



This Guide presents the first comprehensive overview of all named orchid taxa from Europe, North Africa, and the Middle East. Nomenclature, type information, a description, and notes on etymology, flowering period, habitat, elevation, and geographical distribution are provided for each taxon, along with discussions of related taxa and conservation issues. Every taxon is illustrated up to four photographs, showing the orchid's variability and diagnostic characters. Closely related taxa are arranged in groups, to make identification easier. Geographical distribution is indicated in the page margins, which is a great help for those visiting particular areas.

This Guide is a synopsis of the six-volume work *Die Orchideen Europas, Nordafrikas und Vorderasiens*. In that work, more detailed information and many more photographs will be provided, including full typification with images of the type specimens and distribution maps in UTM-25 km grid.



Orchids of Europe, North Africa and the Middle East

Guide to the

Guide to the
**Orchids of Europe,
 North Africa
 and the Middle East**



provincie limburg
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HUGO DE VRIES FONDS



Anthura
 unlimited in varieties



C.A.J. KREUTZ

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Introduction

Preface

Orchids are among the most beautiful, fascinating, and rare plants in the world. Probably no other plant family enjoys such enthusiastic attention from florists and amateur botanists as the orchids, the gems among the flowers. Bizarre flower shapes, exceptional colour nuances and silky or velvety textures give many species a fairy-like beauty. Orchid species are often quite variable and are probably actively evolving, which is reflected in the large number of subspecies, varieties and forms that have been named. In addition, there are numerous inter- and infrageneric hybrids. Most of the species are uncommon or rare, some are even seriously endangered. These are some of the reasons why more and more people are attracted to orchids and spend much time studying them.

Depending on which species concept is followed, around 20,000 to 35,000 orchid species have been named worldwide. Except for the Antarctic, they occur in all continents, from Greenland to New Zealand, and grow in the most diverse habitats, from dense forests to marshes and grasslands. In Europe all species are terrestrial, but in the tropics, where most species are found, the majority are epiphytic. In Europe and adjacent countries, depending on which botanist you ask, about 1000 species, subspecies and varieties occur, most of them in the Mediterranean.

European orchids are becoming increasingly popular, especially in the last thirty years. They are not only the best-studied family, but they also have a high profile in nature conservation, as they are perfect indicators of the state of their habitats, be it forests, shrublands, grasslands, heaths, meadows, or marshes and bogs. The beauty and diversity of native orchids, as well as their interesting biology, particularly their pollination mechanisms, fascinate time and again. Orchids are among the most endangered plants in Europe. Many of their sites have been and are being destroyed by building activities, road construction, drainage, eutrophication (often from using fertilizers), forest clearing or afforestation. Numerous sites were lost through shrub encroachment, peat extraction, overgrazing, matting, trampling, as well as picking and digging up the plants. In the Alps, they are especially endangered by the construction of ski lifts, ski slopes and mountain railways. The largest decline was experienced in the 20th century, in the period from World War II to the 1980s, when many habitats were destroyed by development, drainage and fertilization. After this period, nature conservation areas were increasingly designated, especially in Central Europe, and effective protection measures were introduced. Also, many formerly heavily used meadows were extensively grazed again and no longer fertilized. As a result of these conservation measures, many orchids have increased in numbers, and the most important sites in Central Europe seem to have been safeguarded. In addition, native orchids in many Western and Central European countries are under strict legal protection. It is prohibited to damage, pick, excavate or transplant them. Most nature reserves have access restricted to designated footpaths, or access by the public is even banned entirely.

There has been an ever-increasing flow of articles and books about European orchids, especially in the past 50 years, and numerous new orchid names have been published. In fact, so many new taxa (species, subspecies, varieties and forms) have been described that even well-known orchid specialists are finding it difficult to keep up. This is not least because all these taxa have been and are being published in a formidable number of different periodicals and books, which are not always easily obtainable. While many of the new taxa are really new to science, others are questionable and destined to end up in synonymy, if they have not already done so. Undoubtedly, more new species, subspecies and varieties, as well as new hybrids, will continue to be described for some time to come.

This Guide presents the first comprehensive overview of all distinguishable taxa of Europe, North Africa and the Middle East with their scientific names, basionym, the most important synonyms, type information, etymology, description, flowering period, habitat, elevation and distribution. Supplemented and discussed with short notes about closely related taxa, conservation, and protection. Furthermore, each genus is presented and illustrated with three or four photos, showing their most important characters and diversity. Closely related taxa are taxonomically arranged in groups, to make identification easier. These groups are equivalent to sections or subsections and have been named according to the rules of the ICN (*International Code of Nomenclature for algae, fungi, and plants*). To avoid confusion and to maintain consistency among the group names in this work they were in general formed from the appropriate plural form of the epithet of the first described species in the group. Groups were also created for monotypic genera, as new species or varieties could be discovered within these groups in the future. Several taxonomical decisions may be debatable, but without this classification many taxa would be much harder to identify.

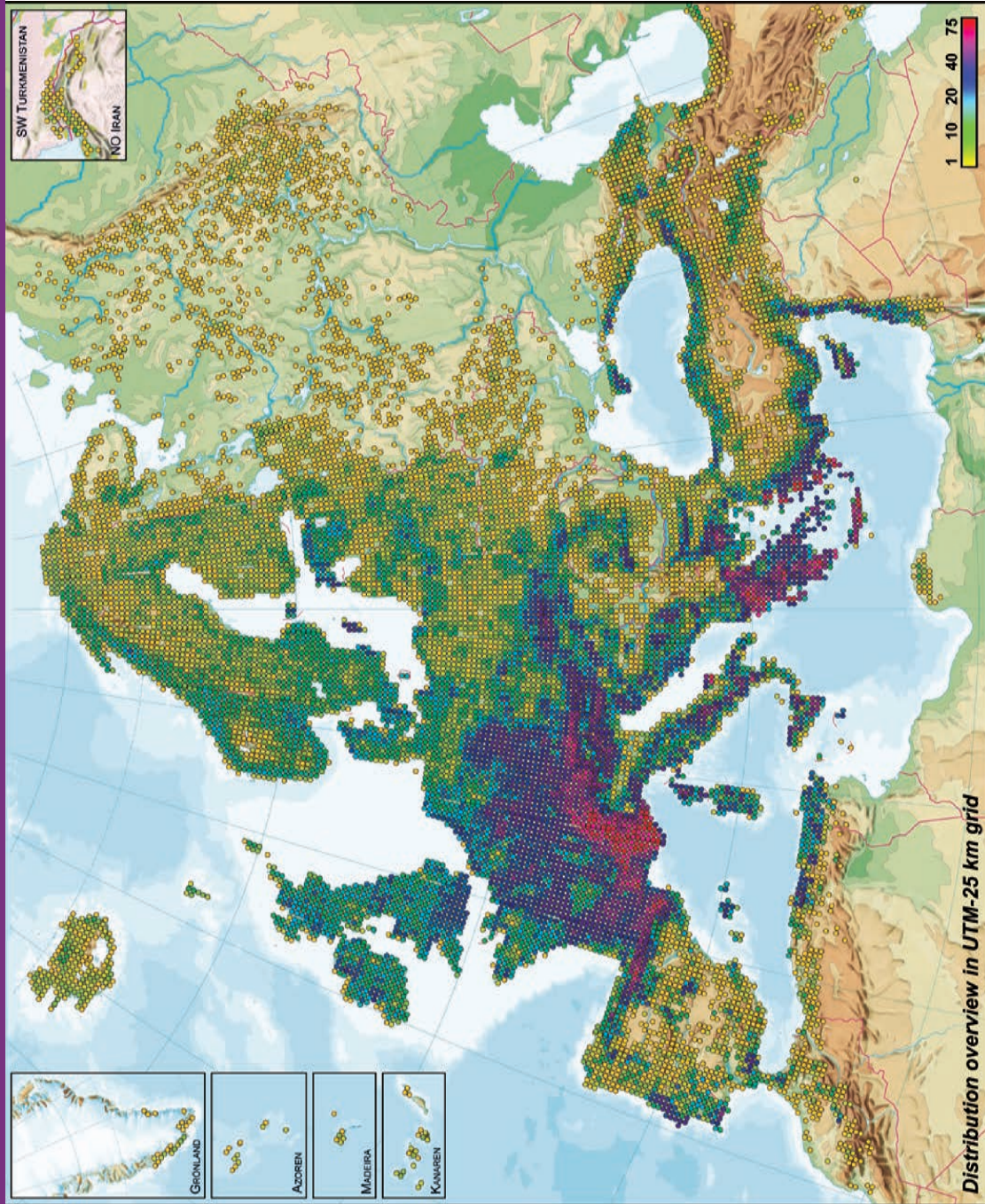
In general, distribution maps offer useful additional information. Although a small-scale map could be used, it would not show the distribution clearly enough to serve any useful purpose, especially for taxa which occur in only a few locations or on a small island. Instead of a map, information on the distribution of the species is provided at the edge of the page, e.g. 'Greece (Rhodes, Chios)'. Based on this geographical information, it is easy to check which species can be expected when traveling to a specific region, country or island. In many cases, this information will be sufficient. However, detailed information is provided in the largescale distribution maps (UTM-25 km) in *Die Orchideen Europas, Nordafrikas und Vorderasiens* (six-volumes). In this monumental work, compiled by the author of this Guide, each taxon is presented with a complete description, including many detailed colour photos and provided with extensive information on its ecology, distribution and nomenclature. In addition, all type specimens were studied and all of the ca. 1,500 taxa with their most important homo- and heterotypical synonyms were typified (including pictures of the typesheets). An example of a distribution map from that work is shown on page 7.

