolon</i> ssp. <i>galeobdolon</i>	1790	2022
<i>Lamium galeobdolon</i> ssp. <i>montanum</i> (Pers.) Hayek	1790	2020
<i>Lamium maculatum</i> (L.) L.	1792	<b>2025</b>
<i>Lamium purpureum</i> L.	1891	<b>2025</b>
<i>Lampranthus bicolor</i> (L.) N.E.Br.	1806	1900
<i>Lantana camara</i>	2025	
<i>Laphangium luteoalbum</i> (L.) Tzvelev	1791	2023
<i>Lappula marginata</i> Guercke.	1791	
<i>Lappula myosotis</i> Moench	1790	1944
<i>Lappula squarrosa</i> (Retz.) Dumort.	1899	1969
<i>Lapsana communis</i> L.	1885	<b>2025</b>
<i>Larix decidua</i> (L.) Mill.	1790	<b>2025</b>
<i>Larix sibirica</i> Ledeb.	2025	
<i>Laser trilobum</i> (L.) Borkh.	1935	1946

<i>Lathraea squamaria</i> L.	1845	2021
<i>Lathyrus aphaca</i> L.	1790	2019
<i>Lathyrus cicera</i> L.	1786	1938
<i>Lathyrus clymenum</i> L.	1935	1938
<i>Lathyrus hirsutus</i> L.	1790	2023
<i>Lathyrus latifolius</i> L.	1790	2025
<i>Lathyrus linifolius</i> (Reichard) Bässler	1790	2021
<i>Lathyrus niger</i> (L.) Bernh.	1792	1899
<i>Lathyrus nissolia</i> L.	1797	2014
<i>Lathyrus oleraceus</i> Lam.	1892	2002
<i>Lathyrus palustris</i> L.	1794	2007
<i>Lathyrus pratensis</i> L.	1790	2021
<i>Lathyrus sativus</i> L.	1790	2020
<i>Lathyrus sylvestris</i> L.	1790	2025
<i>Lathyrus tuberosus</i> L.	1792	2019
<i>Lathyrus vernus</i> (L.) Bernh.	1790	2021
<i>Laurus nobilis</i> L.	1790	2025
<i>Lavandula angustifolia</i> Mill.	1790	2025
<i>Lavandula dentata</i> L.	2025	
<i>Lavandula stoechas</i> L.	2025	
<i>Leersia oryzoides</i> (L.) Sw.	1847	2015
<i>Legousia speculum-veneris</i> (L.) Chaix	1890	2013
<i>Lemna gibba</i> L.	1883	1998
<i>Lemna minor</i> L.	1790	2012
<i>Lemna minuta</i> Humb., Bonpl. & Kunth	1790	2020
<i>Lemna trisulca</i> L.	1866	2020
<i>Lemna turionifera</i> Landolt	1790	2020
<i>Lens culinaris</i> Medicus	1790	1937
<i>Leontodon autumnalis</i> L.	1843	
<i>Leontodon hirtus</i> L.	1935	
<i>Leontodon hispidus</i> L.	1790	2025
<i>Leontodon hispidus</i> L. ssp. <i>hispidus</i>	1791	1936
<i>Leontodon saxatilis</i> Lam.	1880	2021
<i>Leonurus cardiaca</i> L.	1900	2025
<i>Leopoldia comosa</i> (L.) Parl.	1837	2021
<i>Lepidium apetalum</i> Willd.	1817	1946
<i>Lepidium bonariense</i> L.	1937	1944
<i>Lepidium campestre</i> (L.) W.T. Aiton	1790	2020
<i>Lepidium coronopus</i> (L.) Al-Shehbaz	1790	1993
<i>Lepidium densiflorum</i> Schrad.	1903	2007
<i>Lepidium didymum</i> L.	1900	2025
<i>Lepidium draba</i> L.	1887	2025
<i>Lepidium graminifolium</i> L.	1791	2023
<i>Lepidium heterophyllum</i> Benth.	1996	
<i>Lepidium latifolium</i> L.	1897	1969
<i>Lepidium perfoliatum</i> L. (1791)	1895	1944
<i>Lepidium ruderale</i> L.	1790	2006
<i>Lepidium sativum</i> L.	1790	2015
<i>Lepidium virginicum</i> L.	1790	2025
<i>Lepturus cylindricus</i> Trin.	1848	1897
<i>Lepyrodiclis stellarioides</i> Fisch. & CA Mey.	1902	1906
<i>Leucanthemum irtutianum</i> DC.	1997	2013
<i>Leucanthemum vulgare</i> Lam.	1790	2025
<i>Leucojum aestivum</i> L.	1786	2025
<i>Leucojum vernum</i> L.	1790	2009
<i>Leucosyris parviflora</i> (A.Gray) Pruski & R.L.Hartm.	1990	
<i>Levisticum officinale</i> Koch	1791	2025
<i>Liatris spicata</i> (L.) Willd.	2025	
<i>Ligustrum ovalifolium</i> Hassk.	1927	2025
<i>Ligustrum vulgare</i> L.	1786	2025

<i>Limosella aquatica</i> L.	1879	2018
<i>Linaria arvensis</i> (L.) Desf.	1797	1899
<i>Linaria dalmatica</i> (L.) Mill.	1956	
<i>Linaria genistifolia</i> (L.) Mill.	1814	2021
<i>Linaria purpurea</i> (L.) Mill.	1790	2023
<i>Linaria repens</i> (L.) Mill. sensu Willd.	1792	2007
<i>Linaria vulgaris</i> Mill.	1790	2025
<i>Lindernia procumbens</i> (Krock.) Borbás	1797	1995
<i>Lindernia rotundifolia</i> (L.) Alston	1796	
<i>Linnaea amabilis</i> (Graebn.) Christenh.	2025	
<i>Linnaea chinensis</i> A. Braun & Vatke	2025	
<i>Linum austriacum</i> L.	1791	2021
<i>Linum catharticum</i> L.	1796	
<i>Linum grandiflorum</i> Desf.	2007	2025
<i>Linum perenne</i> L.	1792	2008
<i>Linum tenuifolium</i> L.	1899	1969
<i>Linum usitatissimum</i> L.	1936	2025
<i>Liquidambar styraciflua</i> L.	1790	2025
<i>Liriodendron tulipifera</i> L.	1786	2025
<i>Lithospermum officinale</i> L.	1791 (1837)	2025
<i>Lithospermum purpureocaeruleum</i> L.	1801	1885
<i>Lobelia erinus</i> L.	1790	2025
<i>Lobularia maritima</i> (L.) Desv.	1790	2025
<i>Lolium arundinaceum</i> (Schreb.) Darbysh.	1863	2025
<i>Lolium giganteum</i> (L.) Darbysh.	1790	2025
<i>Lolium multiflorum</i> Lam.	1834	2025
<i>Lolium perenne</i> L.	1810	2025
<i>Lolium pratense</i> (Huds.) Darbysh.	1863	2025
<i>Lolium remotum</i> Schrank	1898	1944
<i>Lolium rigidum</i> Gaudin	1833	2009
<i>Lolium siculum</i> Parl.	1935	
<i>Lolium subulatum</i> Vis.	1930	1937
<i>Lolium temulentum</i> L.	1790	1946
<i>Lonicera micrantha</i> Regel	1927	
<i>Lonicera acuminata</i> Wall.	2009	2014
<i>Lonicera caprifolium</i> L.	1869	2007
<i>Lonicera fragrantissima</i> Lindl. & Paxton	2025	
<i>Lonicera involucrata</i> (Richards) Barks	1934	1949
<i>Lonicera japonica</i> Thunb.	1791	2025
<i>Lonicera ledebourii</i> (L.) Esch.	1950	
<i>Lonicera ligustrina</i> var. <i>pileata</i> (Oliv.) Franch.	2000	2025
<i>Lonicera ligustrina</i> var. <i>yunnanensis</i> Franch.	1937	2009
<i>Lonicera microphylla</i> Willd	1950	
<i>Lonicera periclymenum</i> L.	1790	2020
<i>Lonicera purpusii</i> Rehder	1931	1949
<i>Lonicera tatarica</i> L.	1791	2025
<i>Lonicera xylostereum</i> L.	1802	2023
<i>Loropetalum chinense</i> (R. Br.) Oliv.	2025	
<i>Lotus corniculatus</i> L.	1790	2025
<i>Lotus maritimus</i> L.	1804	1990
<i>Lotus pedunculatus</i> Cav.	1886	2014
<i>Lotus tenuis</i> Waldst. & Kit.	1862	2025
<i>Lotus tetragonolobus</i> L.	1990	
<i>Lotus uliginosus</i> L.	1806	1891
<i>Ludwigia palustris</i> (L.) Elliot	1899	1998
<i>Ludwigia repens</i> J.R. Forst.	1988	
<i>Ludwigia x kentiana</i> E.J. Clement	1997	2022
<i>Lunaria annua</i> L.	1791	2025
<i>Lunaria rediviva</i> L.	1791	2025

<i>Lupinus angustifolius</i> L.	1888	<b>2025</b>
<i>Lupinus luteus</i> L.	1791	2006
<i>Lupinus polyphyllus</i> Lindl.	1885	2010
<i>Luzula campestris</i> (L.) DC.	1790	<b>2025</b>
<i>Luzula forsteri</i> (Sm.) DC.	1983	
<i>Luzula luzuloides</i> (Lam.) Dandy & Wilmott	1882	2020
<i>Luzula multiflora</i> (Ehrh.) Lej.	1837	2020
<i>Luzula nivea</i> (L.) DC.	<b>2025</b>	
<i>Luzula pilosa</i> (L.) Willd.	1837	2023
<i>Luzula sylvatica</i> (Huds.) Gaudin	1837	<b>2025</b>
<i>Lycianthes lycioides</i>	<b>2025</b>	
<i>Lycium barbarum</i> L.	1790	2007
<i>Lycium chinense</i> Mill.	1908	
<i>Lycopodium clavatum</i> L.	1855	1993
<i>Lycopsis arvensis</i> L.	1947	<b>2025</b>
<i>Lycopus europaeus</i> L.	1835	2023
<i>Lysimachia arvensis</i> (L.) U. Manns & Anderb.	1790	2019
<i>Lysimachia clethroides</i>	<b>2025</b>	
<i>Lysimachia loeflingii</i> F.J. Jiménez & M. Talavera	1936	
<i>Lysimachia minima</i> (L.) U.Manns & Anderb.	1790	1985
<i>Lysimachia nemorum</i> L.	1886	2010
<i>Lysimachia nummularia</i> L.	1790	<b>2025</b>
<i>Lysimachia punctata</i> L.	1884	2010
<i>Lysimachia thyrsoiflora</i> L.	1893	
<i>Lysimachia vulgaris</i> L.	1890	<b>2025</b>
<i>Lythrum hyssopifolia</i> L.	1790	2021
<i>Lythrum portula</i> (L.) D.A.Webb	1790	2018
<i>Lythrum salicaria</i> L.	1790	<b>2025</b>
<i>Magnolia figo</i> (Lour.) DC.	<b>2025</b>	
<i>Magnolia grandiflora</i> L.	1790	<b>2025</b>
<i>Magnolia liliiflora</i> Desr.	<b>2025</b>	
<i>Magnolia stellata</i> (Siebol. & Zucc.) Maxim	<b>2025</b>	
<i>Maianthemum bifolium</i> (L.) F. W. Schmidt	1790	2005
<i>Majorana hortensis</i> Moench	1815	1932
<i>Malcomia maritima</i> (L.) R.Br.	1787	1897
<i>Malus baccata</i> (L.) Borkh.	1949	<b>2025</b>
<i>Malus domestica</i> (Suckow) Borkh.	1790	<b>2025</b>
<i>Malus floribunda</i> Siebold ex van Houtte	1933	1954
<i>Malus prunifolia</i> (Wild.) Borkh.	1949	
<i>Malus pumila</i> Mill.	2002	<b>2025</b>
<i>Malus sylvestris</i> (L.) Mill.	1790	2014
<i>Malva alcea</i> L.	1814	2003
<i>Malva moschata</i> L.	1899	<b>2025</b>
<i>Malva neglecta</i> Wallr.	1790	<b>2025</b>
<i>Malva pusilla</i> Sm.	1790	<b>2025</b>
<i>Malva setigera</i> K.F. Schimp. & Spenn.	1836	1945
<i>Malva sylvestris</i> L.	1790	<b>2025</b>
<i>Malva trimestris</i> (L.) Salisb.	<b>2025</b>	
<i>Malva verticillata</i> L.	1790	1946
<i>Marrubium incanum</i> Desr.	1817	1899
<i>Marrubium peregrinum</i> L.	1899	1924
<i>Marrubium vulgare</i> L.	1899	1944
<i>Marsilea ancylopoda</i> A.Braun	1870	
<i>Marsilea quadrifolia</i> L.	1886	2018
<i>Matricaria chamomilla</i> L.	1891	<b>2025</b>
<i>Matricaria discoidea</i> DC.	1790	<b>2025</b>
<i>Matricaria inodora</i> L.	1843	1943
<i>Matricaria maritima</i> L.	1936	
<i>Matteuccia struthiopteris</i> (L.) Tod. (1886)	2002	

