

Endangered plants important for selected European countries



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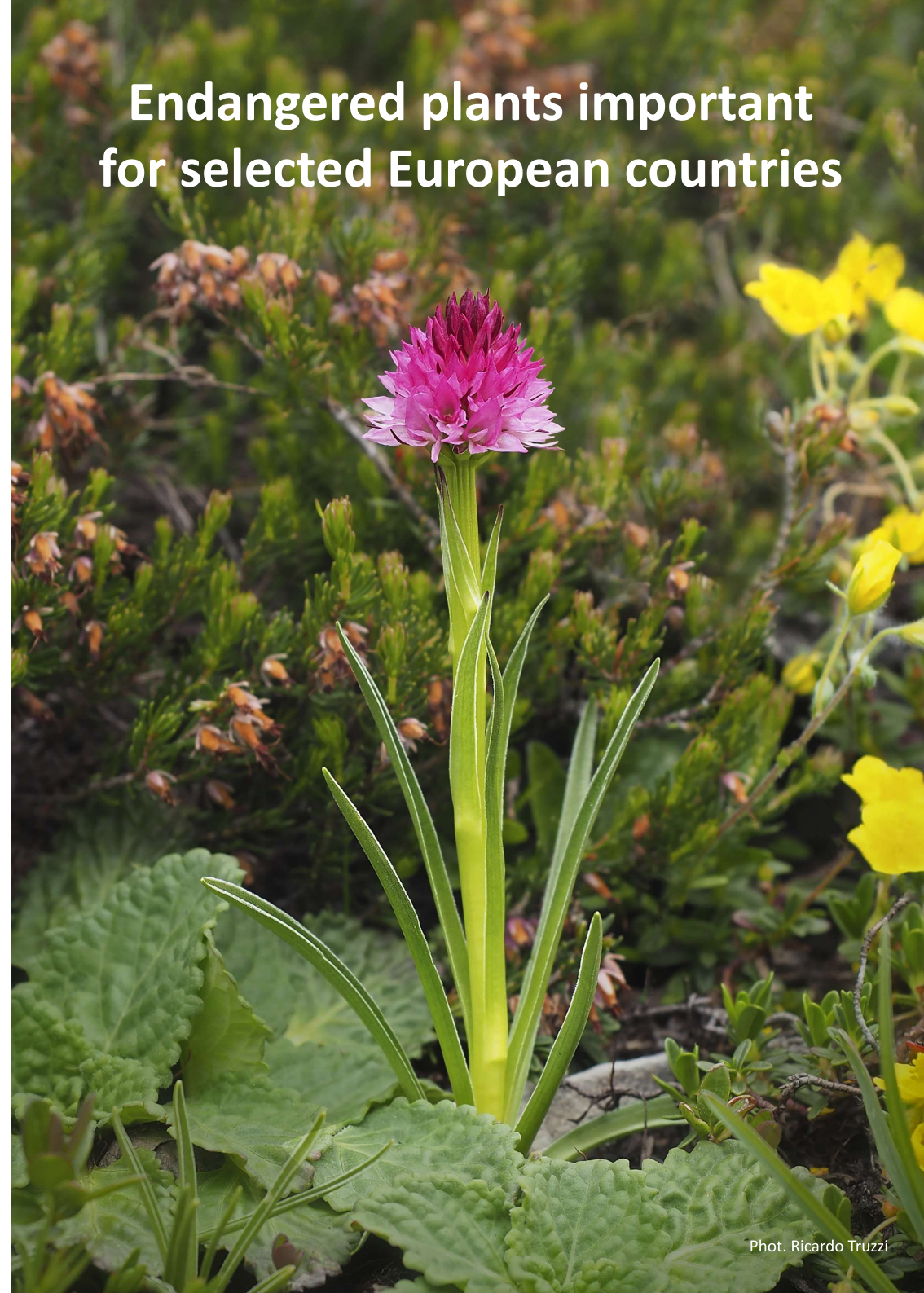
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In European culture and history, as well as natural history, there are many plants which do have a special place in the common knowledge of different nations. These species are often connected with places important for the national history or persons, which did have a great impact on the country's past. Some of them are locally endemic, whereas others cover a larger range than one country. Many of them are plants used for herbal purposes, and are just beautiful or special in other ways. Unfortunately, many of these important species are nowadays endangered and in need of formal and active protection. Such essential taxa, which are recognized not only by the scientific community, but are or should be known by the whole nations, are the target of this booklet. We propose examples of such taxa for nineteen European countries only as an introduction to the general problem of plant conservation. We hope to raise awareness of the importance of protection of native floras on our continent and worldwide.

Justyna Wiland-Szymańska



Liliaceae

Tulipa albanica Kit Tan & Shuka

Common name: tulipani shqiptar (Albanian)

Importance for Albania

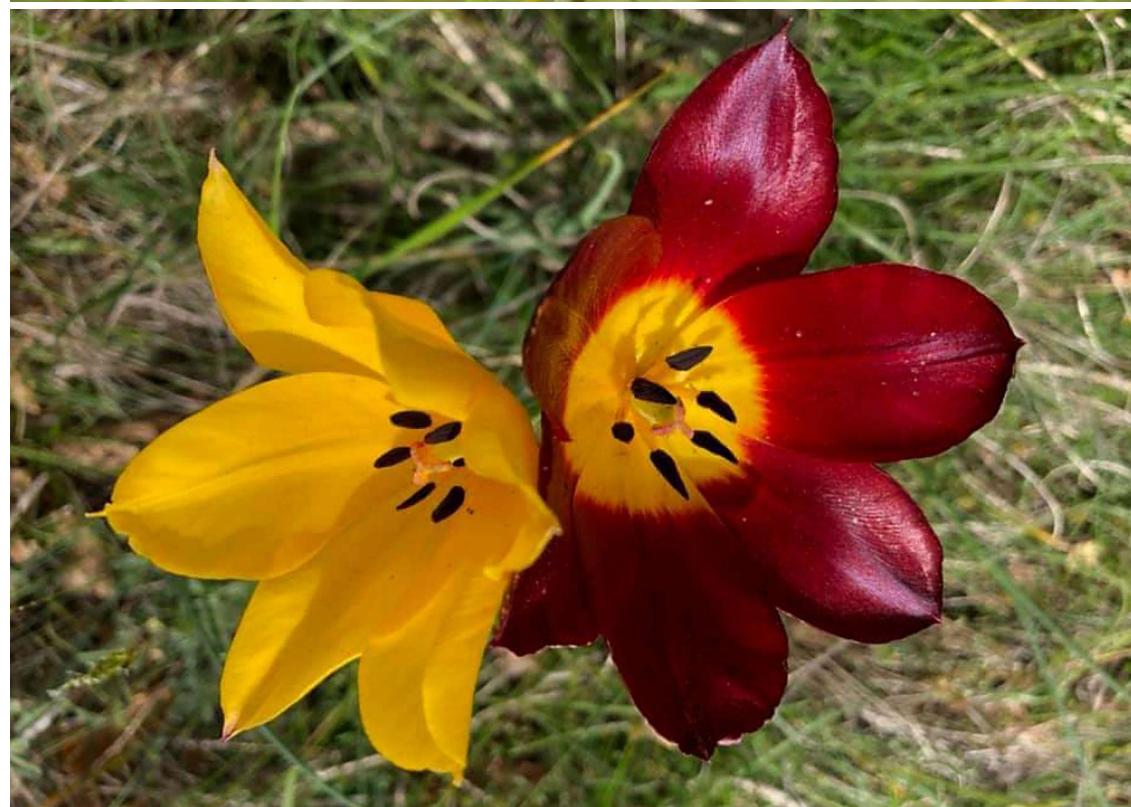
Tulipa albanica is an endemic species of Albania. According to IUCN criteria it is classified as CR (A1a). This species is a bulbous perennial herb with an erect and glabrous stem. The leaves are alternate, from 3 to 5 in number, glaucous to greyish-green, the lowermost with undulated edges. The flowers are campanulate and differ in colour, from yellow to golden-yellow and carmine-scarlet to deep reddish brown. This species is depicted in a flag and an emblem of the Kukës county.