KAREL (C.A.J.) KREUTZ, June 2024.

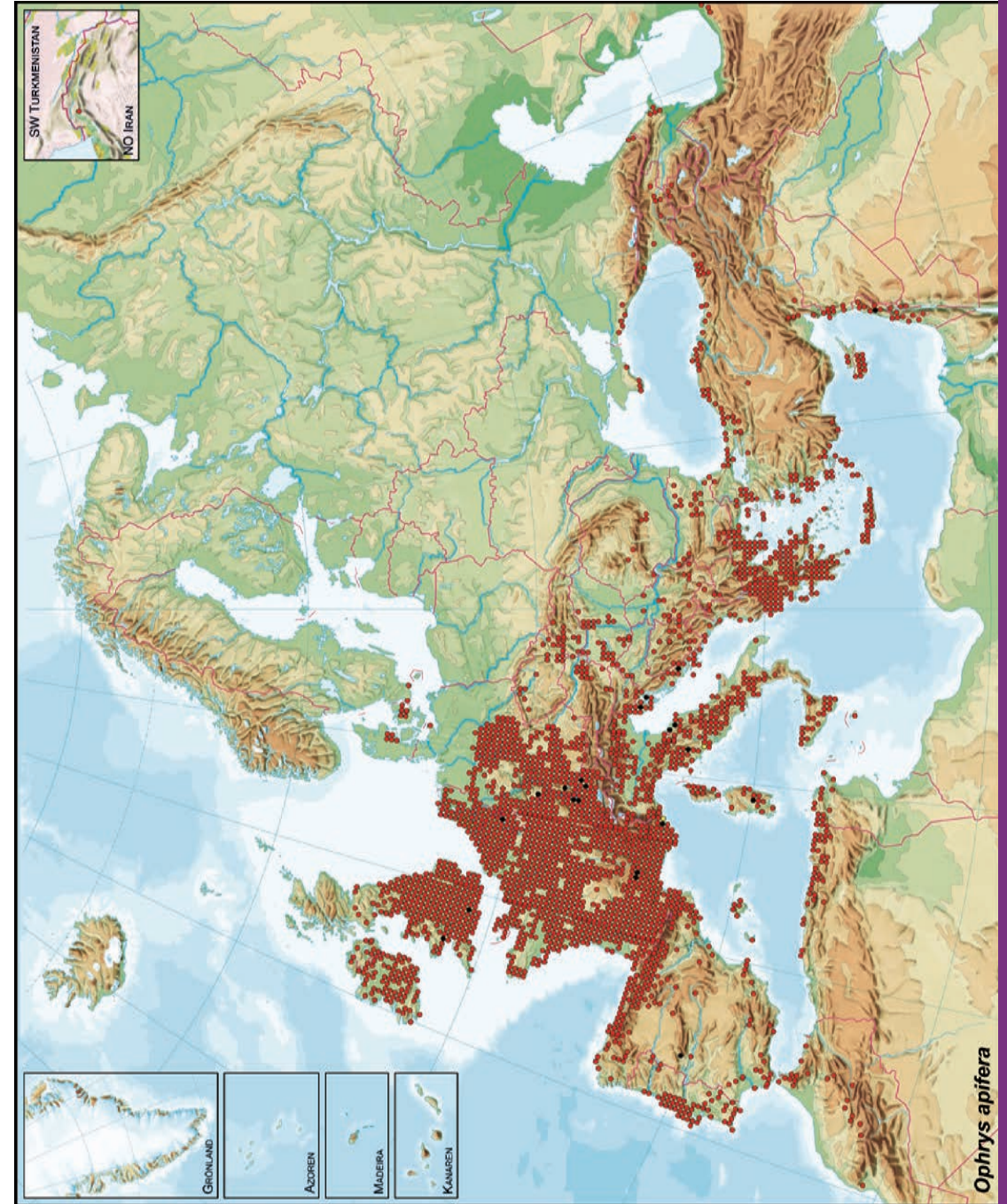
This work would not have been possible without the help of many orchid friends and colleagues, who have always kindly and promptly supported me with articles, photos and comments.

Note Traditionally, many two-part compound words have also been hyphenated, but these days they are increasingly either separated or written together, especially in American English. Traditionally, new terms such as homepage were first written home page for a long time, not until much later home-page and now as homepage. Therefore, basal field is written in this work together as one word 'basalfield', because all other *Ophrys*-characters are composed of one word, moreover in Dutch it is basaalveld, in German Basalfeld, also consisting of one word.

Distribution overview in UTM-25 km grid (number of taxa)



Distribution map (*Ophrys apifera*) (black dots = loc. typ. from all varieties)



Epipactis

ZINN, Cat. Pl. Hort. Gott.: 85 (1757) nom. cons.

Type *Epipactis helleborine* (L.) CRANTZ (1769).

Etymology The genus name *Epipactis* has a Greek origin. This name was used by DIOSCORIDES and THEOPHRASTUS, referring to plants that are very similar to a *Veratrum* species (*helleboros*), but differing in having smaller leaves.