<i>Matthiola incana</i> (L.) W.T. Aiton	1791	2025
<i>Medicago arabica</i> (L.) Huds.	1814	2025
<i>Medicago falcata</i> L.	1886	2025
<i>Medicago lupulina</i> L.	1843	2025
<i>Medicago minima</i> (L.) L.	1814	2025
<i>Medicago polymorpha</i> L.	1790	2023
<i>Medicago sativa</i> L.	1790	2025
<i>Medicago x varia</i> Martyn	1893	2025
<i>Megathyrsus maximus</i> (Jacq.) B.K. Simon & S.W.L. Jacobs	2025	
<i>Melampyrum arvense</i> L.	1790	2009
<i>Melampyrum pratense</i> L.	1790	2020
<i>Melica nutans</i> L.	1837	2020
<i>Melica uniflora</i> Retz.	1791	2020
<i>Melilotus albus</i> Medik.	1790	2025
<i>Melilotus altissimus</i> Thuill.	1790	2014
<i>Melilotus indicus</i> (L.) All.	1903	1990
<i>Melilotus officinalis</i> (L.) Lam.	1790	2025
<i>Melilotus sulcatus</i> Desf.	1892	1947
<i>Melinis repens</i> (Willd.) Zizka	2025	
<i>Melissa officinalis</i> L.	1998	2025
<i>Mentha aquatica</i> L.	1895	2020
<i>Mentha arvensis</i> L.	1816	2022
<i>Mentha longifolia</i> (L.) L.	1843	2025
<i>Mentha pulegium</i> L.	1806	2025
<i>Mentha spicata</i> L.	1817	2025
<i>Mentha suaveolens</i> Ehrh.	1790	2010
<i>Mentha x piperita</i> L.	2007	2021
<i>Mentha x verticillata</i>	1790	1993
<i>Mentha x villosa</i> Huds.	1817	2008
<i>Menyanthes trifoliata</i> L.	1814	2009
<i>Mercurialis annua</i> L.	1790	2025
<i>Mercurialis perennis</i> L.	1883	2025
<i>Mertensia pulmonarioides</i> Roth	1798	1898
<i>Mibora minima</i> (L.) Desv.	1840	1899
<i>Micromeria juliana</i> (L.) Benth.	1790	1897
<i>Microstegium vimineum</i>	2025	
<i>Microthlaspi perfoliatum</i> (L.) F. K. Mey.	1791	2019
<i>Milium effusum</i> L.	1790	2022
<i>Mimulus guttatus</i> DC.	1814	2025
<i>Minuartia hybrida</i> (Vill.) Schischk.	1790	2021
<i>Mirabilis jalapa</i> L.	1790	2025
<i>Miscanthus sacchariflorus</i> (Maxim.) Hack.	2013	2019
<i>Miscanthus sinensis</i> Andersson	1897	2025
<i>Misopates orontium</i> (L.) Raf.	1791	2021
<i>Moehringia trinervia</i> (L.) Clairv.	1883	2021
<i>Moenchia erecta</i> (L.) G. Gaertn. B. Mey. & Scherb.	1899	1944
<i>Moenchia mantica</i> (L.) Bartl.	1935	1939
<i>Molinia arundinacea</i> Schrank	1899	2019
<i>Molinia caerulea</i> (L.) Moench	1838	2020
<i>Monotropa hypopytis</i> L.	1814	1883
<i>Montia fontana</i> L.	1899	
<i>Morus alba</i> L.	1792	1943
<i>Muehlenbeckia complexa</i> (A. Cunn.) Meisn.	2025	
<i>Muhlenbergia mexicana</i> (L.) Trin.	1790	2016
<i>Mummenhoffia alliacea</i> (L.) Esmailbegi & Al-Shehbaz	1885	2020
<i>Muscari armeniacum</i> H.J.Veitch	1790	2025
<i>Muscari botryoides</i> (L.) Mill.	1935	2019
<i>Muscari neglectum</i> Guss. ex Ten.	1843	2014
<i>Myagrum perfoliatum</i> L.	1786	1944

<i>Mycelis muralis</i> (L.) Dumort.	1790	<b>2025</b>
<i>Myosotis arvensis</i> (L.) Hill	1791	<b>2025</b>
<i>Myosotis discolor</i> Pers.	1790	2021
<i>Myosotis laxa</i> Lehm.	1976	
<i>Myosotis nemorosa</i> Besser	1976	2020
<i>Myosotis ramosissima</i> Rochel ex Schult.	1790	<b>2025</b>
<i>Myosotis scorpioides</i> L.	1790	2011
<i>Myosotis stricta</i> Link ex Roem. & Schult.	1790	<b>2025</b>
<i>Myosotis sylvatica</i> Ehrh. ex Hoffm.	1790	2020
<i>Myosoton aquaticum</i> L.	1791	1949
<i>Myricaria germanica</i> (L.) Desv.	1899	
<i>Myriophyllum aquaticum</i> (Vell.) Verdc.	2011	
<i>Myriophyllum spicatum</i> L.	1884	1990
<i>Myriophyllum verticillatum</i> L.	1814	2011
<i>Myrrhis odorata</i> (L.) Scop.	1790	1990
<i>Najas marina</i> L.	1821	2015
<i>Najas minor</i> All.	1883	1993
<i>Nandina domestica</i> Thunb.	<b>2025</b>	
<i>Narcissus poeticus</i> L.	2011	<b>2025</b>
<i>Narcissus pseudonarcissus</i> L.	2001	<b>2025</b>
<i>Narcissus tazetta</i> L.	<b>2025</b>	
<i>Nardus stricta</i> L.	1912	2009
<i>Nassella tenuissima</i> (Trin.) Barkworth	<b>2025</b>	
<i>Nasturtium microphyllum</i> Boenn. ex Rchb.	1966	1989
<i>Nasturtium officinale</i> R. Br.	1790	2016
<i>Neillia tanakae</i> (Franch. & Sav.) Franch. & Sav. ex S.H.Oh	1929	1946
<i>Neotinea ustulata</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase	1886	1996
<i>Neottia nidus-avis</i> (L.) Rich.	1899	2023
<i>Neottia ovata</i> Bluff & Fingerh.	1843	<b>2025</b>
<i>Nepeta cataria</i> L.	1899	2017
<i>Nepeta latifolia</i> DC	<b>2025</b>	
<i>Nepeta racemosa</i> Lam.	<b>2025</b>	
<i>Nepeta x faassenii</i> Bergmans ex Stearn	1997	2008
<i>Nerium oleander</i> L.	1790	<b>2025</b>
<i>Neslia paniculata</i> (L.) Desv.	1897	1990
<i>Nicandra physalodes</i> (L.) P. Gaertn.	1791	2021
<i>Nicotiana petiolata</i>	1840	
<i>Nicotiana rustica</i> L.	1791	1896
<i>Nicotiana tabacum</i> L.	1791	1883
<i>Nigella arvensis</i> L.	1899	1937
<i>Nigella damascena</i> L.	1790	<b>2025</b>
<i>Nonea lutea</i> DC.	1791	<b>2025</b>
<i>Nonea pulla</i> (L.) DC.	1792	1888
<i>Nuphar lutea</i> (L.) Sm.	1790	<b>2025</b>
<i>Nymphaea alba</i> L.	1790	<b>2025</b>
<i>Nymphaea candida</i> J. Presl. & C. Presl	2011	
<i>Nymphoides peltata</i> (S. G. Gmel.) Kuntze	1790	2005
<i>Ocimum basilicum</i>	1790	<b>2025</b>
<i>Odontites luteus</i> (L.) Clairv.	1792	2015
<i>Odontites vernus</i> (Bellardi) Dumort.	1940	2008
<i>Odontites vulgaris</i> Moench	1928	2021
<i>Oenanthe aquatica</i> (L.) Poir.	1899	2003
<i>Oenanthe crocata</i> L.	1899	
<i>Oenanthe fistulosa</i> L.	1790	1987
<i>Oenanthe lachenalii</i> C.C. Gmel.	1790	
<i>Oenanthe pimpinelloides</i> L.	1884	1885
<i>Oenothera rosea</i> Aiton	1933	1948
<i>Oenothera biennis</i> L.	1790	<b>2025</b>