Threats

The tulip populations are located in North East Albania, in one restricted area only, where they grow in a small area less than 100 ha near the mining activities. The main threat this species is facing is the influence of the mining industry on its habitat that can lead to the ecological niche loss and species extinction.

Native to:

Albania.



Violaceae

Viola lutea Huds.
subsp. *calaminaria* (Ging.) Nauenb.

Common names: pensée calaminaire (French); zinkviooltje (Dutch)

Importance for Belgium

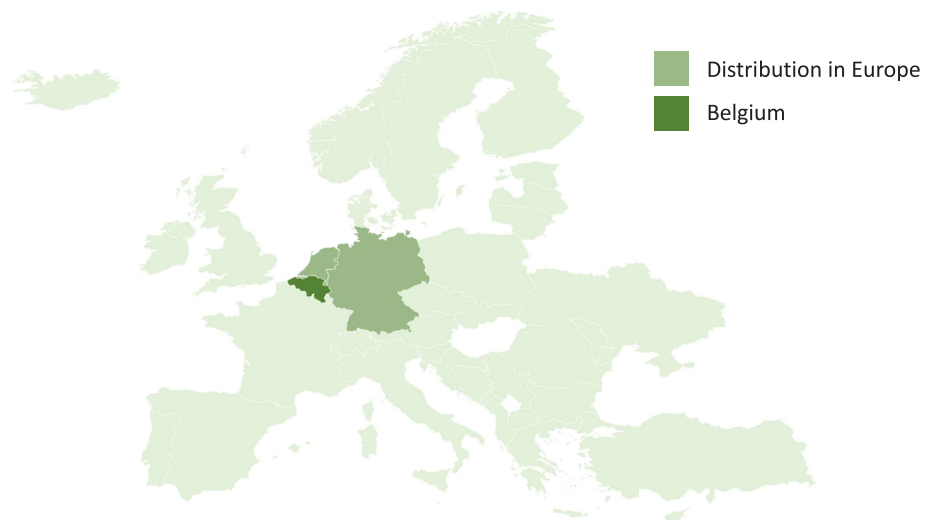
Viola lutea subsp. *calaminaria*, the zinc pansy, has a very narrow distribution, occurring almost only in Eastern Belgium and with a few populations in neighboring regions in S Netherlands and E Germany. It is an absolute metallophyte, i.e. growing only on metal-rich soil (Zn, Pb). It is a typical member of grassland communities occurring on mine spoil and other soil contaminated by mining activities. It bears witness to the industrial history of E Belgium. It also occurred in natural outcrops of metal-rich bedrock before human exploitation.

Threats

It is threatened by reclaiming and remediation of former industrial areas, and decreasing trace metal concentrations in topsoil due to leaching. It also tends to hybridize with other species of pansies. It is difficult to grow *ex situ*, possibly due to biotic interactions with specific mycorrhizae, and susceptibility to pathogenic fungi on metal-poor soil.

Native to:

Belgium, Germany, Netherlands.



Text and photos: Pierre Meerts



Liliaceae

Lilium bosniacum (Beck) Fritsch

Common name: bosanski ljiljan (Bosnian)

Importance for Bosnia and Herzegovina

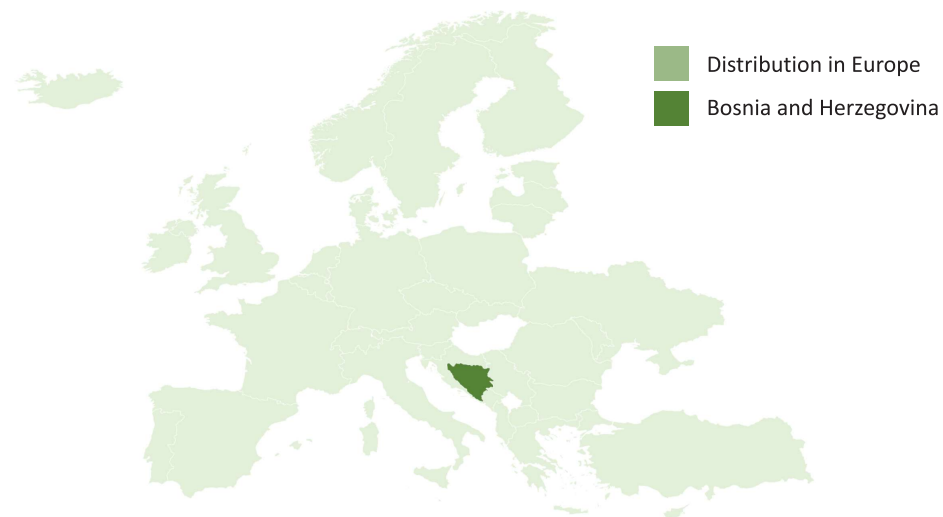
The Bosnian lily or golden lily began to be used as a symbol in Bosnia and Herzegovina in the Middle Ages. It is present on money, seals, flags, coats of arms of noble dynasties, stećci, various decorative items, etc. It became especially popular when Bosnia was the most powerful country in the Balkans and was ruled by King Tvrtko I Kotromanić. The Kotromanić dynasty used the Bosnian lily, usually called the golden lily, as its symbol.

Threats

Today, the Bosnian lily is an endangered species. Its habitats are increasingly urbanized, with the threat of climate change, there are situations where it can completely disappear. Climate change leads to accelerated natural forest successions that close its open habitats. As it belongs to geophytic species with low seed germination, this makes its survival even more difficult. It is also currently threatened by numerous fans who take it out from nature and transfer it to gardens, where it does very poorly.

Native to:

Bosnia and Herzegovina.