Genus description Plant stout, slender, medium-sized to robust, 25 to 80 cm tall, with deeply descending fleshy rhizome with numerous vertical and horizontal roots. These subterranean roots are often branched and, in some taxa, (e.g. *Epipactis purpurata* and *Epipactis tremolsii*) they frequently produce clusters of several shoots. Stem slender, sturdy to robust, medium to dark green, glabrous to pubescent, at the base often with several sheathing scale-leaves. Leaves often numerous or sparse, more or less evenly distributed along the stem or clearly in two opposite rows, often with many grooves, patent or obliquely erect, sometimes slightly decurved. Basal leaves ovate to oblong-ovate, short pointed; the upper ovate-lanceolate to lanceolate, long pointed and gradually becoming bract-like. Inflorescence strongly nodding before anthesis, few or many-flowered and usually lax, more or less one-sided, elongated, with few or numerous, up to one hundred small to medium-sized, pedicellate flowers. Bracts linear-lanceolate, long-pointed, greenish, leaf-like; lower bracts mostly surpassing the flowers, patent to decurved, becoming smaller towards the top until they are about half as long as the ovaries. Flowers predominantly pale to whitish-green and usually tinged reddish or purple, reddish-brown or white, small to medium-sized, closed to half or wide-open, bell-shaped, nodding to nearly horizontal, slightly scented of vanilla or odourless. Perianth connivent, laxly spreading, almost closed or completely closed, greenish and mostly reddish-brown. Sepals ovate, long pointed; lateral sepals spreading obliquely downwards, the dorsal sepal connivent with the petals. Petals relatively large, slightly shorter than the sepals, ovate-lanceolate. Lip bipartite, without spur. Hypochile cup-shaped to bowl-shaped or hemispherical, nectariferous. Epichile broadly triangular to heart-shaped with reflexed or decurved or porrect apex, at the base usually with two weakly or well-developed callosities, in the middle with a longitudinal groove. Viscidium well developed and functional (in allogamous flowers), or absent or reduced, quickly dehydrating and non-functional (in autogamous flowers).

Habitat Predominantly in sunny, partially or fully shaded places in coniferous, deciduous, alluvial and mixed forests, forest clearings, bushes, chalk grassland, dune slacks, swampy meadows, moorland bogs and fens. Also on sunny road banks; on mellow, nutrient-rich, alkaline to calcareous, deep to medium-deep substrates.

Distribution Eurasia, North Africa (only *Epipactis veratrifolia*) and North America (only *E. helleborine*, *E. atrorubens* and *E. gigantea*). Across the whole of Europe, except Madeira and the Canary Islands. In Asia distributed from the Caucasus through the Himalayas to China, Thailand, southeast Siberia and Japan. *Epipactis veratrifolia* is common in Africa and occurs from the Sinai Desert to Somalia. *Epipactis helleborine* is widespread in North and Central America and locally very common.

Pollination In the genus *Epipactis* pollen are transmitted as compact pollen packages (pollinia). The small column (gynostemium) has a small appendage (rostellum) on the upper stigma margin, at the apex of which, in a mature flower, a spherical structure is differentiated, consisting of a thin membrane enclosing a milky white mass. This spherical structure is called the viscidium. There is one stamen which is reduced to a single anther near the top of the column. The anther has two compartments (thecae) in which the pollinia are formed; these drop out of the thecae upon maturity and are deposited onto the pollen bed (clinandrium).

Attempts made by the wasp (from the genera *Paravespula* and *Dolichovespula*), to take nectar from the cup-shaped rear part (hypochile) of the lip cause the insect to bump against the viscidium. The thin membrane ruptures and the sticky mass establishes a firm connection between the pollinia and the insect's head. Upon leaving the flower, the wasp extracts the pollinia from the pollen bed and transfers them to the sticky stigma of another flower.

Since there is no absolute limit between autogamy and allogamy, autogamous *Epipactis* species can also be visited by insects, especially as some autogamous *Epipactis* species still produce nectar. After opening of the flower, the viscidium in autogamous species is often functional for a very short period, but rapidly dehydrates and loses its functionality. The pollinia will disintegrate during anthesis and fall onto the stigma of the same flower (obligatory autogamous).

Hybrids *Epipactis* is one of the most critical and problematic orchid genera. Recently, many new species with very limited distribution areas or single populations have been described, with several of them particularly difficult to distinguish from similar species. Especially, the autogamous and thermophilic species cause great difficulties in identification. In addition, there are interspecific hybrids, but they are mostly very rare. Transitional populations, as known from *Dactylorhiza*, are rare and these populations have recently been described as new species. Natural intergeneric hybrids, even with the closely related genus *Cephalanthera* are unknown.

Conservation In large parts of Europe *Epipactis* species are declining because of draining and afforestation of their sites. In contrast, there are some species, such as *E. atrorubens* and *E. helleborine*, that are able to colonize disturbed sites rapidly.



Epipactis provincialis

Accepted Name *Epipactis provincialis* AUBENAS & ROBATSCH, L'Orchidophile 27 (122): 109-111 (1996).

Type France (Drôme): La Baisse (Rochefort-en-Valdaine), leg. A. AUBENAS & K. ROBATSCH (1995), SLL.

Etymology Named after its distribution area in the Provence (France).

Description Plant slender, medium-sized, 20 to 40 cm tall, often with several stems close together. **Stem** sturdy, yellowish to mid-green, slightly flexuose in the upper part, glabrous, apex rather pubescent, at the base with a few brown scale-leaves. **Leaves** stiff, erect, channelled, arching, margins undulate, more or less in two opposite rows, with fine irregular serrations, yellowish to mid-green. Basal leaves oblong-ovate to ovate-lanceolate, long acuminate; the upper ovate-lanceolate and gradually becoming bract-like upwards. Inflorescence relatively many-flowered and lax, nearly one-sided, elongated with 10 to 25 small flowers. **Bracts** narrowly lanceolate, long acuminate, mid-green; lower bracts surpassing the flowers, patent to obliquely erect, becoming smaller towards the apex. **Flowers** light to dark green with suffused with yellowish-green to light pink epichile, rather small, half-open, bell-shaped, nearly patent to pendent. **Perianth** connivent or bell-shaped, on the outside dark green, on the inside light to yellowish-green or whitish-green. **Sepals** broadly ovate-lanceolate, keeled, decurved; the dorsal sepal bent over the petals. **Petals** about half as long as the sepals, broadly ovate-lanceolate, somewhat lighter than the sepals, sometimes crimson. **Lip** bipartite. **Hypochile** deep and broadly cup-shaped, dark brown at the base, brownish inside, greenish-pink at the margins, nectariferous. **Epichile** broadly heart-shaped, triangular acuminate, spreading, concave, yellowish-green with a greenish apex, centre magenta, suffused with magenta at the base, margins reflexed, with two slightly developed pale pink calli. Junction between hypochile and epichile very broad. **Viscidium** reduced, rapidly dehydrating and non-functional (autogamous).

Flowering Late May to mid-June, early flowering *Epipactis* species.

Habitat Thermophilous and dry grasslands, xeric garigue, light pine forests with juniper bushes, oak shrubland, road banks, forest clearings and their margins; on dry, very lime-rich substrates.

Elevation From 200 to 500 m. At a locality near Royans (Vercors) at 1,060 m altitude.

Distribution Endemic *Epipactis* species of southeast France (Drôme, Var, Vaucluse, Bouches du Rhône and Ardèche). Probably also in Corsica.

Remarks *Epipactis provincialis* is an early flowering species from southeast France. It is characterized in particular by its pronounced thermophilous growth and its early flowering. Characteristic is also the pink colour of the lip centre and the sharply defined green margin of the epichile. In flower morphology it is very similar to *E. leptochila*. Its habitats correspond to those of *E. tremolsii*, with which it occurs in some localities.

In favourable years, the plants already flower from mid-May, but due to its autogamy the flowering period is very short.