<i>Oenothera glazioviana</i> Micheli	2010	
<i>Oenothera lindheimeri</i> (Engelm. & A. Gray) W.L. Wagner & Hoch.	2025	
<i>Oenothera oakensiana</i> (A. Gray) J.W. Robbins & S. Watson.	1932	1950
<i>Oenothera parviflora</i> L.	1790	2022
<i>Oenothera stricta</i> Ledeb.	1940	
<i>Oenothera x fallax</i> Renner	1932	2019
<i>Olea europaea</i> L.	1790	2025
<i>Omphalodes scorpioides</i> (Haenke) Schrank	1928	
<i>Omphalodes verna</i> Moench	1791	2021
<i>Onobrychis viciifolia</i> Scop.	1790	2025
<i>Ononis spinosa</i> L.	1806	2010
<i>Ononis spinosa</i> ssp. <i>procurrens</i> (Wallr.) Briq.	1806	2025
<i>Onopordum acanthium</i> L.	1790 (1849)	2013
<i>Ophioglossum vulgatum</i> L.	1790	1883
<i>Ophrys apifera</i> Huds.	1899	2021
<i>Ophrys holoserica</i> (Burm.f.) Greuter ssp. <i>holoserica</i>	1886	1899
<i>Ophrys insectifera</i> L.	1883	2025
<i>Ophrys sphegodes</i> Mill.	1899	1999
<i>Orchis mascula</i> (L.) L.	1790	1994
<i>Orchis militaris</i> L.	1896	
<i>Orchis purpurea</i> Huds.	1790	2020
<i>Orchis simia</i> Lam.	1899	1944
<i>Oreopteris limbosperma</i> (All.) Holub	1790	2010
<i>Origanum vulgare</i> L.	1790	2025
<i>Orlaya daucooides</i> (L.) Greuter	1791	1940
<i>Orlaya grandiflora</i> (L.) Hoffm.	1790	2025
<i>Ornithogalum angustifolium</i> Boreau	2021	2023
<i>Ornithogalum nutans</i> L.	1843	2025
<i>Ornithogalum umbellatum</i> L.	1878	2025
<i>Ornithopus perpusillus</i> L.	1814	2021
<i>Ornithopus sativud</i> Link.	1933	1935
<i>Ornithopus sativus</i> Brot.	1887	1969
<i>Orobanche arenaria</i> Borkh.	1843	1886
<i>Orobanche caryophyllacea</i> Sm.	1844	2012
<i>Orobanche crenata</i> Forssk.	1927	1935
<i>Orobanche hederæ</i> Duby	1926	2025
<i>Orobanche lutea</i> Baumg.	2020	2023
<i>Orobanche minor</i> Sm.	1882	2013
<i>Orobanche ramosa</i> L.	1814	1990
<i>Orobanche rapum genistæ</i> Thuill.	1899	
<i>Orobanche reticulata</i> Wallr.	1844	2017
<i>Oryza sativa</i> L.	1791	
<i>Osmanthus fragrans</i> Lour.	1790	2025
<i>Ostrya carpinifolia</i> Scop.	1790	1997
<i>Ostrya virginiana</i> (Mill.) L. Koch.	1790	
<i>Oxalis acetosella</i> L.	1890	2010
<i>Oxalis articulata</i>	1790	2025
<i>Oxalis corniculata</i> L.	1883	2025
<i>Oxalis dillenii</i> Jacq.	1790	2025
<i>Oxalis stricta</i> L.	1893	2023
<i>Paeonia officinalis</i> L.	2001	
<i>Paeonia x suffruticosa</i> Andfews	2025	
<i>Panicum barbipulvinatum</i> Nash	1985	
<i>Panicum capillare</i> L.	1790	2025
<i>Panicum dichotomiflorum</i> Michx.	2015	
<i>Panicum miliaceum</i> L.	1895	2025
<i>Panicum virgatum</i> L.	2012	2025
<i>Papaver confine</i> Jord.	2020	
<i>Papaver dubium</i> L.	1884	2022

<i>Papaver hybridum</i>	1886	1937
<i>Papaver orientale</i> L.	1790	2025
<i>Papaver rhoeas</i> L.	1814	2025
<i>Papaver somniferum</i> L.	1903	2025
<i>Papaver x strigosum</i> Boenn. & Schur.	1936	
<i>Parietaria judaica</i> L.	1806	2025
<i>Parietaria officinalis</i> L.	1791	2025
<i>Paris quadrifolia</i> L.	1843	2014
<i>Parnassia palustris</i> L.	1889	1936
<i>Parrotia persica</i>	1932	2025
<i>Parthenocissus quinquefolia</i> (L.) Planch.	1790	2025
<i>Parthenocissus tricuspidata</i> (Siebold & Zucc.) Planch.	1929	2025
<i>Passiflora caerulea</i> L.	1790	2025
<i>Pastinaca sativa</i> L.	1790	2025
<i>Paulownia tomentosa</i> (Thunb.) Steud.	1997	2025
<i>Pedicularis palustris</i> L.	1828	1928
<i>Peltaria alliacea</i> Jacq.	1791	1936
<i>Penothera laciniata</i> Hill	1936	
<i>Penstemon hirsutus</i> (L.) Willd	1790	1939
<i>Pentaglottis sempervirens</i> (L.) L. H. Bailey	1793	2021
<i>Perovskia atriplicifolia</i>	2025	
<i>Persicaria amphibia</i> (L.) Delarbre	1790	2015
<i>Persicaria amplexicaulis</i> (D. Don.) Ronse Decr.	2025	
<i>Persicaria bistorta</i> Samp.	1790	2014
<i>Persicaria capitata</i> (Buch. Ham. ex D. Don) H. Gross	2009	
<i>Persicaria hydropiper</i> (L.) Delarbre	1814	2015
<i>Persicaria lapathifolia</i> (L.) Delarbre	1804	2025
<i>Persicaria maculosa</i> Gray	1933	2025
<i>Persicaria minor</i> (Huds.) Opiz	1790	2015
<i>Persicaria mitis</i> (Schrank) Holub	1843	2025
<i>Persicaria orientalis</i> (L.) Spach	1790	1943
<i>Petasites albus</i> (L.) G. Gaertn.	2005	2007
<i>Petasites hybridus</i> (L.) G. Gaertn. B. Mey. & Scherb.	1843	2025
<i>Petrorhagia prolifera</i> (L.) P. W. Ball & Heywood	1913	2021
<i>Petrorhagia saxifraga</i> Link	1998	2021
<i>Petrosedum rupestre</i> (L.) P.V. Heath	1889	2025
<i>Petroselinum crispum</i> (Mill.) Fuss	1791	2025
<i>Petunia atkinsiana</i> (Sweet) D. Don ex W.H. Baxter	2002	2025
<i>Petunia axillaris</i> (Lam.) Britton, Stearns. & Poggenb.	2025	
<i>Petunia violacea</i> Lindl.	1942	
<i>Peucedanum carvifolia</i> Vill.	1791	1841
<i>Peucedanum cervaria</i> (L.) Lapeyr.	1837	2013
<i>Peucedanum officinale</i> L.	1790	2021
<i>Peucedanum oreoselinum</i> Moench	1883	2015
<i>Peucedanum palustre</i> (L.) Moench	1804	1979
<i>Phacelia tanacetifolia</i> Benth.	1903	2025
<i>Phalaris arundinacea</i> L.	1894	2025
<i>Phalaris canariensis</i> L.	1894	2016
<i>Phalaris paradoxa</i> L.	1933	1937
<i>Phaseolus coccineus</i> L.	1790	2025
<i>Phaseolus vulgaris</i> L.	1790	2025
<i>Phedimus hypridus</i> (L.) t' Hart	2025	
<i>Phedimus spurius</i> (M. Bieb.) Hart	1790	2013
<i>Philadelphus coronarius</i> L.	1814	2025
<i>Phinanthus angustifolius</i>	1904	
<i>Phleum exaratum</i> Griseb..	1901	1937
<i>Phleum paniculatum</i> Huds.	1791	1899
<i>Phleum phleoides</i> (L.) H. Karst.	1799	2016
<i>Phleum pratense</i> L.	1790	2025
<i>Phleum subulatum</i> (Savi) Asch. & Graebn.	1936	1941

<i>Phlomis russeliana</i> (Sims) Lag. ex. Benth,	2025	
<i>Phlox subulata</i> L.	1790	2025
<i>Phoenix canariensis</i> H. Wildbret	2025	
<i>Photinia serratifolia</i> (Desf.) Kalkm.	2025	
<i>Photinia x fraseri</i> Dress.	2025	
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	1790	2025
<i>Phyllostachys aureosulcata</i> McClure	2018	
<i>Phyllostachys glauca</i> McClure	2018	
<i>Phyllostachys nigra</i> (Lodd. ex Lindl.) Munro	2018	
<i>Physalis grisea</i> (Waterf.) M.Martinez	2013	
<i>Physalis lanceolata</i> Michx.	1907	1908
<i>Physalis peruviana</i> L.	1790	2021
<i>Physocarpus opulifolius</i> (L.) Maxim.	1791	2025
<i>Phyteuma nigrum</i> F. W. Schmidt	1883	2015
<i>Phyteuma orbiculare</i> L.	1814	2021
<i>Phyteuma spicatum</i> L.	1884	2014
<i>Phyteuma x adulterinum</i> Wallr.	2021	
<i>Phytolacca acinosa</i> Roxb.	2025	
<i>Phytolacca americana</i> L.	1790	2025
<i>Phytolacca esculenta</i> Van Houtte	2007	2010
<i>Picea abies</i> (L.) H. Karst.	1852	2025
<i>Picea glauca</i> (Moench) Voss.	2025	
<i>Picris hieracioides</i> L.	1792	2025
<i>Pieris japonica</i> (Thunb.) D. Don ex G. Don	2025	
<i>Pilosella acutifolia</i> (Vill.) Arv.-Touv.1894	2012	
<i>Pilosella acutifolia</i> ssp. <i>villarsii</i> (F.W.Schultz) Gottschl.	1894	1969
<i>Pilosella aurantiaca</i> (L.) F.W.Schultz & Sch.Bip.	1814	2025
<i>Pilosella auriculiformis</i> F.W.Schultz & Sch.Bip.	1885	
<i>Pilosella auriculooides</i> (Láng) Arv.-Touv.	1899	1988
<i>Pilosella bifurca</i> F.W.Schultz & Sch.Bip	1885	1904
<i>Pilosella caespitosa</i> (Dumort.) P.D.Sell & C.West	1898	2019
<i>Pilosella calodon</i> (Tausch ex Peter) Soják	1899	
<i>Pilosella cana</i> (Peter) Gottschl.	1885	1955
<i>Pilosella cymosa</i> (L.) F.W.Schultz & Sch.Bip.	1795	1956
<i>Pilosella densiflora</i> (Tausch) Soják	1900	1944
<i>Pilosella fallacina</i> (F.W.Schultz) F.W.Schultz	1902	1985
<i>Pilosella lactucella</i> (Wallr.) P.D.Sell & C.West	1886	2000
<i>Pilosella leptophyton</i> (Nägeli & Peter) S.Bräut. & Greuter	1886	1996
<i>Pilosella officinarum</i> F.W.Schultz & Sch.Bip.	1837	2023
<i>Pilosella pilosellina</i> (F.W.Schultz) F.W.Schultz & Sch.Bip. ex Soják	1894	
<i>Pilosella piloselloides</i> (Vill.) Soják	1790	2025
<i>Pilosella piloselloides</i> ssp. <i>praealta</i> (Gochnat) S.Bräut. & Greuter	1840	1895
<i>Pilosella schultesii</i> (F.W.Schultz) F.W.Schultz & Sch.Bip.	1885	
<i>Pilosella x ziziana</i> (Tausch) F.W.Schultz & Sch.Bip.	1900	1994
<i>Pilsatilla pratensis</i> Mill.	1843	
<i>Pilularia globulifera</i> L.	1899	1997
<i>Pimpinella anisum</i> L.	1941	
<i>Pimpinella major</i> (L.) Huds.	1890	2012
<i>Pimpinella peregrina</i> L.	2001	2008
<i>Pimpinella saxifraga</i> L.	1820	2025
<i>Pinellia ternata</i> (Thunb.) Makino.	1932	1937
<i>Pinus banksiana</i> Lamb.	1935	1949
<i>Pinus nigra</i> J. F. Arnold	1984	2025
<i>Pinus strobus</i> L. (1886)	1994	
<i>Pinus sylvestris</i> L.	1790	2025
<i>Pistia stratiotes</i> L.	1989	
<i>Plantago afra</i> L.	1790	1933