4. FINLAND

Primulaceae

Primula nutans Georgi

subsp. *finmarchica* (Jacq.) A. Löve & D. Löve

var. *jokelae* L. Mäkinen & Y. Mäkinen

Common name: nuokkuesikko (Finnish)

Importance for Finland

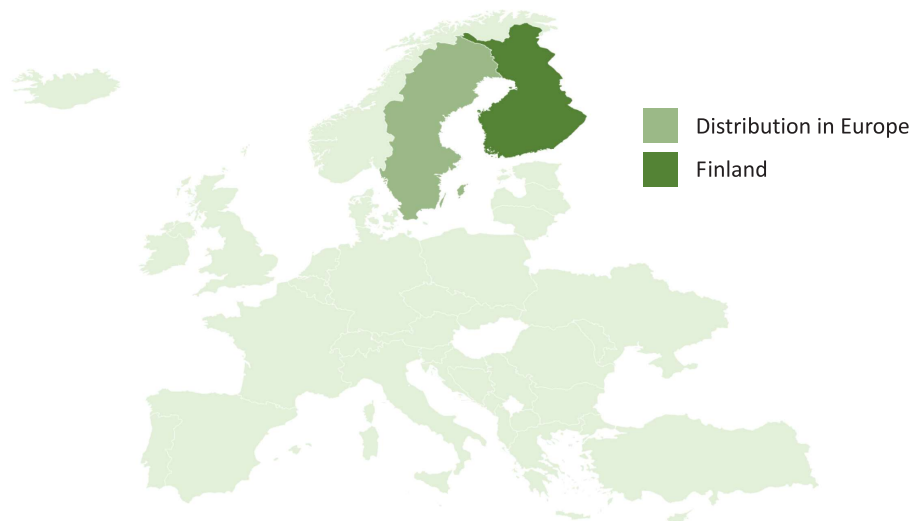
A subspecies and a variety, *Primula nutans* ssp. *finmarchica* var. *jokelae* represents a disjunct distribution pattern common to a group of species that live around the Finnish Bothnian Bay and at the shores of the Arctic Ocean. This pattern reflects the phylogeographic history of these species that followed the retreat of the ice sheet after the Ice Age using two different routes.

Threats

The main threats to survival of this taxon are eutrophication of seawater, overgrowth, climate change and intensive land use.

Native to:

Finland, Sweden.



Gentianaceae

Gentianella uliginosa (Willd.) Börner

Common name: Sumpf-Fransenezian (German)

Importance for Germany

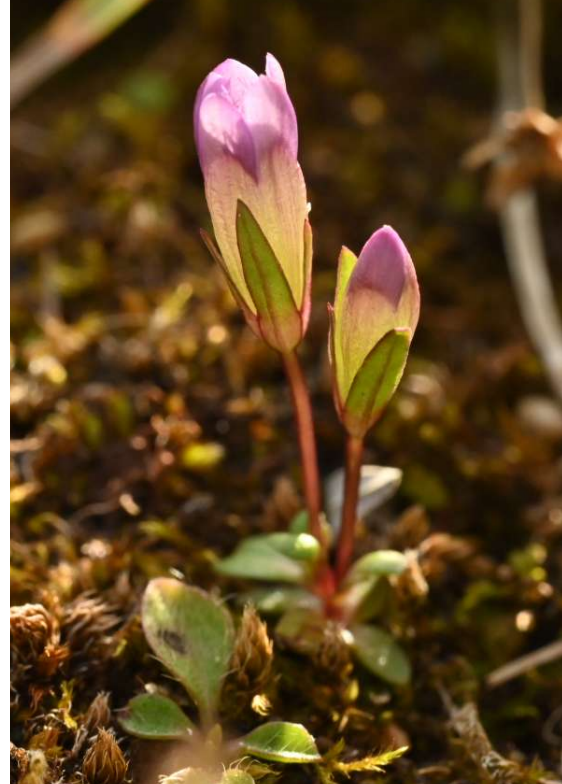
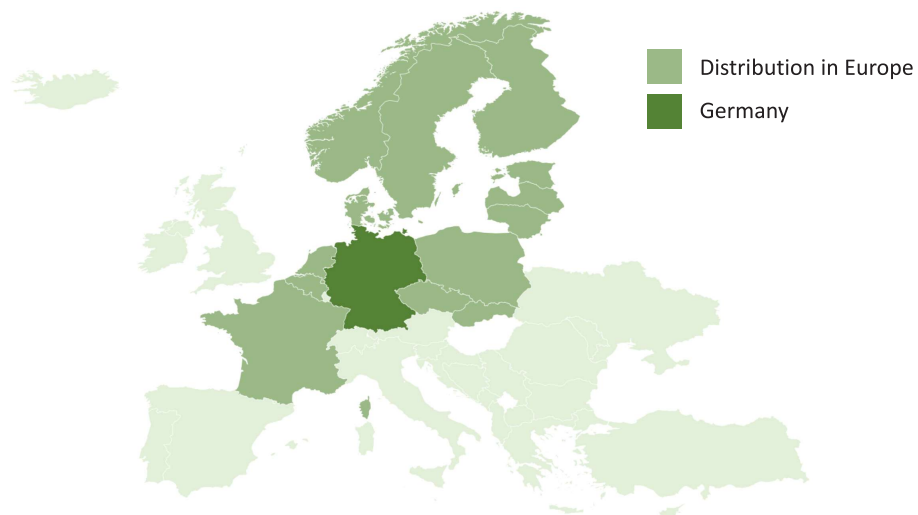
The distribution of the very rare *Gentianella uliginosa* extends from the Atlantic coast of France across Central Europe to southern Scandinavia and the Baltic states. In all countries, the European endemic species can only be found in a few locations. Germany is at the centre of its distribution area. Due to careful management, a handful of occurrences of the small, annual species have been secured in recent decades and now, in good years, thousands of individuals are to be observed.

Threats

Gentianella uliginosa is highly threatened due to the ongoing loss of its habitats. It is a species of nutrient-poor, extensively utilised fresh and wet meadows, which are becoming increasingly rare in our landscape due to intensive livestock farming. The main causes of this threat are the eutrophication of the soil due to the introduction of nitrogen through fertilisation and air pollution, the draining of wet meadows, over-intensive grazing and, on the other hand, the abandonment of meadows.

Native to:

Belarus, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Latvija, Lithuania, Netherlands, Norway, Poland, Russia, Slovakia, Sweden.





Dactylorhiza sambucina (L.) Soó

Common name: Σαλέπι, salepi (Greek)

Importance for Greece

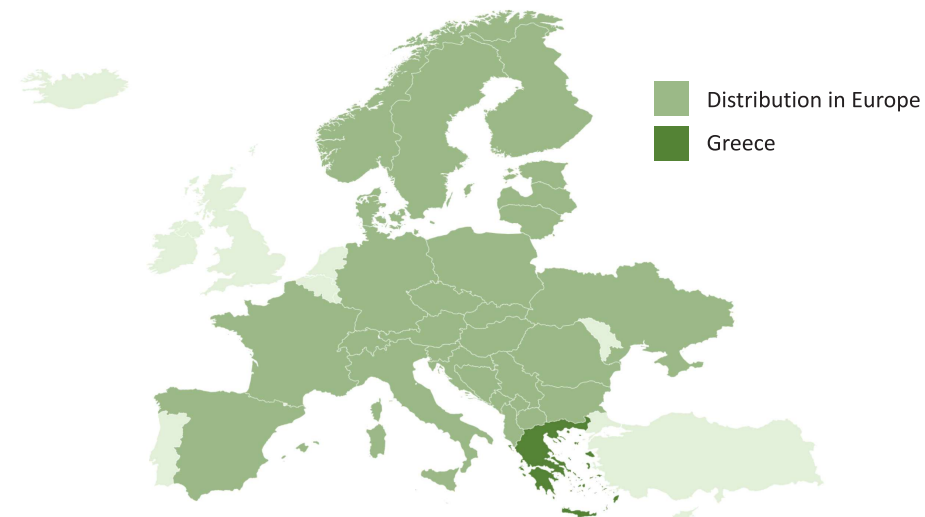
The elder-flowered orchid occurs in mountainous areas of the northern and central parts of Greece, where it can be found primarily in sub-alpine grasslands. It is a species protected nationally, also included in Appendices I and II of CITES. However, this is the one of the most commonly harvested plants in NW Greece for the production of salep, a powder made out of dried and pulverized orchid tubers. This powder is then used for the production of the beverage, appreciated in folk medicine, as well as a thickening ingredient for the traditional kaimaki ice-cream.