This species is very rare and local. It is only known from a few localities, which are mostly populated with few plants. The number of the flowering individuals varies annually. Especially in dry and hot years, the flowers dry out already in the bud or in the stunted inflorescences.

Rare species that only occurs in a few localities. The total number should not exceed 500 flowering plants. Its locations are not particularly threatened, but because of the small number of individuals it must be classified as endangered.

France (Drôme): Salles-sous-Bois, 7.VI.2002 [CK]

France (Drôme): Salles-sous-Bois, 7.VI.2002 [CK]

France (Drôme): Salles-sous-Bois, 7.VI.2002 [CK]

Epipactis neglecta

Accepted Name *Epipactis neglecta* (KÜMPEL) KÜMPEL, Orchid. Rhön: 67 (1996).

Basionym *Epipactis leptochila* subsp. *neglecta*, KÜMPEL, Mitt. Arbeitskr. Heim. Orchid. DDR 15: 58 (1987, publ. 1986).

Synonyms *Epipactis leptochila* var. *neglecta* (KÜMPEL) A. GÉVAUDAN, Natural. belges 83 (Orchid. 15): 30 (2002). – *Epipactis viridiflava* U. LÖWE, Bauhinia 4: 87 (1968). – *Epipactis leptochila* var. *praematura* KRÖSCHE, Feddes Repert. 26: 91 (1929). nom. illeg.

Type Germany (Thuringia): Herpf (Kahler Berg), leg. H. KÜMPEL (1985), JE.

Etymology The epithet means unnoticed, forgotten or neglected, and refers to this species having long been overlooked.

Description Plant slender to medium-sized, sometimes stout, 30 to 80 cm tall. **Stem** dark green, upper part pubescent. **Leaves** almost evenly distributed along the stem, rather soft, undulate, acuminate, with notable veins, sheathing, overhanging or decurved, arranged in two opposite rows, concentrated in the middle part of the stem, dark green. Basal leaves ovate to ovate-lanceolate; the middle more lanceolate; the upper becoming bract-like. **Inflorescence** usually dense, nearly one-sided, occupying about half of the entire plant, with 15 to 40 medium-sized flowers. **Bracts** lanceolate, dark green; lower bracts far surpassing the flowers; the upper much shorter and narrower, patent to erect or decurved. **Flowers** rather large, well-opening, whitish-green, often slightly tinged reddish, pendent. **Perianth** connivent, pale green or greenish-white, lateral sepals suffused with light pink. **Sepals** ovate-lanceolate, acuminate; the dorsal sepal bent over the petals. **Petals** slightly shorter than the sepals, broadly ovate, usually somewhat lighter coloured than the sepals, at the margins suffused with pink. **Lip** bipartite. **Hypochile** cup-shaped, reddish-brown on the outside, bright red or light brownish-red on the inside, reddish at the margins, nectariferous. **Epichile** longer than broad, ovate to broadly ovate, whitish to greenish-white and suffused with pale pink to pink, apex frequently twisted down to one side, at the base with two inconspicuous calli. Longitudinal groove between hypochile and epichile very narrow and slit-like. **Rostellum** present. **Viscidium** present, but usually non-functional and evanescent (facultative autogamous).

Flowering Mid-July to mid-August.

Habitat Cool and humid, mixed beech and deciduous forests and thermophilous oak-hornbeam woods. Also but rarely in pine and fir forests with few beech trees and sparse herb layer; on moist, deeply shady, open calcareous substrates.

Elevation From 300 to 1,700 m.

Distribution Belgium, Luxembourg, France, Germany, Austria, Switzerland, Italy, Czech Republic, Slovakia, Hungary, Romania, Slovenia, Croatia, Serbia and Greece. Also in Russia (Krasnodar) and Georgia.

Remarks *Epipactis neglecta* is a very variable species and sometimes difficult to identify. It has a very scattered distribution area and occurs across through western and central Europe, with subareas separated by large gaps. The main distribution is Germany where it occurs mainly in the Eifel, the Palatinate Forest, Upper and Lower Palatinate, Thuringia, Rhön, Black Forest and the Hessian and Weserbergland. From there it is distributed westward to eastern France, south to Italy (Trentino-Alto Adige, Abruzzo, Maiella, Apennines), Croatia (Istria and Velebit), Serbia and northern Greece, east to the Czech Republic, Slovakia and Hungary.

Switzerland (Solothurn): Olten, 1.VII.2000 [CK]

Belgium (Namur): Lavaux-Sainte-Anne, 13.VII.2016 [CK]

Belgium (Namur): Lavaux-Sainte-Anne, 13.VII.2016 [CK]

Germany (Eifel): Marmagen, 27.VII.2012 [CK]



Platanthera bifolia

Accepted Name *Platanthera bifolia* (L.) L.C.M. RICHARD, De Orchid. Eur.: 35 (1817).

Basionym *Orchis bifolia* L., Sp. Pl. 2: 939 (1753).

Synonyms *Platanthera bifolia* var. *patula* (DREJER) DUCOMMUN, Taschenb. Schweiz. Bot.: 724 (1869). – *Platanthera solstitialis* BÖNNIGHAUSEN in REICHENBACH pat., Fl. Germ. Excurs.: 120 (1830). nom. inval. – *Platanthera brachyglossa* (WALLROTH) REICHENBACH pat., Iconogr. Bot. Pl. Crit. 9: 19 (1831).

Type Sweden (Stockholm): Vicinity of Stockholm, leg. O. SWARTZ (1760-1818), LINN.

Etymology From the Latin *bifolia*, two-leaved, and refers to the two opposite, basal leaves.

Description Plant robust, medium-sized, 10 to 30 cm tall. Stem fairly stout, upright, stiff, light to dark green, glabrous, angular, with some discoloured scale-leaves at the base. Basal leaves (usually two to three) large, ovate-lanceolate to elliptic, rather long, obtuse, slightly shiny, with numerous longitudinal veins, largest width approximately below the middle, obliquely to steeply erect, sometimes decurved or slightly patent, basal or almost opposite arranged; the upper oblong-lanceolate to bract-like, not reaching the lowermost flowers. Inflorescence cylindrical, spreading, usually dense and flowering with 10 to 30 flowers, inside view without gaps between the flowers. Bracts lanceolate to narrowly lanceolate, long acuminate, herbaceous, dark green, obliquely bent upwards; lower bracts longer than the ovaries, becoming shorter upwards. Flowers small- to medium-sized, cream to greenish-white, rarely pale yellow. Perianth whitish to creamy, rarely greenish-white. Sepals (lateral) elongated-ovate to oblanceolate, patent to obliquely pointing downwards, obtuse to short pointed, multi-veined; the middle broadly ovate, obtuse, with the petals helmet-like connivent. Petals narrowly lanceolate, obtuse. Lip 6 to 11 mm long, tongue-shaped, undivided, pointing downwards (drooping), gradually becoming narrower towards the apex, obtuse, whitish to off-white, pale yellow to yellowish-green at the apex. Thecae placed less than 1 mm from each other, parallel or down slightly connivent. Spur filiform, 12 to 20 mm long, very thin and long, pointing horizontally downwards, the apex decurved, pointed at the apex, nectariferous, much longer than the ovary.

Flowering Late May to late June, about two weeks later than *Platanthera chlorantha*. In montane locations until mid-July.

Habitat Nutrient-poor and acid grasslands, fen meadows, damp slopes, moorland and marshes, alpine meadows and dwarf shrub heaths; on dry to moderately damp base-rich to acidic, nutrient-poor, humus-rich substrates.