<i>Plantago coronopus</i> L.	1790	<b>2025</b>
<i>Plantago indica</i> L.	1790	<b>2025</b>
<i>Plantago lanceolata</i> L.	1821	<b>2025</b>
<i>Plantago major</i> L.	1790	<b>2025</b>
<i>Plantago major</i> ssp. <i>intermedia</i> (Gilib.) Lange	1990	2011
<i>Plantago media</i> L.	1790	<b>2025</b>
<i>Platanthera bifolia</i> (L.) Rich.	1790	2021
<i>Platanthera chlorantha</i> (Custer) Rchb.	1843	2000
<i>Platanus occidentalis</i> L.	1790	<b>2025</b>
<i>Platanus x hispanica</i> Miller ex Münchh.	1790	<b>2025</b>
<i>Platycladus orientalis</i> (L.) Franco	1944	<b>2025</b>
<i>Platycodon grandiflorus</i>	1791	<b>2025</b>
<i>Pleioblastus viridistriatus</i> (Regel) Makino	<b>2025</b>	
<i>Poa angustifolia</i> L.	1790	<b>2025</b>
<i>Poa annua</i> L.	1841	<b>2025</b>
<i>Poa bulbosa</i> L.	1892	2020
<i>Poa chaixii</i> Vill.	1885	<b>2025</b>
<i>Poa compressa</i> L.	1885	2015
<i>Poa glauca</i> L.	1885	1887
<i>Poa humilis</i> Ehrh. ex Hoffm.	1900	
<i>Poa nemoralis</i> L.	1837	2023
<i>Poa palustris</i> L.	1883	2011
<i>Poa pratensis</i> L.	1837	<b>2025</b>
<i>Poa supina</i> Schrad.	2020	
<i>Poa trivialis</i> L.	1837	<b>2025</b>
<i>Polycarpon tetraphyllum</i> (L.) L.	1806	<b>2025</b>
<i>Polycnemum arvense</i> L.	1790	1956
<i>Polycnemum majus</i> A. Braun ex Bogenh.	1810	1981
<i>Polygala amarella</i> Crantz	1882	2020
<i>Polygala comosa</i> Schkuhr	1927	2020
<i>Polygala serpyllifolia</i> Hosé	2008	2014
<i>Polygala vulgaris</i> L.	1925	2020
<i>Polygonatum multiflorum</i> (L.) All.	1837	2014
<i>Polygonatum odoratum</i> (Mill.) Druce	1850	2013
<i>Polygonatum verticillatum</i> (L.) All.	1991	
<i>Polygonum arenastrum</i> Boreau	1990	2019
<i>Polygonum aviculare</i> L.	1790	<b>2025</b>
<i>Polygonum divaricatum</i> L.	1798	
<i>Polypodium vulgare</i> L.	1790	<b>2025</b>
<i>Polypogon maritimus</i> Willd.	1936	1937
<i>Polypogon monpelensis</i> (L.) Desf	1933	1942
<i>Polypogon viridis</i> (Gouan) Breitst.	1806	
<i>Polypogon interruptus</i> SM.	1884	1898
<i>Polystichum aculeatum</i> (L.) Roth	1790	<b>2025</b>
<i>Populus alba</i> L.	1945	<b>2025</b>
<i>Populus balsamifera</i> L.	2000	2012
<i>Populus canadensis</i> Moench	1985	<b>2025</b>
<i>Populus nigra</i> L.	1790	<b>2025</b>
<i>Populus tremula</i> L.	1899	2014
<i>Populus x canescens</i> (Aiton) Sm.	2007	<b>2025</b>
<i>Porophyllum rurale</i> ssp. <i>macrocephalum</i> (DC) R.R. Johnson	1935	
<i>Portulaca oleracea</i> L.	1893	<b>2025</b>
<i>Potamogeton acutifolius</i> Link	1845	1899
<i>Potamogeton berchtoldii</i> Fieber	1883	2004
<i>Potamogeton crispus</i> L.	1790	2008
<i>Potamogeton gramineus</i> L.	1899	
<i>Potamogeton lucens</i> L.	1837	2007
<i>Potamogeton natans</i> L.	1790	2003
<i>Potamogeton nodosus</i> Poir.	1885	2023
<i>Potamogeton obtusifolius</i> Biv.	1990	

<i>Potamogeton perfoliatus</i> L.	1824	2019
<i>Potamogeton pusillus</i>	1883	1996
<i>Potamogeton trichoides</i> Cham. & Schldtl.	1899	2005
<i>Potamogeton x angustifolius</i> J. Presl	1790	2007
<i>Potentilla anglica</i> Laichard.	1790	2025
<i>Potentilla argentea</i> L.	1790	2025
<i>Potentilla cinerea</i>	1840	
<i>Potentilla erecta</i> (L.) Raeusch.	1886	2025
<i>Potentilla heptaphylla</i> L.	1791	1940
<i>Potentilla hirta</i> L.	1791	1884
<i>Potentilla inclinata</i> Vill.	1791	1936
<i>Potentilla indica</i> (Andrews) Th. Wolf	1790	2025
<i>Potentilla intermedia</i> L.	1814	2020
<i>Potentilla laciniosa</i>	1790	1908
<i>Potentilla multifida</i> L.	1791	1896
<i>Potentilla norvegica</i> L.	1790	2025
<i>Potentilla pensylvanica</i> L.	1791	1907
<i>Potentilla pusilla</i> Host	1837	1948
<i>Potentilla recta</i> L.	1791	2023
<i>Potentilla reptans</i> L.	1837	2025
<i>Potentilla sterilis</i> (L.) Garcke	1790	2011
<i>Potentilla supina</i> L.	1791	2022
<i>Potentilla verna</i> L.	1790	2025
<i>Prenanthes purpurea</i> L.	1790	2003
<i>Primula elatior</i> (L.) Hill	1790	2025
<i>Primula veris</i> L.	1790	2025
<i>Primula vulgaris</i> Huds.	2008	
<i>Prunella grandiflora</i> (L.) Scholler	1899	2014
<i>Prunella laciniata</i> (L.) L.	1806	1993
<i>Prunella vulgaris</i> L.	1790	2025
<i>Prunus avium</i> (L.) L.	1790	2025
<i>Prunus cerasifera</i> Ehrh.	1894	2025
<i>Prunus cerasus</i> L.	1790	2007
<i>Prunus domestica</i> L.	1790	2025
<i>Prunus insititia</i> L.	1790	
<i>Prunus laurocerasus</i> L.	1790	2025
<i>Prunus lusitanica</i>	1814	2025
<i>Prunus mahaleb</i> L.	1787	2011
<i>Prunus padus</i> L.	1790	2025
<i>Prunus persica</i> (L.) Batsch	1943	2025
<i>Prunus serotina</i> Ehrh.	1790	2025
<i>Prunus serrulata</i> Lin dl.	2025	
<i>Prunus spinosa</i> L.	1790	2025
<i>Prunus triloba</i> Lindl.	2025	
<i>Prunus virginiana</i> L.	1879	1890
<i>Pseudofumaria lutea</i> (L.) Borkh	1790	2025
<i>Pseudosasa japonica</i> (Siebold & Zucc. ex Steud.) Makino ex Nakai	2018	2025
<i>Pseudosedum rupestre</i> (L.) PV Heath	1881	1884
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	2000	2013
<i>Ptelea trifoliata</i> L.	1790	1910
<i>Pteridium aquilinum</i> (L.) Kuhn	1790	2023
<i>Pteris cretica</i> L.	2008	2022
<i>Pterocarya fraxinifolia</i> (Lam.) Spach	1929	2025
<i>Puccinellia distans</i> (Jacq.) Parl.	1890	2008
<i>Pulicaria dysenterica</i> (L.) Bernh.	1790	2020
<i>Pulicaria vulgaris</i> Gaertn.	1859	1915
<i>Pulmonaria mollis</i> Wolf.	1812	1937
<i>Pulmonaria montana</i> Lej.	1814	1996
<i>Pulmonaria obscura</i> Dumort.	1820	2005

<i>Pulmonaria officinalis</i> L.	2008	2025
<i>Pulsatilla vulgaris</i> Mill.	1790	1899
<i>Puschkinia scilloides</i> Adams	1995	2025
<i>Pycnosorus globosus</i> F.L. Bauer ex Benth.	2025	
<i>Pyracantha coccinea</i> M. Roem.	1834	2025
<i>Pyrola minor</i> L.	1899	2020
<i>Pyrola rotundifolia</i> L.	1900	1944
<i>Pyrus calleryana</i> Decne.	2025	
<i>Pyrus communis</i> L.	1790	2025
<i>Pyrus salicifolia</i> Pall.	2025	
<i>Quercus alba</i> L.	1888	
<i>Quercus castaneifolia</i> C.A. Mey.	1935	2025
<i>Quercus cerris</i> L.	1790	2025
<i>Quercus frainetto</i> Ten.	1929	2025
<i>Quercus ilex</i> L.	1810	2025
<i>Quercus ilicifolia</i> Wagenh.	1812	1888
<i>Quercus lamellosa</i> var. <i>lamellosa</i>	1927	1943
<i>Quercus michauxii</i> Nutt.	1812	1935
<i>Quercus palustris</i> Münchh.	1888	2007
<i>Quercus petraea</i> (Matt.) Liebl.	1884	2025
<i>Quercus pubescens</i> Willd.	1810	1995
<i>Quercus pyrenaica</i> Willd.	1812	2025
<i>Quercus robur</i> L.	1790	2025
<i>Quercus rubra</i> L.	1790	2025
<i>Radiola linoides</i> Roth	1791	1899
<i>Ranunculus abstrusus</i> O. Schwarz	2009	
<i>Ranunculus aconitifolius</i> L.	1790	2025
<i>Ranunculus acris</i> L.	1826	2025
<i>Ranunculus arvensis</i> L.	1790	2021
<i>Ranunculus auricomus</i> L.	1814	2025
<i>Ranunculus bulbosus</i> L.	1826	2025
<i>Ranunculus circinatus</i> Sibth.	1879	1993
<i>Ranunculus ficaria</i> L.	1790	2025
<i>Ranunculus flammula</i> L.	1790	2014
<i>Ranunculus fluitans</i> Lam.	1883	2015
<i>Ranunculus lanuginosus</i> L.	1797	1907
<i>Ranunculus lingua</i> L.	1843	2008
<i>Ranunculus macrotis</i> Brodtbeck	2009	
<i>Ranunculus minimus</i> E.H.L.Krause	1814	2022
<i>Ranunculus peltatus</i> Schrank	1790	2012
<i>Ranunculus polyanthemos</i> L.	1814	2011
<i>Ranunculus pseudoverturnalis</i> Haas	2009	
<i>Ranunculus puberulus</i> W. Koch	2009	
<i>Ranunculus repens</i> L.	1892	2025
<i>Ranunculus reptans</i> L.	1790	1886
<i>Ranunculus rionii</i> Lagger	1843	1990
<i>Ranunculus sardous</i> Crantz	1885	1937
<i>Ranunculus sceleratus</i> L.	1883	2022
<i>Ranunculus trichophyllus</i> Chaix	1886	1989
<i>Ranunculus walo-kochii</i> Hörandl & Gutermann	1990	1996
<i>Raphanus raphanistrum</i> L.	1791	2025
<i>Raphanus sativus</i> L.	1791	2025
<i>Rapistrum perenne</i> (L.) All.	1908	1938
<i>Rapistrum rugosum</i> (L.) All.	1786	2007
<i>Reichardia tingitiana</i> Roth	1790	1904
<i>Reseda alba</i>	1790	2025
<i>Reseda lutea</i> L.	1790	2025
<i>Reseda luteola</i> L.	1790	2019
<i>Reynoutria japonica</i> Houtt.	1790	2025