Threats

In Greece the species is locally quite abundant, but it must be noted that harvesting for salep requires the complete removal of the orchid tuber, hence it leads to the death of whole individuals. Furthermore, for the production of a single kilogram of salep powder, 1000-4000 orchid plants should be collected. Another threat for the species can be the alteration or destruction of its habitat, as the abandonment of traditional grazing practices can lead to reforestation. Also, an observed shift from sheep to cattle can lead to destruction of the populations due to trampling.

Native to:

Albania, Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Czech Republic, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Kosovo, Latvija, Lithuania, Montenegro, Northern Macedonia, Norway, Poland, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine.



Orchidaceae

Gymnadenia buschmanniae

(Teppner & Ster) Teppner & E. Klein

Common names: nigritella di Adolfine Buschmann,
ginnadenia di Adolfine Buschmann

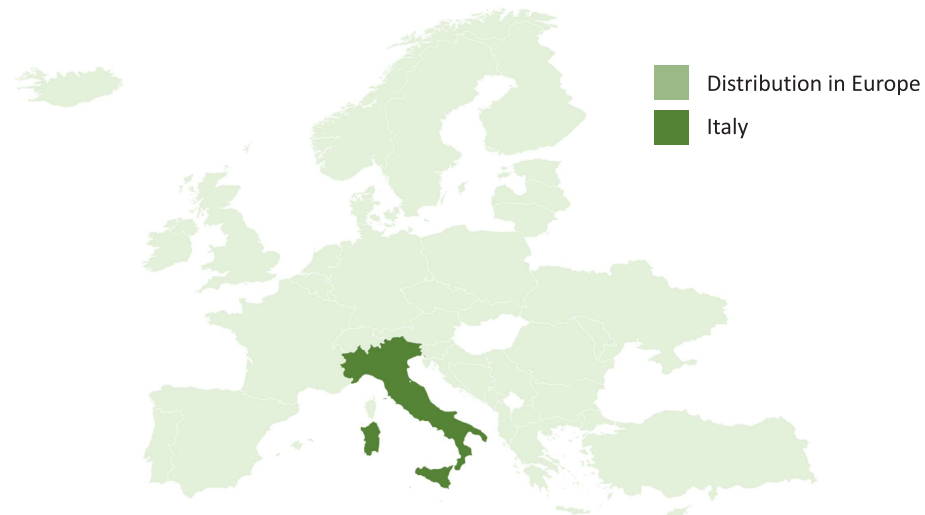
Importance for Italy

This orchid, dedicated to the Austrian botanist Adolfine Buschmann, is an Italian endemic species with an extremely restricted and localized population, as only 1000 individuals have been recorded. The species is strictly endemic to a small Dolomitic part of the Brenta Group in Trentino and blooms in July only in the high-altitude alpine meadows, between 2100 and 2500 meters above sea level. The significance of the species is therefore linked to its narrow distribution and extremely limited population, placing it at high risk of extinction.

Threats

Gymnadenia buschmanniae is protected both at the regional (Trentino) and national level and is assessed as "NT" (Near Threatened) on the Italian Red List. Being a species associated with alpine environments, it is highly threatened by the warming caused by climate change. Additionally, the extremely localized range is at risk of habitat reduction and degradation due to the construction of recreational infrastructure such as ski lifts and ski slopes.

Native to:
Italy.



Apiaceae

Eryngium maritimum L.

Common name: pajūrinė zunda (Lithuanian)

Importance for Lithuania

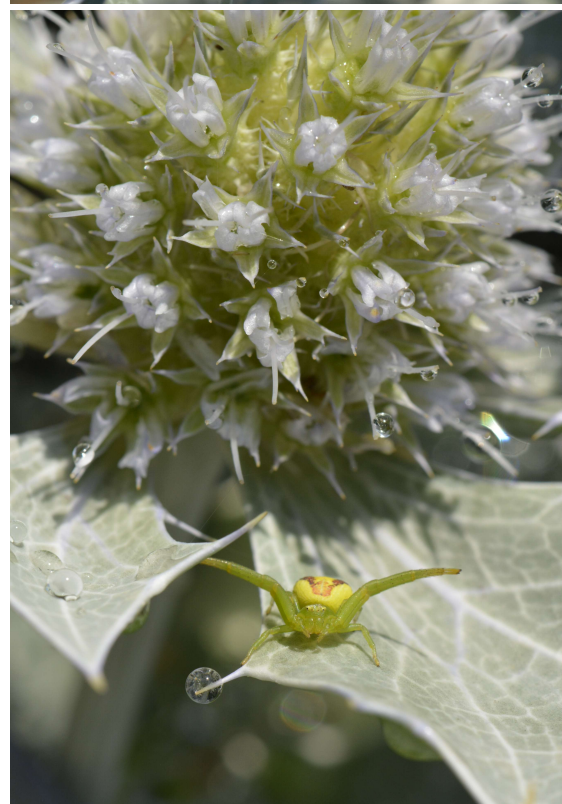
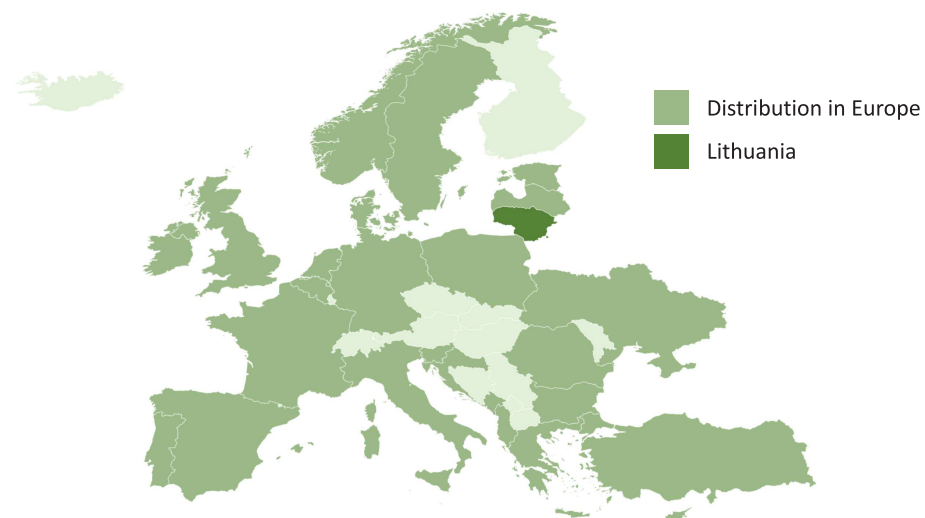
The sea holly is one of the most ornamental plants able to survive on the dunes along the sea and to fortify them at the same time. It is becoming more and more rare at the Baltic Sea, and now occurs in Lithuania only on the Curonian Spit. The species is protected by national law and there are programs aimed at strengthening its populations. It was also depicted on a post stamp in Lithuania.