Elevation From sea level to 2,500 m.

Distribution Very widespread genus and occurring in almost all parts of Europe as well as in the Caucasus. Not in Iceland and the middle and southern half of Spain as in Crete, Sicily and Cyprus. West to the British Isles and France; north to the Norwegian North Cape (Lapland) and the southern part of the Kola Peninsula (Russia). East to Belarus, Ukraine, European Russia to central and southern Siberia; south to northwestern Spain (Galicia), northern Portugal, Balearic Islands, Corsica, Sardinia, southern Italy, Greece (Peloponnese), Crimea and northern Türkiye. Furthermore, in Türkiye (Pontus), the Caucasus (Abkhazia, Georgia, Armenia and Azerbaijan), northern Syria and northern Iran. Also in Northwest Africa: northeast Algeria (Numidia) and northern Tunisia.

Ireland (Sligo): Mullaghmore, 7.VI.2004 [CK]
Belgium (Limburg): Kanne, 22.VI.2016 [CK]
Scotland (Skye): Tote, 14.VI.2022 [CK]



Platanthera hyperborea,
Island (Snaefellsnes): Budir, 10.VII.2006 [CK]



Nigritella widderi,
Italy (Abruzzo): Mt. Aquila, 6.VII.2020 [CK]

Nigritella

L.C.M. RICHARD, De Orchid. Eur.: 19, 26, 34, Tafel Nr. 4 (1817)

Type *Nigritella nigra* (L.) REICHENBACH fil. (1851).

Etymology The genus name *Nigritella* derives from the Latin *nigritia*, black colour, and refers to the blackish flower colour of the type species *Nigritella nigra*.

Genus description **Plant** small, 10 to 40 cm tall, with two hand-shaped tubers, consisting of several sections and roots. **Stem** usually richly leaved, relatively thick, more or less hollow, angular, light to yellowish-green. **Leaves** (basal) lanceolate to linear-lanceolate, unmarked, arranged in a rosette, channelled, narrowly erect to patent; the upper narrowly lanceolate (grass-like), steeply to obliquely erect, sometimes decurved, in the upper part bract-like, light green to mid-green. **Inflorescence** capitate, conical at the beginning of anthesis, later hemispherical to globular, more or less ovate to cylindrically elongated, dense and many-flowered, with an average of 20 to 90 flowers. **Bracts** with entire margins or undulate in the lower half, or with sparse up to 1.5 mm long needle-shaped papillae or denticles. **Flowers** large to small, more or less funnel-shaped, dark black to reddish-brown, light red or pink to whitish-pink, distal parts of the perianth segments darkest, somewhat lighter towards the base, buds darker. **Floral scent** pleasant, like chocolate or vanilla. **Perianth** wide spreading. **Sepals** (lateral) lanceolate; the dorsal sepal slightly narrower. **Petals** linear-lanceolate, narrower than the lateral sepals, rarely equally or almost equally wide. **Lip** large to small, obliquely erect, ovate to concave, entire, undulate or dentate, wide to half-open, approximately semi-orbicular in cross-section or slightly wider or narrower, laterally more or less compressed, with the margins of the lip usually not touching, usually even bent outwards and therefore separated from each other. **Lip margins** in the lower, widest part mostly clearly revolute. **Spur** very short, saccate.

Note Indications of flower size (very large to very small) refer to those within the genus *Nigritella*, where *Nigritella nigra* has the largest flowers within the genus and *Nigritella minor* the smallest.

Habitat Sunny, alpine, nutrient-poor, short, dry grasslands, alpine turf, decalcified alpine grasslands, mountain meadows as well as screes on moderately damp, deep, neutral to slightly acidic or alkaline to calcareous substrates.

Distribution The genus *Nigritella* is distributed only in the temperate zones of Europe, where it occurs from the Cantabrian Mountains in northern Spain across the Alps to the eastern Carpathians in the border region of Romania and Ukraine. South to the Apennines (Abruzzo) across the Balkans to northern Greece (Falakro). Also occurring in Scandinavia (Norway and Sweden), where they grow at lower altitudes (from c. 400 m above sea level upwards).

Remarks The adaptations to alpine habitats have led the plants of the genus *Nigritella* to develop special strategies to produce sufficient offspring despite extreme climatic conditions. Furthermore, individual populations are often isolated, as both inhospitable peaks and deep valleys prevent an exchange between the alpine meadows they inhabit.

Pollination Because of the pleasant fragrance, the flowers of the genus *Nigritella* are successfully pollinated by insects of the genera Lepidoptera, Hymenoptera and Diptera. Pollinators are a variety of diurnal butterflies, burnet moths (*Zygaena*) and forrester moths (*Adscita*) as well as diurnal owl moths and geometer moths. Only the diploid taxa display sexual reproduction (they are allogamous). The polyploid taxa are characterized by apomictic reproduction by nucellar embryony: they form their seeds asexually without insect pollination and therefore flowers only for a short time.

Hybrids Within the genus *Nigritella* interspecific hybrids occur only rarely. In contrast, intergeneric hybrids are more frequent. Hybrids with species from the genera *Gymnadenia*, *Pseudorchis* and *Dactylorhiza* are known. Particularly well-known is the hybrid between *Nigritella rhellicani* and *Gymnadenia conopsea* (*Gymnigritella xsuavolens*), which is recognizable in the habitat from afar by the bright colour, the capitate inflorescence and by the intermediate habit (larger and with longer inflorescence than *Nigritella*, smaller and leaner than *Gymnadenia*). The lip is neither pointing exactly upwards (*Nigritella*) nor downwards (*Gymnadenia*), but obliquely erect, sometimes turned to the right or to the left. The lip is wider and often show indistinct side lobes, the spur length is intermediate and reveals the two possible *Gymnadenia*-parents.

Conservation The taxa of the genus *Nigritella* are threatened in the Alps by fertilization, overgrazing, road building, ceasing of mowing, installation of ski slopes, shrub encroachment, picking, and trampling damage from mountain hikers. In low-lying areas, most localities have already disappeared due to intensive soil management. The *Nigritella* taxa are particularly affected by the almost explosive growth of sport and leisure activities in the Alps. It is particularly disastrous that tourism-related damage also affects the meadows of the alpine zones, which are much more sensitive than the meadows lower altitudes. In addition, countless hikers trample the vegetation next to the trails, mountain bikers race through the grounds, and on the launch sites of hang gliders and paragliders, the vegetation is completely worn away. If necessary, ski slopes are created by bulldozers. However, many populations, e.g., in Sweden and Norway, grow in protected areas and are strictly protected there [but are diminishing as well].



Dactylorhiza sudetica

Accepted Name *Dactylorhiza sudetica* (PÖCH ex REICHENBACH fil.) AVERYANOV, Bot. Zhurn. (Moscow & Leningrad) 67 (3): 310 (1982).

Basionym *Orchis maculata* var. *sudetica* PÖCH ex REICHENBACH fil., Icon. Fl. Germ. Helv. 13/14: 66-67 (1851), Tafel 56, Fig. 1 (1850).

Synonyms *Dactylorhiza fuchsii* subsp. *sudetica* (PÖCH ex REICHENBACH fil.) VERMEULEN, Orchideeën 37 (3): 78 (1975). – *Dactylorhiza maculata* subsp. *sudetica* (PÖCH ex REICHENBACH fil.) VÖTH, Linzer Biol. Beitr. 12 (2): 430 (1980). – *Dactylorhiza maculata* var. *sudetica* (PÖCH ex REICHENBACH fil.) H. BAUMANN, KÜNKELE & R. LORENZ, J. Eur. Orch. 34 (1): 144 (2002). – *Dactylorhiza fuchsii* var. *sudetica* (PÖCH ex REICHENBACH fil.) H. BAUMANN, KÜNKELE & R. LORENZ, J. Eur. Orch. 36 (3): 771 (2004).