<i>Reynoutria x bohemica</i> (Chrtek & Chrtková) J. P. Bailey	2000	2011
<i>Rhagiadolus stellatus</i> (L.) Gaertn.	1790	1935
<i>Rhamnus cathartica</i> L.	1883	2015
<i>Rheum rhabarbarum</i> L.	2006	
<i>Rhinanthus alectorolophus</i> (Scop.) Pollich	1878	2021
<i>Rhinanthus major</i> var. <i>major</i>	1904	
<i>Rhinanthus minor</i> L.	1790	2025
<i>Rhododendron catawbiense</i> Michx.	2025	
<i>Rhododendron caucasicum</i> Pall.	2025	
<i>Rhododendron ferrugineum</i> L.	1790	2025
<i>Rhododendrum minus</i> Michx.	1791	1946
<i>Rhus typhina</i> L.	1936	2023
<i>Rhynchospora alba</i> (L.) Vahl	1998	
<i>Ribes alpinum</i> L.	1793	2009
<i>Ribes aureum</i> Pursh.	1791	2025
<i>Ribes nigrum</i> L.	1791	2025
<i>Ribes rubrum</i> L.	1790	2025
<i>Ribes sanguineum</i> Pursh.	1894	2025
<i>Ribes uva-crispa</i> L.	1791	2025
<i>Ridolfia segetum</i> Moris	1935	
<i>Robinia pseudoacacia</i> L.	1790	2025
<i>Robinia viscosa</i> Michx. ex Vent	1804	1939
<i>Roemeria argemone</i> (L.) C.Morales, R.Mend. & Romero García	1790	2021
<i>Rorippa amphibia</i> (L.) Besser	1790	2023
<i>Rorippa austriaca</i> (Crantz) Besser	1891	2025
<i>Rorippa islandica</i> (Oeder) Bórbas	1814	1947
<i>Rorippa palustris</i> (L.) Besser	1790	2019
<i>Rorippa pyrenaica</i> (All.) Rchb.	1929	2025
<i>Rorippa sylvestris</i> (L.) Besser	1885	2025
<i>Rosa agrestis</i> Savi	1899	
<i>Rosa arvensis</i> Huds.	1868	2020
<i>Rosa balsamica</i> Besser	2015	
<i>Rosa canina</i> L.	1947	2025
<i>Rosa chinensis</i> Jacq.	1947	2025
<i>Rosa corymbifera</i> Borkh.	1948	2015
<i>Rosa gallica</i> L.	1790	2002
<i>Rosa glauca</i> Pourr.	2025	
<i>Rosa gymnocarpa</i> Nutt.	2025	
<i>Rosa majalis</i> Herrm.	1814	
<i>Rosa marginata</i> Wallr.	2014	
<i>Rosa micrantha</i> Borrer	2018	
<i>Rosa moschata</i> Herrm.	1792	
<i>Rosa multiflora</i> Thunb	1997	2025
<i>Rosa pimpinellifolia</i> M. Bieb.	1790	2025
<i>Rosa pseudoscabriuscula</i> (R. Keller) Henker & G. Schulze	2014	
<i>Rosa rubiginosa</i> L.	1786	2025
<i>Rosa rugosa</i> Thunb.	1790	2025
<i>Rosa spinosissima</i> L.	1790	2025
<i>Rosa stylosa</i> Desv.	2015	
<i>Rosa subcanina</i> (Christ) Vuk.	2011	
<i>Rosa tomentosa</i> Sm.	1990	2025
<i>Rosa villosa</i> L.	1790	2025
<i>Rostraria cristata</i> (L.) Tzvelev	1933	1937
<i>Rubus amiantinus</i> (Focke) A.Först.	1948	2023
<i>Rubus atrovirens</i> P.J. Müll.	1990	2000
<i>Rubus austroslovacus</i> Trávn.	2006	2012
<i>Rubus bifrons</i> Vest	1998	2014
<i>Rubus caesius</i> L.	1790	2022

<i>Rubus canaliculatus</i> P. J. Müll.	1998	2001
<i>Rubus conspicuus</i> P. J. Müll. ex Wirtg.	1998	2001
<i>Rubus devitatus</i> Matzke Hajek	1998	2012
<i>Rubus divaricatus</i> P. J. Müll.	1990	2006
<i>Rubus elegans</i> P. J. Müll.	1948	2012
<i>Rubus fissipetalus</i> P. J. Müller	1998	
<i>Rubus fruticosus</i>	1790	2025
<i>Rubus godronii</i> Lecoq & Lamotte	1998	2001
<i>Rubus grabowskii</i> Weihe ex Günther, Grab. & Wimm.	1948	1998
<i>Rubus idaeus</i> L.	1790	2014
<i>Rubus insolatus</i> P.J.Müll.	1954	1998
<i>Rubus macrophyllus</i> Weihe & Nees	1998	2006
<i>Rubus montanus</i> Lib. ex Lej.	1998	2012
<i>Rubus mougeotii</i> Billot ex F. W. Schultz	1997	2007
<i>Rubus nemoralis</i> P.J. Müll.	2000	2017
<i>Rubus obtusangulus</i> Gremler	2001	2006
<i>Rubus odoratus</i> L.	1843	2010
<i>Rubus phyllostachys</i> P. J. Müll.	1998	2006
<i>Rubus polonicus</i> Weston	1790	1999
<i>Rubus rotundifolius</i> Sudre	2000	2001
<i>Rubus rudis</i> Weihe	1998	
<i>Rubus senticosus</i> Köhler ex Weihe	1980	
<i>Rubus tereticaulis</i> P. J. Müll.	1949	2003
<i>Rubus transvestitus</i> Matzke-Hajek	1998	
<i>Rubus uncinatus</i> P.J.Müll.	1998	
<i>Rubus x macrostemoides</i> Fritsch	2000	
<i>Rubus x pseudidaeus</i> (Weihe) Lej.	1998	1999
<i>Rudbeckia fulgida</i> Aiton	2025	
<i>Rudbeckia hirta</i> L.	1885	2025
<i>Rudbeckia laciniata</i> L.	1998	2000
<i>Rumex acetosa</i> L.	1790	2025
<i>Rumex acetosella</i> L.	1837	2025
<i>Rumex aquaticus</i> L.	1899	2003
<i>Rumex bucephalophorus</i> L.	1935	1940
<i>Rumex conglomeratus</i> Murray	1837	2003
<i>Rumex crispus</i> L.	1790	2025
<i>Rumex hydrolapathum</i> Huds.	1843	2015
<i>Rumex maritimus</i> L.	1989	2023
<i>Rumex obovatus</i> Danser	1935	1986
<i>Rumex obtusifolius</i> L.	1843	2025
<i>Rumex palustris</i> Sm.	1790	2004
<i>Rumex patientia</i> L.	1790	2019
<i>Rumex pratensis</i> Mert. & W. D. J. Koch	1996	2013
<i>Rumex pulcher</i> L.	1790	1944
<i>Rumex sanguineus</i> L.	1790	2025
<i>Rumex scutatus</i> L.	1790	1899
<i>Rumex thyrsiflorus</i> Fingerh.	1933	2022
<i>Rumex triangulivalvis</i> (Danser) Rech.f.	1900	1944
<i>Rumex x heterophyllus</i> Schultz	2020	
<i>Ruta chalepensis</i> L.	1790	2025
<i>Ruta graveolens</i> L.	1790	2025
<i>Sagina apetala</i> Ard.	1790	2025
<i>Sagina micropetala</i> Rauschert	2005	2021
<i>Sagina nodosa</i> (L.) Fenzl	1814	1969
<i>Sagina procumbens</i> L.	1878	2025
<i>Sagittaria sagittifolia</i> L.	1790	2003
<i>Salix alba</i> L.	1790	2019
<i>Salix atrocinerea</i> Brot.	1998	
<i>Salix aurita</i> L.	1979	2006
<i>Salix babylonica</i> L.	2001	

<i>Salix caprea</i> L.	1790	<b>2025</b>
<i>Salix cinerea</i> L.	1890	<b>2025</b>
<i>Salix daphnoides</i> Vill.	1899	
<i>Salix eleagnos</i> Scop.	1899	1995
<i>Salix fragilis</i> L.	1790	2022
<i>Salix hegetschweileri</i> Heer	1897	
<i>Salix multinervis</i> Döll	2007	
<i>Salix myrsinifolia</i> Salisb.	1899	1990
<i>Salix purpurea</i> L.	1790	<b>2025</b>
<i>Salix repens</i> L.	1945	1969
<i>Salix rubens</i> Schrank	1790	2012
<i>Salix rubra</i> Huds.	2001	2009
<i>Salix smithiana</i> Willd.	1997	
<i>Salix triandra</i> L.	1890	2013
<i>Salix viminalis</i> L.	1790	2014
<i>Salsola kali</i> ssp. <i>tragus</i>	1810	2008
<i>Salvia aethiopsis</i> L.	1906	
<i>Salvia farinacea</i> Benth.	<b>2025</b>	
<i>Salvia lamiifolia</i> Jacq.	1814	<b>2025</b>
<i>Salvia nemorosa</i> L.	1790	<b>2025</b>
<i>Salvia officinalis</i> L.	1790	<b>2025</b>
<i>Salvia pratensis</i> L.	1790	<b>2025</b>
<i>Salvia reptans</i> Jacq.	1820	
<i>Salvia rosmarinus</i> Spenn.	<b>2025</b>	
<i>Salvia sclarea</i> L.	1906	2001
<i>Salvia sylvestris</i> L.	1885	1992
<i>Salvia verbenaca</i> L.	1790	1899
<i>Salvia verticillata</i> L.	1791	1994
<i>Salvia viridis</i> L.	1790	<b>2025</b>
<i>Salvinia natans</i> (L.) All.	1840	(1886)
<i>Sambucus ebulus</i> L.	1791	2023
<i>Sambucus nigra</i> L.	1791	<b>2025</b>
<i>Sambucus racemosa</i> L.	1791	<b>2025</b>
<i>Samolus valerandi</i> L.	1899	
<i>Sanguisorba minor</i> Scop.	1843	<b>2025</b>
<i>Sanguisorba officinalis</i> L.	1843	<b>2025</b>
<i>Sanicula europaea</i> L.	1790	2014
<i>Sanvitalia procumbens</i>	<b>2025</b>	
<i>Saponaria officinalis</i> L.	1889	<b>2025</b>
<i>Satureja hortensis</i> L.	1790	1943
<i>Saxifraga granulata</i> L.	1790	<b>2025</b>
<i>Saxifraga rosacea</i> Moench.	1790	<b>2025</b>
<i>Saxifraga tridactylites</i> L.	1837	<b>2025</b>
<i>Saxifraga x arendsii</i>	<b>2025</b>	
<i>Scabiosa atropurpurea</i> L.	1804	<b>2025</b>
<i>Scabiosa columbaria</i> L.	1790	2012
<i>Scabiosa ochroleuca</i> L.	<b>2025</b>	
<i>Scandix pecten-veneris</i> L.	1878	1942
<i>Scandosorbus intermedia</i> (Ehrh.) Sennikov	1790	2014
<i>Schoenoplectiella mucronata</i> (L.) J.Jung & H.K.Choi	2013	
<i>Schoenoplectiella supina</i> (L.) Lye	1899	1996
<i>Schoenoplectus lacustris</i> (L.) Palla	1790	1996
<i>Schoenoplectus tabernaemontani</i> (C. C. Gmel.) Palla	1790	2020
<i>Schoenoplectus triquetet</i> (L.) Palla	1899	
<i>Schoenoplectus x carinatus</i> (Sm.) Palla	1945	1969
<i>Schoenus ferrugineus</i> L.	1936	
<i>Schoenus nigricans</i> L.	1899	
<i>Scilla amoena</i> L.	1801	1895
<i>Scilla bifolia</i> L.	1791	2021