Threats

The germination of seeds at the seaside is not very successful, especially when they are wind dispersed into the adjacent forests. Sea holly is also non-competitive in *Carex arenaria* communities. The wild boars are digging up and damaging the rootstocks. This showy species is also collected by tourists as a souvenir from the sea side.

Native to:

Albania, Algeria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Egypt, Estonia, France, Georgia, Germany, Great Britain, Greece, Ireland, Israel, Italy, Latvija, Lebanon, Lithuania, Libya, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Syria, Tunisia, Turkey, Ukraine.



Saxifraga rosacea Moenchsubsp. *sponhemica* (C.C. Gmel.) D.A. Webb

Common names: Rhäinescht Käilkraut (Luxembourgish), saxifrage rhénane (French), Rheinischer Steinbrech (German)

Importance for Luxembourg

Saxifraga rosacea Moench subsp. *sponhemica* (C.C. Gmel.) D.A. Webb is a rare endemic plant of Central Europe with a highly disjunct distribution. Remnant populations are small and occur on isolated rocks and screes, facing significant threats. The plant is confined to a few regions within Central Europe, notably an area in the northern part of Luxembourg. Consequently, Luxembourg bears a unique responsibility for the conservation of this taxon.

Threats

Before 1980, this taxon was found in 20 square kilometer grids in northern Luxembourg. By 2018, it was observed in only 11 of these areas. The remaining populations face the risk of genetic depletion and reduced reproductive success due to their small size and isolation. Additionally, they encounter various challenges including shrub encroachment, untimely mowing along road verges, habitat destruction, and longer and more frequent droughts due to climate change, leading to population declines.

Native to:

Belgium, Czech Republic, France, Germany, Luxembourg, Poland.



Asteraceae

Crepis pusilla (Sommier) Merxmüller

Common names: maltese dwarf hawksbeard (English), melitella (Maltese)

Importance for Malta

Crepis pusilla was long thought to be endemic to Malta before being discovered elsewhere in 1967. The importance of this plant is that it is highly vulnerable due to its very restricted distribution in Malta (in 2023 there was one population of 27 plants; total area: < 100 m²) and is therefore 'emblematic' of the state of much of the Maltese flora. Any conservation efforts that are implemented to conserve this plant may be used as templates for the conservation of other endangered species.

Threats

The entire population is concentrated in a single path and should therefore be considered to have a local IUCN conservation status of "Critically Endangered" [CR B1ab(i,ii,iii,iv) + 2ab(i,ii,iii,iv)]. Persistent and documented anthropogenic threats include trampling by walkers and habitat modification. Ecological threats include competition with other species, particularly small geophytes and hemicryptophytes such as *Romulea* spp. and *Plantago* spp.

Native to:

Cyprus, Greece, Italy, Malta, Portugal, Spain, Turkey.



Text: Sandro Lanfranco, Leanne Camilleri; photos: Leanne Camilleri





Campanulaceae

Edraianthus wettsteinii

Halácsy & Baldaccii subsp. *lovcenicus* E. Mayer & Blečić

Common name: lovcénski zvončić (Montenegrin)

Importance for Montenegro

Stenoendemic species that grows in a narrow, limited area connected to the Mt. Lovćen, which has great importance in Montenegrin history and is linked to national identity and is a symbol of Montenegrin freedom and independence. Because it grows out of stone in very difficult and harsh conditions, the Montenegrin grassy-bell is identified with the difficult life of Montenegrins who throughout their history are fighting for survival. Through its unique and unrepeatable beauty, this beautiful flower defies difficult times and says that Montenegro is eternal.

Threats

A single population of the Montenegrin grassy-bell is spatially very restricted and represented by less than 3000 individuals. The species is threatened by a hybridization with closely related and co-flowering taxa, habitat destruction, tourism and excavation by hobby gardeners.

Native to:

Montenegro.



Brassicaceae

Cochlearia polonica Fröhlich

Common name: warzucha polska (Polish)

Importance for Poland

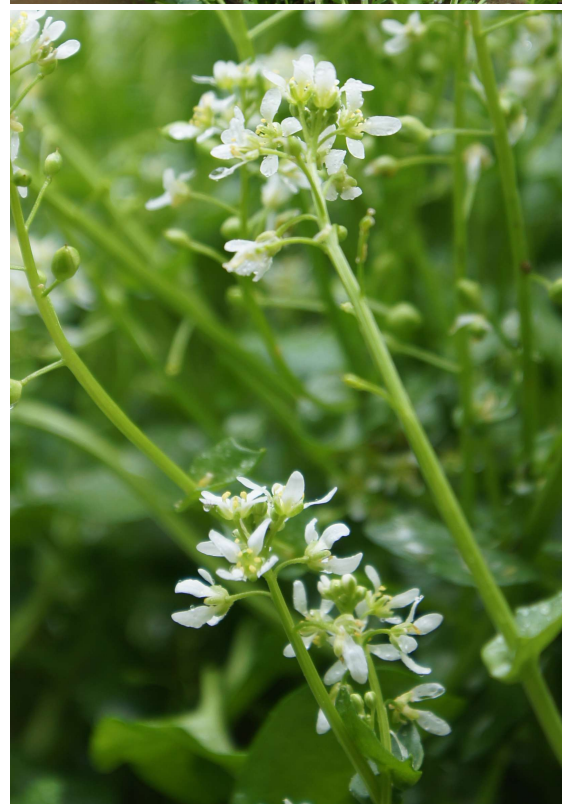
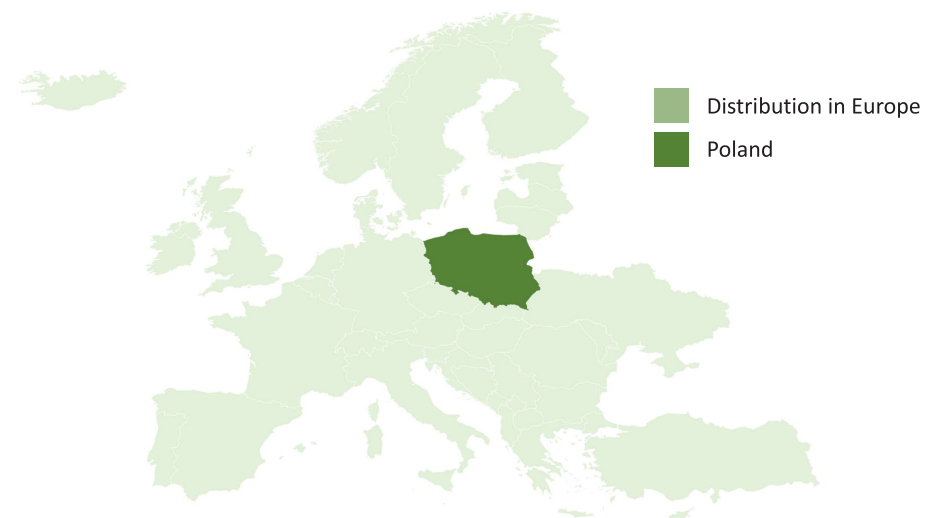
Polish scurvy-grass is a strictly protected endemic species, described from only one location, of about 4 km², in a spring area of the Biafa River. Due to mining activities, water levels have dropped heavily and this population became almost extinct. Thanks to conservation efforts, the species was reestablished at a source of the nearby Centuria River, where it grows in tens of thousands of individuals, but on a very restricted area. In the Polish Red Book it is described as Extinct in the Wild. It is important to Poland as one of the few endemic lowland species, with its survival bound to human activities.