Type Northern Czech Republic/southern Poland (Sudeten): Krkonoše/Karkonosze (Giant Mountains), leg. J. PÖCH (1842), W-REICHENBACH.

Etymology Named after *Sudeti montes (sudeticus)*, the location in the Sudetes Mountain Range, the main distribution area of this species in the Czech Republic and Poland.

Description Plant slender, small to medium-sized, 15 to 25 cm tall. Stem upright, angular, pale to yellowish-green, the middle and upper parts suffused with purple. Leaves distributed mainly along the lower part of the stem, with spotted upper surface, acuminate; lower leaves ovate-lanceolate to lanceolate (greatest width approximately in the middle), almost patent to obliquely erect; the upper lanceolate, obliquely to steeply erect, appressed to the stem, becoming bract-like upwards in the upper part, not reaching the lowermost flowers. Inflorescence rather short, lax to dense and few- to many-flowered, with about 10 to 25 flowers. Bracts ovate-lanceolate to lanceolate, acuminate, green and suffused with purple, slightly longer than the ovaries. Flowers medium-sized, pale to dark pink, sometimes bright purple. Sepals ovate-lanceolate to obliquely ovate; lateral sepals obliquely erect to spreading laterally, usually with purple lines or laxly shaped patterns; dorsal sepal a little shorter and converging to a hood with the petals. Petals lanceolate to oblong-lanceolate. Lip broadly cordate to trapezoidal or roundish, pale to dark pink or violet, flat, deeply three-lobed with patent, relatively acuminate mid-lobe. Lateral lobes wider than the mid-lobe, margins slightly denticulate, not reflexed. Mid-lobe sharply acuminate. Labellar markings consisting of a symmetrical looped pattern of dark red or purple lines or dots. Spur rather thick, conical, obliquely descending, about two-thirds as long as or slightly shorter than the ovary.

Flowering Mid-June to late July.

Habitat Boggy hillsides and extensively grazed, moist alpine meadows and peat bogs; on moist, acidic substrates.

Elevation From 800 up to 1,800 m.

Distribution Typical populations in higher alpine locations in the border area of the Czech Republic and Poland (Sudetes). All other similar *Dactylorhiza* populations in Central Europe do not belong to *Dactylorhiza sudetica*, but to other species of the genus *Dactylorhiza*.

Remarks Often confused with *Dactylorhiza psychophila* or classified as a synonym. Compared to the alpine and Nordic *D. psychophila*, plants of *D. sudetica* are much smaller, more robust and with more flowers. The leaves (ovate-lanceolate to lanceolate), leaf markings and shape of the inflorescence (shortly cylindrical) tend more towards *D. maculata*, whereas the flowers (shape and colour) strongly resemble those of *D. fuchsii*.

Czech Republic (Giant Mountains): Horní Mísecký, 18.VI.2023 [CK]

Czech Republic (Giant Mountains): Zlaté návsri, 18.VI.2023 [CK]

Czech Republic (Giant Mountains): Zlaté návsri, 18.VI.2023 [CK]

Czech Republic (Giant Mountains): Zlaté návsri, 18.VI.2023 [CK]

Dactylorhiza bucovina

Accepted Name *Dactylorhiza bucovina* KREUTZ, BOBOCEA & BRĂDEANU, Ber. Arbeitskrs. Heim. Orchid. 38 (2): 101, 104 (2021).

Type Romania (Suceava): Vistieru near Breaza, leg. C.A.J. KREUTZ (2021), L.

Etymology Named after the historical region Bukovina, where the species is widespread and developing locally abundant populations.

Description Plant stout, tall, 40 to 60 cm tall. Stem upright, solid, light to dark green, in the upper part distinctly purple. Leaves mostly distributed along the lower half of the stem, channeled, slightly hooded at the top, mid-green green, upper surface strongly spotted with small brown-reddish dots, rarely unspotted, with short sheaths; the lower leaves lanceolate to elliptic, greatest width slightly above the middle, acuminate, obliquely to steeply erect to slightly spreading; the middle ones lanceolate, erect; the upper linear-lanceolate, clasping the stem, becoming bract-like in the upper part of the stem, mostly not reaching the lowermost flowers. Inflorescence short, initially conical, later ovate to cylindrical, rather lax and mostly sparse-flowered, with 16 to 35 flowers. Bracts ovate-lanceolate to lanceolate, long acuminate, purple to dark purple, much longer than the ovaries; upper bracts a little shorter. Flowers medium-sized to large, typically purple to dark purple. Sepals (lateral) obliquely ovate to ovate-lanceolate, enrolled; lateral sepals patent to obliquely erect; dorsal sepal forming a lax to slightly open hood with the petals. Petals oblong-lanceolate. Lip nearly orbicular, almost as wide as long, purple to dark purple, weakly three-lobed with a slightly patent or longer and acute mid-lobe. Lateral lobes rounded to slightly denticulate, bent backwards. Mid-lobe much narrower than both lateral lobes, triangular at the apex, as long as or slightly longer than the lateral lobes, margins slightly curved upwards. Labellar markings symmetrically arranged and consisting of distinct purplish-violet to wine-red lines or short streaks, which also extend to the lateral margins, there however less pronounced. Spur thick, cylindrical, descending, about as long as the ovary.

Flowering Late June to late July.

Habitat Submontane, moist, relatively wet meadows and nutrient-rich grasslands; on humus-rich soils.

Elevation From 800 to 1,200 m.

Distribution Northern part of Romania. Widespread throughout Bucovina and Maramureş, the northern side of the Eastern Carpathians. Probably also in the adjacent regions of Ukraine.

Remarks At first sight the plants show similarities with *Dactylorhiza maculata*, but they are larger (up to 60 cm), and their flowering time is significantly later, starting from the beginning of July. The leaves are very narrow, channeled and hooded at the top, the upper surface is covered with many small spots. The inflorescence is rather dense and carries up to 16 to 35 flowers, therefore much fewer than typical *Dactylorhiza maculata*. The flowers are darker coloured (mid to dark purple) than typical *Dactylorhiza maculata*, also the flowers are about 20 to 30 percent larger in size. The spur is curved downwards, conical and about as long as the ovary. In the field these plants are immediately distinguished by their stout habitat, the very narrow and channeled leaves, the relatively short inflorescence and the purple-coloured flowers, also by their late flowering time. In some characters, these plants vaguely resemble *Dactylorhiza savogensis*, but that is a typical submontane to montane species with smaller flowers and totally different leaves.

Romania (Suceava): Vistieru, 5.VII.2021 [CK]

Romania (Suceava): Breaza, 5.VII.2021 [CK]

Romania (Suceava): Breaza, 5.VII.2021 [CK]

Romania (Suceava): Vistieru, 5.VII.2021 [CK]





Serapias gentilii

Accepted Name *Serapias gentilii* (C. & P. VENHUIS & KREUTZ) KREUTZ, comb. et stat. nov.

Basionym *Serapias cordigera* subsp. *gentilii* C. & P. VENHUIS & KREUTZ, Ber. Arbeitskrs. Heim. Orchid. 24 (1): 128 (2007).