<i>Scilla forbesii</i> (Baker) Speta	1992	2023
<i>Scilla luciliae</i> (Boiss.) Speta	2008	2025
<i>Scilla mischtschenkoana</i> Grossh.	2025	
<i>Scilla sardensis</i> (Whittall ex Barr & Sugden) Speta	2019	2025
<i>Scilla siberica</i> Andrews.	1995	2025
<i>Scirpus sylvaticus</i> L.	1790	2018
<i>Scleranthus annuus</i> L.	1790	2023
<i>Scleranthus annuus</i> ssp. <i>polycarpus</i> (L.) Bonnier & Layens	1991	
<i>Scleranthus perennis</i> L.	1878	2009
<i>Scopolia carnicola</i> Jacq.	1791	1944
<i>Scorpiurus muricatus</i> L.	1791	1910
<i>Scorzonera hispanica</i> L.	1886	1936
<i>Scorzonera humilis</i> L.	1797	
<i>Scorzonera laciniata</i> L.	1843	1943
<i>Scorzoneroides autumnalis</i> (L.) Moench	1790	2023
<i>Scrophularia auriculata</i> L.	1788	2021
<i>Scrophularia canina</i> L.	1885	2021
<i>Scrophularia nodosa</i> L.	1790	2025
<i>Scrophularia oblongifolia</i> Loisel.	1887	2025
<i>Scrophularia vernalis</i> L.	1790	1934
<i>Scutellaria altissima</i> L.	1908	2007
<i>Scutellaria galericulata</i> L.	1790	2019
<i>Searsia cuneifolia</i> (L.f.) F.A.Barkley	1826	
<i>Secale cereale</i> L.	1791	2010
<i>Sedum acre</i> L.	1894	2021
<i>Sedum album</i> L.	1790	2025
<i>Sedum hispanicum</i> L.	1814	2019
<i>Sedum pallidum</i> M.Bieb.	2025	
<i>Sedum rubens</i> L.	1884	1899
<i>Sedum sarmentosum</i> Bunge	2002	
<i>Sedum sexangulare</i> L.	1790	2025
<i>Sedum villosum</i> L.	1883	
<i>Selinum carvifolium</i> (L.) L.	1790	2020
<i>Sempervivum arachnoideum</i> L.	1883	2002
<i>Sempervivum tectorum</i> L.	2019	2020
<i>Senecio inaequidens</i> DC.	1992	2025
<i>Senecio leucanthemifolius</i> ssp. <i>vernalis</i> (Waldst. & Kit.) Greuter	1790	2025
<i>Senecio ovatus</i> (P. Gaertn. B. Mey. & Scherb.) Willd.	1790	2010
<i>Senecio sylvaticus</i> L.	1950	
<i>Senecio viscosus</i> L.	1914	2023
<i>Senecio vulgaris</i> L.	1897	2025
<i>Senna didymobotrya</i>	2025	
<i>Sequoiadendron giganteum</i> (Lindl.) J.Buchholz	1948	2025
<i>Seriphium plumosum</i> L.	2025	
<i>Serratula tinctoria</i> L. ssp. <i>tinctoria</i>	1899	2021
<i>Seseli annuum</i> L.	1792	2022
<i>Seseli libanotis</i> (L.) Koch	1792	
<i>Setaria decipiens</i>	1939	1954
<i>Setaria faberi</i> R.A.W.Herrm.	1997	
<i>Setaria italica</i> (L.) P. Beauv.	1791	2025
<i>Setaria pumila</i> (Poir.) Roem. & Schult.	1790	2023
<i>Setaria verticillata</i> (L.) P. Beauv.	1837	2025
<i>Setaria verticilliformis</i> Dumort.	1883	2014
<i>Setaria viridis</i> (L.) P. Beauv.	1837	2025
<i>Sherardia arvensis</i> L.	1790	2025
<i>Siegesbeckia flosculosa</i> L'Hér.	1795	1887
<i>Silaum silaus</i> (L.) Schinz & Thell.	1805	2001
<i>Silene armeria</i> L.	1910	2025
<i>Silene baccifera</i> Roth	1790	1994

<i>Silene conica</i> L.	1879	1993
<i>Silene coronaria</i> (L.) Desv.	1790	2025
<i>Silene dichotoma</i> Ehrh.	1791	1995
<i>Silene dioica</i> (L.) Clairv.	1890	2025
<i>Silene flos-cuculi</i> (L.) Greuter & Burdet	1889	2025
<i>Silene gallica</i> L.	1790	1992
<i>Silene glomerata</i> Thuill.	1886	1936
<i>Silene italica</i> (L.) Pers.	1791	1907
<i>Silene latifolia</i> Poir.	1791	2025
<i>Silene linicola</i> C.C. Gmel.	1813	1936 TYPE
<i>Silene noctiflora</i> L.	1791	2020
<i>Silene nocturna</i> L.	1792	1936
<i>Silene nutans</i> L.	1912	2025
<i>Silene otites</i> (L.) Wibel	1814	1990
<i>Silene rupestris</i> L.	1899	
<i>Silene suecica</i> (Lodd.) Greuter & Burdet	1888	
<i>Silene viscaria</i> Jess.	1878	2025
<i>Silene vulgaris</i> (Moench) Garcke	1806	2025
<i>Silphium perfoliatum</i> L.	2020	2025
<i>Silybum marianum</i> (L.) P. Gaertn.	1897	2019
<i>Simsia foetida</i> (Cav.) SF Blake	1940	
<i>Sinapis alba</i> L.	1790	2025
<i>Sinapis arvensis</i> L.	1790	2019
<i>Sisymbrium altissimum</i> L.	1783	2010
<i>Sisymbrium austriacum</i> Jacq.	1791	2002
<i>Sisymbrium erysimoides</i> Desf.	1790	1903
<i>Sisymbrium irio</i> L.	1790	2020
<i>Sisymbrium loeselii</i> L.	1791	2006
<i>Sisymbrium officinale</i> (L.) Scop.	1790	2025
<i>Sisymbrium orientale</i> L.	1790	1938
<i>Sisymbrium polyceratum</i> L.	1804	1921
<i>Sisymbrium strictissimum</i> L.	1791	1947
<i>Sisymbrium volgense</i> M. Bieb. ex E. Fourn.	1914	1946
<i>Sium latifolium</i> L.	1888	1989
<i>Sium sisarum</i> L.	1790	
<i>Skimmia japonica</i> Thunb.	2025	
<i>Solanum americanum</i> L.	2025	
<i>Solanum dulcamara</i> L.	1878	2025
<i>Solanum luteum</i> L.	1887	1943
<i>Solanum lycopersicum</i> L.	1791	2025
<i>Solanum nigrum</i> L.	1790	2025
<i>Solanum nitidibaccatum</i> Bitter	1992	
<i>Solanum physalifolium</i> Rusby	1990	2022
<i>Solanum pseudocapsicum</i> L.	1790	1910
<i>Solanum sarachoides</i> Sendtn.	1935	2007
<i>Solanum triflorum</i> Nutt.	1938	1941
<i>Solanum tuberosum</i> L.	1790	2025
<i>Solanum villosum</i>	1790	2025
<i>Soleirolia soleirolii</i> (Req.) Dandy	2008	2019
<i>Solidago canadensis</i> L.	1933	2025
<i>Solidago gigantea</i> Aiton	1790	2025
<i>Solidago virgaurea</i> L.	1790	2025
<i>Sonchus arvensis</i> L.	1790	2025
<i>Sonchus asper</i> (L.) Hill	1790	2025
<i>Sonchus oleraceus</i> L.	1790	2025
<i>Sophora prostrata</i> Buchanan	2025	
<i>Sorbaria assurgens</i> Vilm. & Bois.	1929	1936
<i>Sorbaria sorbifolia</i> (L.) A. Braun	1790	1936
<i>Sorbaria tomentosa</i> (Lindl.) Rehder	1948	
<i>Sorbus aucuparia</i> L.	1790	2025