Threats

The main threats for this species are connected with a lowering of water levels due to mining activities in this part of the country. Moreover, disturbance of the plants by wild boars and people riding on quads poses a real danger for the species with such a small range. The *ex-situ* conservation is the only way for this unique species to survive.

Native to:

Poland.





Drosophyllaceae

Drosophyllum lusitanicum (L.) Link

Common names: erva-pinheira-orvalhada, pinheiro-baboso (Portuguese)

Importance for Portugal

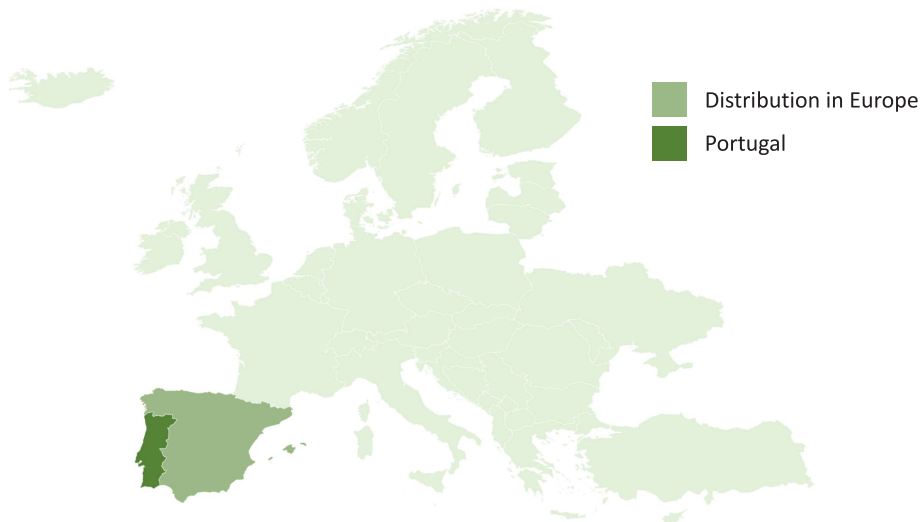
The Portuguese sundew is the sole representative of a whole plant family, which is near-endemic to Portugal, being one of the icons of this country's flora since Linnaeus' times. Unusually among carnivorous plants, it grows on dry soils. Besides its prominent role in spotlighting Portugal among botanists, namely in Darwin's work on insectivorous plants, it has folk uses as a painkiller and to treat sunburns. Locally it was even harvested as a traditional natural flytrap.

Threats

It is nationally red-listed as Vulnerable due to an ongoing degradation of the quality of its habitat, Mediterranean heathland on acidic soils, mostly near the coast. The main threats are urban encroachment and the pervasive expansion of eucalyptus plantations.

Native to:

Morocco, Portugal, Spain.



Caryophyllaceae

Dianthus callizonus Schott & Kotschy

Common name: garofița Pietrei Craiului (Romanian)

Importance for Romania

Dianthus callizonus is a narrow endemic plant species occurring only in the Piatra Craiului Mountains, Southern Carpathians (Romania), and the symbol of the Piatra Craiului National Park. This caryophyllaceous species is among the most well-known symbols of nature protection in Romania for wider audiences and often used as an example in nature conservation, remaining thus one of the most relevant floristic elements for both natural inheritance and educative matters.

Threats

Due to its high visual attractiveness, *Dianthus callizonus* is prone to being gathered by tourists and rare plants collectors, although its strict protection status and interdiction to collect being thoroughly highlighted throughout the protected area. In addition, the increased intensity and lack of proper control for mountain tourism led to accelerated degradation of the habitats harbouring the species. Both former and latter impact factors became immediate threats to the species survival.

Native to:

Romania.



Text and photos: Bogdan-luliu Hurdu





Gesneriaceae

Ramonda nathaliae Pančić & Petrović

Common names: natalijina ramonda, cvet feniks (Serbian)

Importance for Serbia

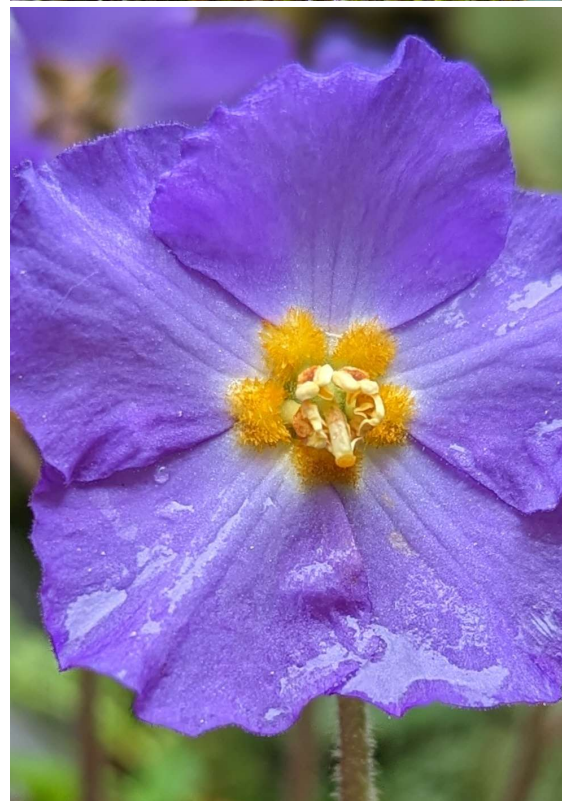
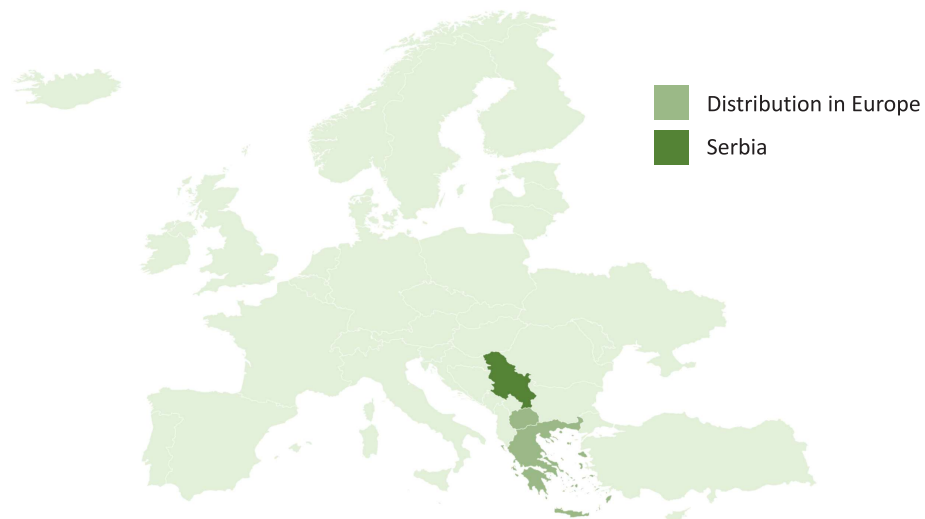
Ramonda nathaliae is an endemic plant species occurring only in the Balkan Peninsula. It was described by Serbian botanists based on plants collected in the southeast part of the country, and was named in the honor of the Serbian queen Natalija Obrenović. It is one of just few flowering resurrection plants in Europe, being able to almost completely dry, and rehydrate when the water is available again. Because of this characteristic, it is a symbol of the national Armistice Day, representing the struggle and suffering of the people in Serbia in the World War I and its post-war revival.