Synonyms *Serapias cordigera* subsp. *gentilii* C. & P. VENHUIS & KREUTZ, Pl. Syst. Evol. 265: 174 (2007). nom. inval. (design. typi non rite). – *Serapias cordigera* var. *leucoglottis* WELWITSCH ex REICHENBACH fil., Icon. Fl. Germ. Helv. 13/14: 181, Nr. 3 (1851).

Type Portugal (Algarve): Cotifo (Faro), leg. C. & P. VENHUIS (2006), AMS.

Etymology Named after ANTONIO GENTIL CABRILLA, Spanish naturalist (biologist) working for the conservation organization ADENEX.

Description Plant relatively robust, medium-sized, 10 to 25 cm tall. Stem stately, (light) green, in the lower part usually dashed violet. Leaves broadly lanceolate, lanceolate to elliptic-lanceolate, long pointed, slightly keeled, leaf sheaths in lower part often reddish-brown, obliquely upright, patent to slightly overhanging, channelled; upper leaves becoming bract-like, usually not reaching the lowermost flowers. Inflorescence dense, lax, cylindrical to elongated, on average 5 to 13 cm long, with 3 to 11 flowers. Flowers large, reddish-brown, pale yellow, light green or light pink. Bracts ovate-lanceolate to elliptic, usually a little shorter or as long as the flowers, strongly veined, light green to grey-violet with reddish-violet veins, sometimes light purple to purple. Perianth pointed, obliquely erect, forming a hood, lanceolate, acuminate, veined, outside light grey-purple to grey-violet, inside dark reddish-violet. Sepals obliquely lanceolate, acuminate, greenish to greyish-violet with dark green veins. Petals broadly lanceolate, varying from light pink to purple, at the base clearly orbicular, at the apex narrowed to a sharp long point, a little shorter than the sepals. Lip bipartite, at the base with two dark purple, trapezoidal, divergent basal calli. Hypochile at the base cordate with upwards-curved, erect, red-brown to violet lateral lobes, which do not or only very slightly emerge from the perianth. Epichile narrowly cordate, flat spreading downwards, reddish-brown, light yellow, light green, greenish-yellow or light pink, rarely with tender reddish-violet veins, sometimes inrolled inwards at the margins, in the centre and at the transition of the rear lip with reddish-brown or yellowish hairs; autogamous.

Flowering Early to late April, relatively late flowering; two weeks after *S. cordigera*.

Habitat Short grasslands, maquis, and grassy wastelands, rarely in sparse pine and pine forests; on moderately damp to dry places, on basic to slightly acidic soils.

Elevation From sea level to 400 m.

Distribution Southern Portugal (Lisbon, Setúbal and Algarve) and southwest Spain (Huelva).

Remarks This species is characterized by the elongated inflorescence (*Serapias cordigera* has a short, cylindrical inflorescence), by the significantly narrower, elongated epichile (not heart shaped as in *Serapias cordigera*), with the pale purple lateral lobes strongly curved inwards (and therefore similar to *Serapias nurrica*). The species varies greatly in the colour of the flowers. There are plants with red-brown flowers (like *Serapias cordigera*), not infrequently also with light yellow-greenish flowers (like *Serapias perez-chiscanoi*) or with light pink flowers. Even very attractive plants with yellowish flowers with red-violet veins were observed.

Portugal (Algarve): Barranco do Velho, 17.IV.2007 [CK]

Portugal (Algarve): Barranco do Velho, 9.IV.1994 [CK]

Portugal (Algarve): Barranco do Velho, 17.IV.2007 [CK]

Serapias azorica

Accepted Name *Serapias azorica* SCHLECHTER, Repert. Spec. Nov. Regni Veg. 19: 44 (1923).

Synonyms *Serapias cordigera* subsp. *azorica* (SCHLECHTER) SOÓ, Repert. Spec. Nov. Regni Veg. 24: 33 (1927). – *Serapias atlantica* D. & U. RÜCKBRODT, J. Eur. Orch. 26 (1): 73-74 (1994).

Type Portugal (Azores): Aqua Nova (São Miguel), leg. B.T. CARREIRO (1895), B.

Etymology Named after the distribution area in the Azores.

Description Plant spindly, medium-sized, stocky, 10 to 25 cm tall. Stem upright, green at the base and green in the middle, reddish in the upper part. Leaves lanceolate; lower leaves broadly sheathing at the base, basally often red-violet streaked, lanceolate, pleated, keeled, often falcate, arranged distributed on stem, long acuminate, light green to green; the middle clasping; the upper clasping with long sheaths, bract-like, clearly reaching the lowermost flowers or somewhat spreading. Inflorescence relatively shortly cylindrical, compact and dense, usually up to 3 to 9 cm long with 3 to 12 flowers. Flowers medium-sized, reddish-brown, rarely pale pink, yellowish pink to creamy white. Bracts elliptic, pointed; lower bracts are about as long as the flowers; upper flowers markedly shorter, strongly veined, silvery-grey, light brown, rarely pale pink to creamy white. Perianth pointed, veined, on the outside ashy grey-purple to cream-white, along the veins tinged purplish-violet or greenish, joined together to a horizontally to slightly obliquely erect pointing perianth hood. Sepals ovate-lanceolate to oblanceolate to lanceolate, acuminate. Petals broadly lanceolate, at the base distinctly orbicular, at the apex pulled into a sharp long apex, slightly shorter than the sepals. Lip bipartite, at the base with two divergent basal calli. Hypochile broadly cordate, only occasionally or very slightly patent from the perianth with upturned lateral lobes, forming a tube with the perianth. Epichile triangular to cordate, acuminate, flat, vertically spreading, reddish-brown, rarely pale pink, yellowish pink to cream-white, in the centre and towards the base of lip long whitish hairy; allogamous.

Flowering Mid-May to late June.

Habitat Short grasslands, wet roadsides, and rocky slopes of volcanic origin with a sparse herb layer, open sheltered spots in cow pastures, path-sides, grazed herbaceous meadows in the trade-wind cloud zone, heathland and seepages; on moist to dry, alkaline, humus-rich soils.

Elevation From 200 up to 1,000.

Distribution Endemic subspecies of the Azores (Portugal).

Remarks In the Azores, the genus *Serapias* is represented only by one species from the *Serapias cordigera* group. It differs from this species in the shorter and more sturdy growth, the larger number of flowers in the shorter inflorescence. Furthermore, in smaller flowers, mostly with non-overlapping lip lobes and the on average a little closer, slightly diverging lip calli. In addition, the side lobes are almost entirely hidden within in the perianth hood. These characters give the plants a more compact appearance. It is striking that the Azorean plants often have a light pink, yellowish pink to creamy-white lip.

The locations of *Serapias azorica* in the Azores are exposed to the Atlantic climate with rainfall in all seasons and are often situated in the trade-wind zone with a very high humidity. Due to the long geographical isolation and the deviant climate, this more or less independent species has evolved.

Highly endangered by loss of habitat, anthropogenic disturbance (fertilizer application and shrub encroachment) as well as to heavy agricultural use or overgrazing.

Azores (São Miguel): Vale das Lombadas, 16.VI.2003 [CK]

Azores (Pico): Piedade, 10.VI.2003 [CK]

Azores (Pico): Piedade, 10.VI.2003 [CK]





Orchis punctulata var. schelkownikowii

Accepted Name *Orchis punctulata* var. *schelkownikowii* (WORONOW) SOÓ, Ann. Univ. Sci. Budapest. Rolando Eötvös, Sect. Biol. 8: 319 (1966).

Basionym *Orchis schelkownikowii* WORONOW, Izv. Kavkazsk. Muz. 4 (4): 266-267 (1909).