<i>Sorghum bicolor</i> (L.) Moench	2002	2025
<i>Sorghum halepense</i> (L.) Pers.	1907	2025
<i>Sparganium emersum</i> Rehmman	1887	2021
<i>Sparganium erectum</i> L.	1880	1993
<i>Sparganium erectum</i> ssp. <i>neglectum</i> (Beeby) K. Richt.	1790	1985
<i>Sparganium natans</i> L.	1899	
<i>Spartium junceum</i> L.	1993	1998
<i>Specularia scpeculum</i> A. DC.	1935	1937
<i>Spergula arvensis</i> L.	1790	2021
<i>Spergularia diandra</i> (Guss.) Boiss.	1903	1905
<i>Spergularia marina</i> (L.) Besser	1790	2011
<i>Spergularia rubra</i> (L.) J. Presl & C. Presl	1835	2021
<i>Spinacia oleracea</i> L.	1791	1950
<i>Spiraea blumei</i> var. <i>bumei</i>	2025	
<i>Spiraea chamaedryfolia</i> L.	1843	2025
<i>Spiraea hypericifolia</i> ssp. <i>hypericifolia</i>	1790	2025
<i>Spiraea media</i> Schmidt	1790	1948
<i>Spiraea nipponica</i> Maxim.	2025	
<i>Spiraea salicifolia</i> L.	1867	2025
<i>Spiraea thunbergii</i> Siebold & Blume	1936	2025
<i>Spiraea vanhouttei</i> (Briot) Carrière	1935	2025
<i>Spiranthes spiralis</i> (L.) Chevall.	1899	
<i>Spirobassia hirsuta</i> (L.) Freitag & G. Kadereit	1887	
<i>Spirodela polyrhiza</i> (L.) Schleid.	1865	2019
<i>Sporobolus indicus</i> L.	2015	2016
<i>Sporobolus michauxianus</i> (Hitcch.) P.M.Peterson & Saarela	2012	
<i>Sporobolus capensis</i> L.	1840	1841
<i>Stachys ambigua</i> Sm.	1893	2014
<i>Stachys annua</i> (L.) L.	1792	2019
<i>Stachys arvensis</i> (L.) L.	1836	2013
<i>Stachys byzantina</i>	1790	2025
<i>Stachys germanica</i> L.	1885	1899
<i>Stachys palustris</i> L.	1790	2003
<i>Stachys recta</i> L.	1790	2025
<i>Stachys sylvatica</i> L.	1906	2020
<i>Staphylea pinnata</i> L.	1976	
<i>Stellaria apetala</i> Ucria	1900	2020
<i>Stellaria aquatica</i> (L.) Scop.	1790	2019
<i>Stellaria glochidisperma</i> Murb..	1900	1944
<i>Stellaria graminea</i> L.	1883	2020
<i>Stellaria holostea</i> L.	1790	2025
<i>Stellaria media</i> (L.) Vill.	1906	2025
<i>Stellaria neglecta</i> (Lej.) Weihe	1988	2020
<i>Stellaria nemorum</i> L.	1810	2009
<i>Stellaria pallida</i> (Dumerot) Crep.	1925	
<i>Stellaria palustris</i> Ehrh. ex Hoffm.	1880	1883
<i>Stellaria uliginosa</i> Murray	1790	2021
<i>Stephanandra flexuosa</i> Sibth. & Zucc.	1929	1949
<i>Stratiotes aloides</i> L.	1885	2003
<i>Struthiopteris spicant</i> (L.) Weiss	1790	1993
<i>Stuckenia pectinata</i> (L.) Börner	1814	2019
<i>Styphnolobium japonicum</i> (L.) Schott	1790	2025
<i>Succisa pratensis</i> Moench	1790	2012
<i>Symphoricarpos albus</i> (L.) S. F. Blake	1790	2020
<i>Symphoricarpos orbiculatus</i> Moench	2025	
<i>Symphoricarpos x chenaultii</i> Rehder	1997	2009
<i>Symphyotrichum ericoides</i> (L.) G.L.Nelson	2025	
<i>Symphyotrichum lanceolatum</i> (Willd.) G. L. Nesom	1999	2020
<i>Symphyotrichum novae-angliae</i> (L.) G. L. Nesom	1788	2007

<i>Symphyotrichum novi-belgii</i> (L.) G. L.	2006	2015
<i>Symphyotrichum parviflorum</i> (Nees) Greuter	1885	2019
<i>Symphyotrichum x salignum</i> (Willd.) G. L. Nesom	2006	2023
<i>Symphyotrichum x versicolor</i> (Willd.) G. L. Nesom	2012	
<i>Symphytum asperum</i> Lepech.	1791	2014
<i>Symphytum bulbosum</i> Schimp.	1894	1941
<i>Symphytum caucasicum</i> M. Bieb.	2025	
<i>Symphytum grandiflorum</i> DC.	2025	
<i>Symphytum officinale</i> L.	1888	2025
<i>Symphytum officinale</i> ssp. <i>uliginosum</i> (A.Kern.) Nyman	2009	
<i>Symphytum uplandicum</i> Nyman	2014	
<i>Syringa vulgaris</i> L.	1790	2025
<i>Tagetes erecta</i> L.	1791	2025
<i>Tagetes patula</i> L.	1792	2025
<i>Tamarix parviflora</i> DC.	2025	
<i>Tanacetum balsamita</i> L.	1791	1937
<i>Tanacetum corymbosum</i> (L.) Sch. Bip.	1814	1979
<i>Tanacetum macrophyllum</i> Sch. Bip.	1910	1950
<i>Tanacetum parthenium</i> (L.) Sch. Bip.	1897	2025
<i>Tanacetum vulgare</i> L.	1790	2025
<i>Taraxacum aequilobum</i> Dahlst.	2017	
<i>Taraxacum amplum</i> Markl.	2017	
<i>Taraxacum angustisquameum</i> Dahlst. ex H.Lindb.	2017	
<i>Taraxacum atactum</i> Sahlin & Soest	1999	
<i>Taraxacum baekiiiforme</i> Sahlin	2001	2006
<i>Taraxacum bellicum</i> Sonck	1995	2020
<i>Taraxacum brachyglossum</i> (Dahlst.) Raunk.	2021	
<i>Taraxacum cacuminatum</i> G.E.Haglund	2017	
<i>Taraxacum caloschistoides</i> G.E.Haglund ex Sahlin	2017	
<i>Taraxacum campyloides</i> G.E.Haglund	1790	
<i>Taraxacum clemens</i> Matysiak	2021	
<i>Taraxacum contractum</i> Markl.	2017	
<i>Taraxacum disseminatum</i> G. E. Haglund	2006	
<i>Taraxacum edmondsonianum</i> H. Øllg.	2017	
<i>Taraxacum gustavianum</i> Sonck	2017	
<i>Taraxacum heleocharis</i> Kirschner & Štěpánek	2017	
<i>Taraxacum lacistophylloides</i> Dahlst.	2021	
<i>Taraxacum lacistophyllum</i> (Dahlst.) Raunk.	1995	2021
<i>Taraxacum leptodon</i> Markl.	2017	
<i>Taraxacum mimulum</i> Dahlst. ex H.Lindb.	2017	
<i>Taraxacum ochrochlorum</i> G.E.Haglund	2017	
<i>Taraxacum officinale</i> F.H. Wigg.	2025	
<i>Taraxacum oxyrhinum</i> Sahlin	2017	
<i>Taraxacum parnassicum</i> Dahlst.	1890	
<i>Taraxacum piceatum</i> Dahlst.	2017	
<i>Taraxacum plumbeum</i> Dahlst.	2020	
<i>Taraxacum pseudohabile</i> K.Jung, Meierrott & Sackwitz	2017	
<i>Taraxacum pseudoretroflexum</i> M.P.Christ.	2017	
<i>Taraxacum scanicum</i> Dahlst.	1999	2021
<i>Taraxacum</i> sect. <i>Erythrosperma</i> (H. Lindb.) Dahlst.	1995	2025
<i>Taraxacum</i> sect. <i>Palustria</i> (H.Lindb.) Dahlst.	1886	
<i>Taraxacum</i> sect. <i>Ruderalia</i> Kirschner, H.Øllg. & Štěpánek	1790	2025
<i>Taraxacum tenuilobum</i> Dahlst.	2020	
<i>Taraxacum tortilobum</i> Florstr.	1890	2018
<i>Taraxacum urbicola</i> Kirschner, Štěpánek & Trávn.	2017	
<i>Tarenaya hassleriana</i> (Chodat) H.H. Iltis	2025	
<i>Taxodium distichum</i> (L.) Rich.	1997	2025
<i>Taxus baccata</i> L.	1790	2025
<i>Taxus x media</i> Rehder	2023	

<i>Teesdalia nudicaulis</i> (L.) W.T.Aiton	1840	2022
<i>Tetradium daniellii</i> (Benn.) T.G.Hartley	1994	<b>2025</b>
<i>Teucrium botrys</i> L.	1790	1995
<i>Teucrium chamaedrys</i> L.	1975	<b>2025</b>
<i>Teucrium flavum</i> L.	1790	1825
<i>Teucrium montanum</i> L.	1790	
<i>Teucrium scordium</i> L.	1805	1889
<i>Teucrium scorodonia</i> L.	1790	<b>2025</b>
<i>Thalictrum aquilegifolium</i> L.	1792	2010
<i>Thalictrum flavum</i> L.	1786	2012
<i>Thalictrum lucidum</i> L.	1792	1882
<i>Thalictrum simplex</i> ssp. <i>galioides</i> (DC.) Korsh.	1899	
<i>Thelekia speciosa</i> (Schreb.) Baumg.	1790	1943
<i>Thelypteris palustris</i> Schott	1842	2023
<i>Thesium bavarum</i> Schrank	1810	1899
<i>Thesium pyrenaicum</i> Pourr.	1846	1993
<i>Thinopyrum intermedium</i> ssp. <i>intermedium</i>	1908	2012
<i>Thinopyrum obtusiflorum</i> (DC.) Banfi	1790	2021
<i>Thlaspi arvense</i> L.	1801	2020
<i>Thuja occidentalis</i> L.	1935	<b>2025</b>
<i>Thuja plicata</i> Donn ex D.Don	1949	1997
<i>Thujopsis dolabrata</i> (L.f.) Siebold & Zucc.	<b>2025</b>	
<i>Thymelaea passerina</i> (L.) Coss. & Germ.	1814	1899
<i>Thymus praecox</i> Opitz	2008	
<i>Thymus pulegioides</i> L.	1790	2013
<i>Thymus serpyllum</i> L.	2000	2009
<i>Thymus vulgaris</i> L.	1791	<b>2025</b>
<i>Tiarella cordifolia</i> L.	<b>2025</b>	
<i>Tilia americana</i> L.	1790	<b>2025</b>
<i>Tilia cordata</i> Mill.	1790	<b>2025</b>
<i>Tilia dasystyla</i> Steven	<b>2025</b>	
<i>Tilia platyphyllos</i> Scop.	1790	<b>2025</b>
<i>Tilia tomentosa</i> Moench	1790	<b>2025</b>
<i>Tilia x euchlora</i> K. Koch	<b>2025</b>	
<i>Tofieldia calyculata</i> (L.) Wahlenb.	1799	1936
<i>Torilis arvensis</i> (Huds.) Link	1889	2023
<i>Torilis japonica</i> (Houtt.) DC.	1790	2023
<i>Torilis leptophylla</i> Rchb. f.	1898	
<i>Torilis nodosa</i> (L.) P. Gaertn.	1892	2023
<i>Torminalis glaberrima</i> (Gand.) Sennikov & Kurtto	1790	2014
<i>Toxicodendron pubescens</i> Mill	2004	
<i>Trachycarpus fortunei</i> (Hook.) H. Wendl.	<b>2025</b>	
<i>Tradescantia virginiana</i> L.	1790	<b>2025</b>
<i>Tragopogon dubius</i> Scop.	1791	1933
<i>Tragopogon floccosum</i> W & K	1931	1932
<i>Tragopogon orientalis</i> L.	1790	2020
<i>Tragopogon pratensis</i> L.	1790	<b>2025</b>
<i>Tragopogon pratensis</i> ssp. <i>minor</i> (Mill.) Hartm.	1985	1996
<i>Tragus racemosus</i> (L.) All.	2005	2015
<i>Trapa natans</i> L.	1790	2018
<i>Trientalis europaea</i> L.	1925	1926
<i>Trifolium alpestre</i> L.	1790	1929
<i>Trifolium arvense</i> L.	1790	<b>2025</b>
<i>Trifolium aureum</i> Pollich	1790	1985
<i>Trifolium campestre</i> Schreb.	1806	<b>2025</b>
<i>Trifolium dubium</i> Sibth.	1880	<b>2025</b>
<i>Trifolium echinatum</i> M. Bieb.	1906	
<i>Trifolium fragiferum</i> L.	1790	1996
<i>Trifolium hybridum</i> L.	1790	2021
<i>Trifolium incarnatum</i> L.	1790	<b>2025</b>