Threats

The main threats to the survival of the species in Serbia are habitat destruction caused by climate change and human actions, the small number and isolation of populations, the potential constructions of dams and mini-hydroelectric power plants in canyons and gorges, and to a lesser extent the collection of plants for scientific and horticultural purposes. According to national legislation it is a strictly protected species in Serbia.

Native to:

Greece, North Macedonia, Serbia.





Brassicaceae

Daphne blagayana Freyer

Common names: blagajev volčin, blagajka, rumena jožefca, igalka, beli kozlovec, kozlovc, kraljeva roža (Slovenian)

Importance for Slovenia

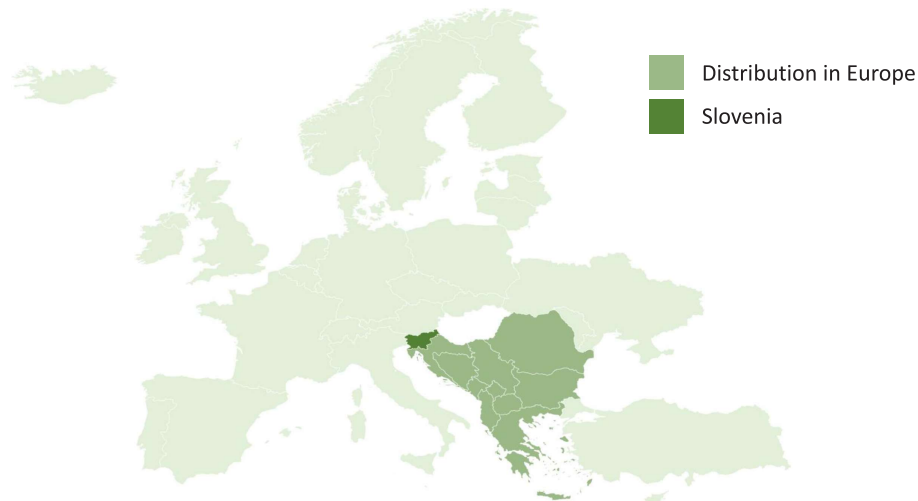
Daphne blagayana has its *locus classicus* in Slovenia, where it was first discovered in 1837. The discovery attracted the attention of botanists of that time, and the site was even visited by King Frederick Augustus II of Saxony. In commemoration of this, the plant received its own monument, which now stands in the town of Polhov Gradec. *Daphne blagayana*, along with edelweiss, became the first legally protected plant species in the area now known as Slovenia in 1898. It thus symbolizes the early conservation efforts in Slovenia.

Threats

The distribution range of *Daphne blagayana* encompasses the Balkan Peninsula and the southern Carpathians. This distribution is fragmented, and in most of the countries where it occurs, the plant is rare, protected, and included in national red lists. In the past, the plant was often collected for its fragrant flowers. Today, potential threats include habitat loss due to human activities, such as tourist development, and the effects of climate change.

Native to:

Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, Northern Macedonia, Montenegro, Romania, Serbia, Slovenia.



Petrocoptis grandiflora Rothm.

Common name: rompepedras (Spanish)

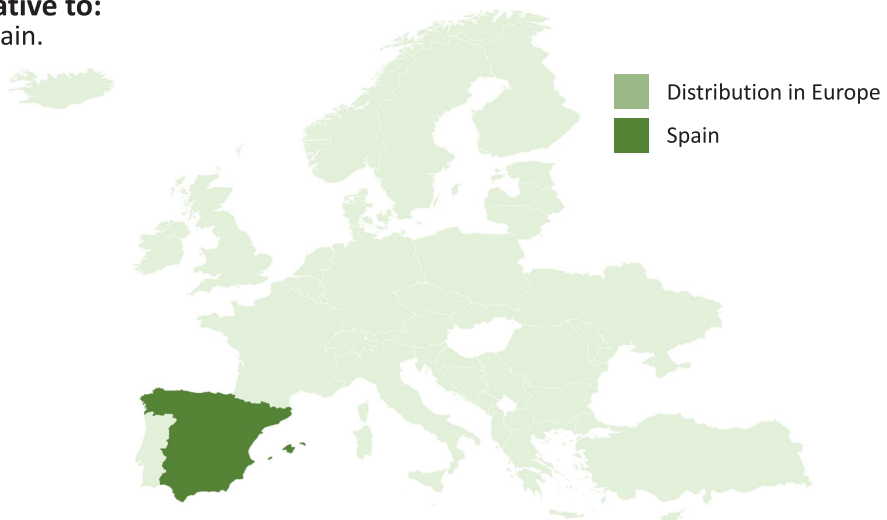
Importance for Spain

Petrocoptis grandiflora is a relic from the Tertiary period, highly restricted to less than 35 square kilometers in northwestern Spain, limited to a few locations where it occupies cracks and crevices in vertical or overhanging limestone outcrops. Plants of this species, iconic in Spain, have developed adaptations that enable them to thrive in the crevices and clefts of the cliffs where they reside. One of them is a leaf rosette, which reduces exposure to wind and falling rocks, also allowing the plant to utilize the nutrients from those leaves that wither. The plants are bending stems toward the wall once the fruits have formed. This makes it easier for the seeds to land on the rock or settle in a crevice near the mother plant. The ability to overcome all of the challenges of the harsh environment with such adaptations is what makes the "rock breakers" so biologically exceptional.

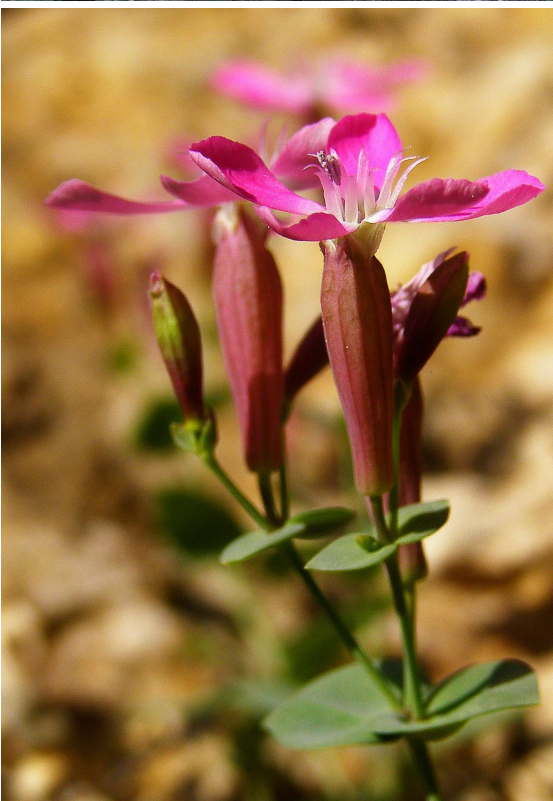
Threats

The main threats faced by the current populations of this species are related to human activity. The proliferation of limestone quarrying for construction and other public works poses a threat to the scarce limestone outcrops where these plants inhabit and limits their potential expansion. In recent years, the increase in mountain-related recreational activities, especially sport climbing, influences this species habitat. Often, due to a lack of awareness about the rich history represented by these plants, climbers remove the plants from crevices to prepare new climbing routes. The isolation of these populations, dependent on the availability of these scattered rocky surfaces resembling islands in an oceanic archipelago, promotes the genetic isolation of these populations.

Native to:
Spain.



Text and photos: Luis Navarro





Asteraceae

Inula helvetica Grauer

Common names: Schweizer Alant (German), inule de Suisse (French), enula svizzera (Italian)

Importance for Switzerland

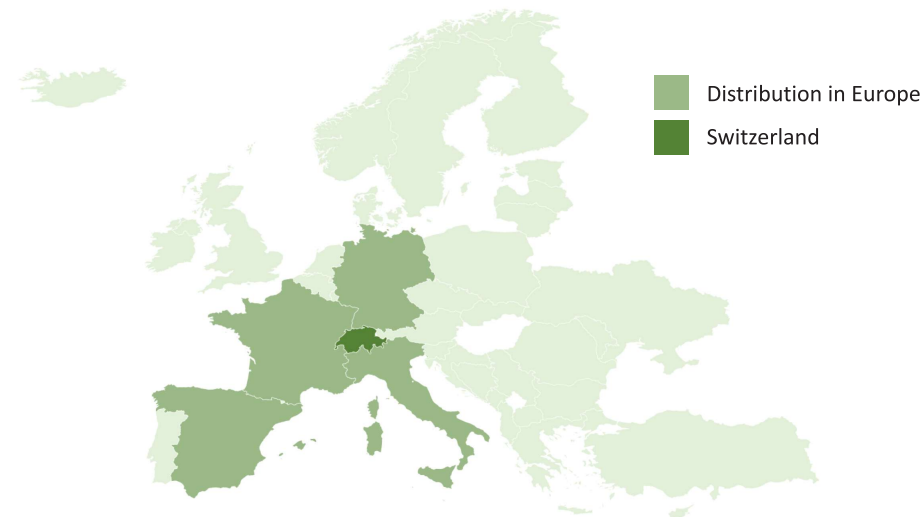
Inula helvetica (*Pentanema helveticum*), the Swiss fleabane, is a globally rare and threatened species. It occurs in isolated populations from eastern Spain and the Pyrenees to Switzerland, the Rhone and Rhine Valley and to some locations in the Piedmont in Italy and grows in wet, warm, alkaline and nutrient poor soils in alluvial forests and shrublands as well as in fens. This summer flowering species was once widely distributed across the lowlands of Switzerland, but steeply declined in the 20th century.

Threats

Inula helvetica is sensitive to early mowing and changes in soil nutrient-content and soil pH. It is endangered by interventions in the water balance such as groundwater lowering, drainage, river correction, and meliorations, by direct habitat destruction due to construction, roads, landfills, industry, and tourism, but also by competition with invasive goldenrods, bracken and blackberry shrubs and can hybridise with *Inula salicina*. The seed germination rate is poor in this species, but it reproduces clonally and can be easily *ex-situ* cultivated and propagated.

Native to:

France, Germany, Italy, Spain, Switzerland.



Rosaceae

Dryas octopetala L.

Common name: дріада восьмипелюсткова
driada wosmipieljustkova (Ukrainian)

Importance for Ukraine

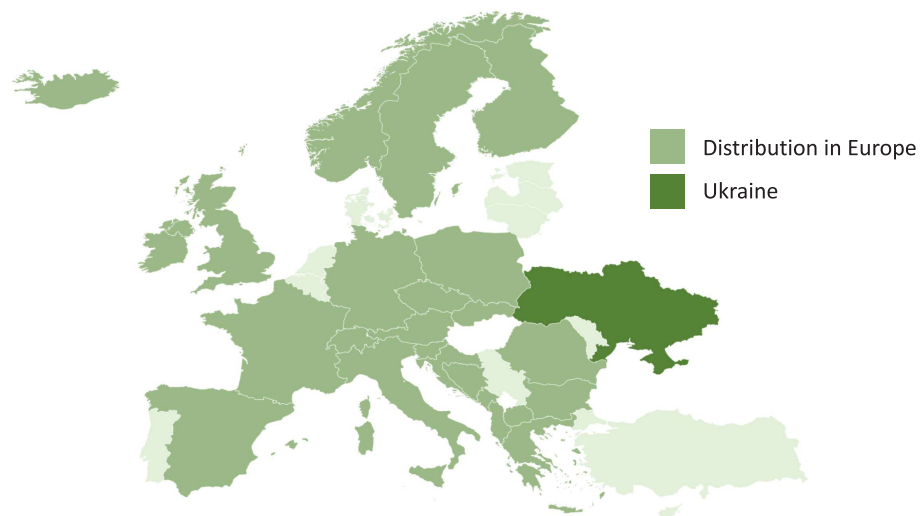
The eightpetal mountain-avens is a widely distributed glacial relict reaching a border of a southern part of its range in Ukraine. This taxon is a reminder of past climate changes and the country's geological history. As a rare highland arctic-alpine species it is listed in the Red Book of Ukraine.

Threats

This species occurs in Ukraine only in the highlands, and due to its rarity can be easily destroyed. The area of its distribution has decreased significantly due to climate changes. Moreover, pressure from pastoral (grazing) activities, as well as anthropogenic pressure (trampling, recreation) are dangerous to this important plant species.

Native to:

Albania, Armenia, Austria, Azerbaijan, Bulgaria, Canada, China, Czech Republic, Finland, France, Greece, Georgia, Germany, Great Britain, Greenland, Iceland, Ireland, Italy, Mongolia, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine, United States of America.





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