<i>Trifolium isthmocarpum</i> Brot.	1910	1913
<i>Trifolium lappaceum</i> L.	1790	1942
<i>Trifolium lupanaster</i> L.	1933	1935
<i>Trifolium medium</i> L.	1790	2014
<i>Trifolium montanum</i> L.	1790	1939
<i>Trifolium pratense</i> L.	1790	2025
<i>Trifolium repens</i> L.	1890	2025
<i>Trifolium resupinatum</i> L. var. <i>resupinatum</i>	1791	1990
<i>Trifolium rubens</i> L.	1791	1926
<i>Trifolium scabrum</i> L.	1895	
<i>Trifolium spadiceum</i> L.	1790	1866
<i>Trifolium squamosum</i> L.	1790	1913
<i>Trifolium striatum</i> L.	1797	1898
<i>Trifolium subterraneum</i> L.	1998	2015
<i>Trifolium tomentosum</i> L.	1910	
<i>Trifolium vesiculosum</i> Savi	1903	1912
<i>Triglochin palustris</i> L.	1806	1928
<i>Trigonella caerulea</i> (L.) Ser.	1883	1940
<i>Tripleurospermum inodorum</i> (L.) Sch.Bip.	1790	2021
<i>Tripleurospermum maritimum</i> (L.) W.D.J.Koch	2025	
<i>Trisetaria panicea</i> (Lam.) Paunero	1937	
<i>Trisetum flavescens</i> (L.) P. Beauv.	1790	2025
<i>Triticum aestivum</i> L.	1866	2025
<i>Triticum monococcum</i> L.	1810	1932
<i>Triticum turgidum</i> L. ssp. <i>dicoccum</i>	1886	1932
<i>Triticum turgidum</i> L. ssp. <i>durum</i>	1887	1938
<i>Triticum turgidum</i> L. ssp. <i>polonicum</i>	1887	1932
<i>Tropaeolum majus</i> L.	2000	2025
<i>Tropaeolum minus</i> L.	1792	2025
<i>Tsuga canadensis</i> (L.) Carrière	1935	2025
<i>Tulipa gesneriana</i> L.	1791	2025
<i>Tulipa kaufmanniana</i> Regel	2025	
<i>Tulipa sylvestris</i> L.	2025	
<i>Turgenia latifolia</i> (L.) Hoffm.	1791	1943
<i>Turritis glabra</i> L.	1814	2022
<i>Tussilago farfara</i> L.	1790	2025
<i>Typha angustifolia</i> L.	1844	1995
<i>Typha latifolia</i> L.	1880	2015
<i>Typha minima</i> Funck	1854	1892
<i>Ulmus alata</i> Michx.	1826	
<i>Ulmus glabra</i> Huds	1844	2025
<i>Ulmus hollandica</i> Mill.	1997	2011
<i>Ulmus laevis</i> Pall.	1842	2023
<i>Ulmus minor</i> Mill.	1842	2025
<i>Ulmus parvifolia</i> Jacq.	1884	
<i>Urospermum picrioides</i> (L.) Desv.	1791	1936
<i>Urtica dioica</i> L.	1790	2025
<i>Urtica dioica</i> ssp. <i>subinermis</i> (R.Uechtr.) Weigend	2005	2007
<i>Urtica pilulifera</i> L.	1786	
<i>Urtica urens</i> L.	1886	2025
<i>Utricularia australis</i> R. Br.	1899	2019
<i>Utricularia minor</i> L.	1843	1884
<i>Utricularia vulgaris</i> L.	1787	2015
<i>Vaccaria hispanica</i> (Mill.) Rauschert	1790	2025
<i>Vaccinium myrtillus</i> L.	1790	2014
<i>Valeriana carinata</i> (Loisel.) Christenh. & Byng	1843	2019
<i>Valeriana dentata</i> (L.) All.	1837	2000
<i>Valeriana dioica</i> L.	1814	2012
<i>Valeriana eriocarpa</i> (Desv.) Christenh. & Byng	1886	1944
<i>Valeriana excelsa</i> Poir.	1790	2014

<i>Valeriana locusta</i> L.	1935	2025
<i>Valeriana officinalis</i> L.	1934	2022
<i>Valeriana pratensis</i> Dierb. ex Walter	1837	2010
<i>Valeriana rimosa</i> (Bastard) Christenh. & Byng	1828	1994
<i>Valeriana rubra</i> L.	1838	2019
<i>Valerianella locusta</i> L.	1790	2025
<i>Vallisneria spiralis</i> L.	1928	2018
<i>Ventenata dubia</i> (Leers) Coss. & Durieu	1896	
<i>Verbascum blattaria</i> L.	1791	2016
<i>Verbascum densiflorum</i> Bertol.	1821	2025
<i>Verbascum lychnitidis</i> L.	1889	2025
<i>Verbascum nigrum</i> L.	1907	2025
<i>Verbascum phlomoides</i> L.	1928	2025
<i>Verbascum phoeniceum</i> L.	2014	2015
<i>Verbascum pulverulentum</i> Vill.	1790	2025
<i>Verbascum thapsus</i> L.	1950	2025
<i>Verbena bonariensis</i> L.	1791	2025
<i>Verbena officinalis</i> L.	1843	2025
<i>Verbena peruviana</i> (L.) Britton	2025	
<i>Veronica acinifolia</i> L.	1895	1899
<i>Veronica agrestis</i> L.	1884	2020
<i>Veronica anagallis aquatica</i> L.	1878	2015
<i>Veronica anagallis</i> L.	1790	
<i>Veronica arvensis</i> L.	1878	2025
<i>Veronica austriaca</i> L.	1951	
<i>Veronica beccabunga</i> L.	1790	2014
<i>Veronica catenata</i> Pennell	1927	2005
<i>Veronica chamaedrys</i> L.	1906	2025
<i>Veronica cymbalaria</i> Bod.	1885	
<i>Veronica filiformis</i> Sm.	1938	2025
<i>Veronica hederifolia</i> L.	1790	2025
<i>Veronica longifolia</i> L.	1879	2025
<i>Veronica montana</i> L.	1878	2021
<i>Veronica officinalis</i> L.	1883	2025
<i>Veronica opaca</i> Fr.	1899	
<i>Veronica peregrina</i> L.	1880	2021
<i>Veronica persica</i> Poir.	1885	2025
<i>Veronica polita</i> Fr.	1884	2025
<i>Veronica praecox</i> All.	1884	2018
<i>Veronica scutellata</i> L.	1883	2012
<i>Veronica serpyllifolia</i> L.	1885	2025
<i>Veronica sublobata</i> M. A. Fisch.	1991	2021
<i>Veronica teucrium</i> L.	1878	2023
<i>Veronica triloba</i> (Opiz) Opitz	2010	
<i>Veronica triphyllos</i> L.	1878	2019
<i>Veronica verna</i> L.	1884	2011
<i>Veronicastrum sibiricum</i> (L.) Pennell	2025	
<i>Viburnum carlesii</i> Hemsl.	2025	
<i>Viburnum farreri</i> Stearn	2025	
<i>Viburnum lantana</i> L.	1790	2025
<i>Viburnum opulus</i> L.	1790	2022
<i>Viburnum rhytidophyllum</i> Hemsl.	1936	2025
<i>Viburnum tinus</i> L.	1790	2025
<i>Vicia angustifolia</i> L.	1790	2025
<i>Vicia articulata</i> Hornem.	1984	
<i>Vicia bithynica</i> (L.) L.	1790	1938
<i>Vicia cracca</i> L.	1790	2025
<i>Vicia ervilla</i> (L.) Willd.	1790	1924
<i>Vicia faba</i> L.	1932	2015

<i>Vicia grandiflora</i> Scop.	1900	1942
<i>Vicia hirsuta</i> (L.) Gray	1801	2025
<i>Vicia lathyroides</i> L.	1791	2023
<i>Vicia lutea</i> L.	1814	1944
<i>Vicia pannonica</i> Crantz	1900	2014
<i>Vicia sativa</i> L.	1866	2025
<i>Vicia sativa</i> ssp. <i>nigra</i> Ehrh.	2013	2023
<i>Vicia sepium</i> L.	1790	2025
<i>Vicia tenuifolia</i> Roth	2009	2013
<i>Vicia tetrasperma</i> (L.) Schreb.	1791	2021
<i>Vicia villosa</i> Roth	1792	2020
<i>Vicia villosa</i> ssp. <i>varia</i> (Host) Corb.	1900	2014
<i>Vinca major</i> L.	1790	2025
<i>Vinca minor</i> L.	1810	1911
<i>Vincetoxicum hircundinaria</i> Medik.	1885	2019
<i>Viola alba</i> Bess.	1884	1948
<i>Viola arvensis</i> Murray	1790	2023
<i>Viola arvensis</i> ssp. <i>megalantha</i> Nauenb.	2018	2020
<i>Viola bavarica</i> Schrank	2019	2020
<i>Viola canina</i>	1799	1992
<i>Viola cornuta</i> L.	1790	2025
<i>Viola elatior</i> Fr.	1799	2011
<i>Viola hirta</i> L.	1843	2021
<i>Viola mirabilis</i> L.	1889	
<i>Viola odorata</i> L.	1878	2025
<i>Viola pumila</i> Chaix	1884	2011
<i>Viola reichenbachiana</i> Jord. ex Boreau	1842	2023
<i>Viola riviniana</i> Rchb.	1901	2025
<i>Viola rupestris</i> F. W. Schmidt	1899	
<i>Viola stagnina</i> Kit. ex Schult.	1899	2020
<i>Viola tricolor</i> L.	1791	2025
<i>Viola wittrockiana</i> Gams ex Nauenb. & Buttler	2009	2015
<i>Viscum album</i> L.	1790	2025
<i>Viscum album</i> ssp. <i>abietis</i> (Wiesb.) Abrom.	2008	2025
<i>Viscum album</i> ssp. <i>austriacum</i> (Wiesb.) Vollm.	1790	2025
<i>Vitex agnus-castus</i>	1791	2025
<i>Vitis gmelinii</i> Buttler	1899	
<i>Vitis labrusca</i>	1813	2025
<i>Vitis vinifera</i> L.	1790	2025
<i>Vitis vinifera</i> L. ssp. <i>sylvestris</i> (C.C. Gmel.) Hegi	1826	1890
<i>Vitis vulpina</i> L.	1786	2008
<i>Waldsteinia geoides</i> Willd.	2025	
<i>Weigela florida</i> (Bunge) A. DC	1894	2025
<i>Wisteria floribunda</i> (Willd.) DC.	2025	
<i>Wisteria sinensis</i> (Sims) Sweet	1790	2025
<i>Wolffia columbiana</i> Karst.	2020	
<i>Xanthium italicum</i> Moretti	1937	1940
<i>Xanthium orientale</i>	1885	1932
<i>Xanthium spinosum</i> L.	1840	1933
<i>Xanthium strumarium</i> L.	1790	1932
<i>Xanthoselinum alsaticum</i>	2025	
<i>Xeranthemum annuum</i> L.	1790	2025
<i>Yucca filamentosa</i>	1791	2025
<i>Zannichellia palustris</i> L.	1840	2011
<i>Zea mays</i> L.	1845	2025
<i>Zelkova serrata</i> (Thunb.) Makino	1884	2025
<i>Zinnia elegans</i>	1791	2025
<i>Zizia aurea</i> (L.) W.D.J. Koch	1797	