Synonyms *Orchis punctulata* subsp. *schelkownikowii* (WORONOW) SOÓ in G. KELLER & SOÓ, Mon. Icon. Orch. Eur. 2: 319 (1932). – *Ophrys schelkownikowii* WORONOW ex A.W. HILL, Index Kew., Suppl. 8: 163 (1933). sphalm. "*Orchis schelkownikowii*".

Type Azerbaijan (Shamakhi): Shamakhi, close to Agsu, leg. G. WORONOW (1908), LE.

Etymology Named after ALEXANDER BEBUTOVICH SCHELKOWNIKOW (1870-1933), a Russian botanist who travelled widely in the Caucasus.

Description Plant robust, medium-sized to tall, 30 to 70 cm. Stem very stout, upright, pale green to green. Leaves very large, in a basal rosette, pale to yellowish-green, unspotted, shortly acuminate, shiny; the lower ovate to broadly ovate-lanceolate; the upper oblong-lanceolate, gradually grading into sheaths in the upper part. Inflorescence cylindrical, lax and many-flowered, with 20 to 40 flowers. Bracts lanceolate, membranous, pale to yellowish-green, about a quarter to half as long as the ovaries and closely appressed to it. Flowers small, pale to greenish-yellow, sub-horizontal. Perianth forming a lax to closed hood, the outside yellow to yellowish-green, the inside with several pale or dark purple arched veins. Sepals (lateral) concave to ovate-lanceolate, curved forwards; dorsal sepal shorter, ovate-lanceolate and converging to a lax hood with the two petals. Petals obliquely ovate, shorter and a little narrower than the sepals, laxly connivent. Lip deeply three-lobed with narrow, bilobulate mid-lobe, pale yellow to yellowish-green. Mid-lobe much longer and about the same width as the two lateral lobes, slightly curved upwards in the apical region, deeply bilobulate, with a small acuminate tooth between the lobules, with few small brown-red dots or spots, arranged in two rows, at the base and in the centre. Lateral lobes long and narrow, about the same width or slightly narrower than the mid-lobe, spreading downwards, rounded at the apex and curved upwards in the apical region. Spur cylindrical to conical, obtuse, decurved, about half as long as the ovary.

Flowering Early to late April.

Habitat Open pine forests, oak scrub, open to dense phrygana, wasteland, roadside and bushy slopes; on dry to moderately damp, calcareous soils.

Elevation From sea level to 1,200 m.

Distribution Only in the Middle East and Caucasus: Northeast Türkiye, Georgia, Armenia, Azerbaijan and northwest Iran.

Remarks *Orchis punctulata* var. *schelkownikowii* is the eastern representative of *Orchis punctulata*, with significantly smaller and paler yellowish to greenish-yellowish flowers and a lax inflorescence.

Near Artvin in northeast Türkiye, there are plants with narrower and paler coloured lip, which are quite similar to *Orchis punctulata* var. *schelkownikowii*. These plants are to be assigned to this oriental species with some reservation. This variety is very rare and extremely endangered, especially in northeast Türkiye. The few existing populations in this area are being systematically dug up, or their habitats are used for agriculture. In other places, e.g. in Iran, they have declined due to shrub encroachment and cessation of forest management.

Azerbaijan (Qabala): Qabala, 10.V.2022 [CK]

Azerbaijan (Qabala): Qabala, 10.V.2022 [CK]

Iran (Golestan): Azadshahr, 25.IV.2005 [HWZ]

Iran (West Azerbaijan): Mahabad, 2.V.2016 [JMH]

Orchis adenocheila

Accepted Name *Orchis adenocheila* CZERNIAKOWSKA, Notul. Syst. Herb. Horti Bot. Petrop 5: 173 (1924). ("*adenocheilae*")

Synonyms *Orchis punctulata* subsp. *adenocheila* (CZERNIAKOWSKA) SOÓ, Ann. Univ. Sci. Budap., Sect. Biol. 8: 319 (1966). – *Orchis militaris* lusus *adenocheilae* (CZERNIAKOWSKA) HAUTZINGER, Ann. Naturhist. Mus. Wien 115: 45 (1976).

Type Iran (Mazandaran): North of Tehran (Mt. Taljau, Alborz), leg. E. CZERNIAKOWSKA (1916), LE.

Etymology From *cheila* (lip) and *adeno* (with glands), referring to the supposedly glandular hairs on the type specimen, which were never observed again afterwards.

Description Plant robust, 30 to 60 cm tall. Stem stout, upright, pale green to green. Leaves pale to dark green, slightly shiny, unspotted, usually lying close to the ground; ovate-lanceolate to lanceolate; the lower in a basal rosette, obliquely erect or spreading laterally; the upper lanceolate, appressed to the stem, gradually grading into sheaths in the upper part, not reaching the lowermost flowers. Inflorescence cylindrical to elongated, spreading, dense and many-flowered, with 20 to 60 medium-sized flowers. Bracts very small, pale green to green, membranous, ovate-lanceolate, acuminate, about one-third to half as long as the ovaries and closely appressed to it. Flowers medium-sized, spreading vertically to obliquely from the rachis, yellowish, greenish-yellow to creamy white, smelling of vanilla. Perianth converging to a hood, pale to yellowish-green with several violet veins, the inside slightly darker with bright violet veins, as well as with violet dots. Sepals ovate to ovate-lanceolate, pale to yellowish-green with violet to purple-violet spots and lines. Petals lanceolate, shorter than the sepals, pale green to green, spotted purple-violet to purplish-brown on the inside. Lip white, ivory, yellowish to greenish-yellow or pale pink to cream-coloured (the margins often a little darker) with many wine-red to violet marks, usually arranged in two rows and concentrated at the entrance to the spur, deeply three-lobed; lateral lobes very narrowly linear, flat, margins, sometimes slightly upturned; mid-lobe wider than the two lateral lobes, deeply bilobulate, with a small tooth between the lobules. Spur conical to cylindrical, about half as long as the ovary, obtuse, decurved.

Flowering Early April to mid-June, depending on altitude.

Habitat Nutrient-poor meadows, mountain pastures, sparse oak forests, open phrygana, grasslands, forest margins, road embankments, scrub and former terraces; on moderately damp, alkaline to calcareous soils.

Elevation From 150 up to 1,500 m.

Distribution Southeast Azerbaijan (Talish), northern and northwest Iran, Armenia and Turkmenistan (Kopet Dag).

Remarks This impressive species of northern Iran, southern Azerbaijan and Turkmenistan, with its cream-coloured flowers and wine-red tufts cannot be confused with any other species of genus *Orchis*. Morphologically, it is rather uniform at the locations discovered so far, and it varies only in the flower colour, from white to ivory, from yellowish to greenish-yellow or from pale pink to cream.

It is one of the extremely rare species of the genus *Orchis* and for this reason alone, this species is potentially threatened, even if at present there are hardly any immediate threats to its habitats. It still occurs in large numbers at its few known sites. Overgrazing, increasing agricultural use, especially in Azerbaijan, and road construction have reduced its sites and it is therefore becoming less common.

Azerbaijan (Lankaran): Lerik, 4.V.2022 [CK]

Iran (Mazandaran): Alamdeh, 27.IV.2010 [CK]

Iran (Mazandaran): Kojur, 27.IV.2010 [CK]

Azerbaijan (Lankaran): Lerik, 4.V.2022 [CK]





Androrchis pauciflora

Accepted Name *Androrchis pauciflora* (TENORE) D. TYTECA & E. KLEIN, J. Eur. Orch. 40 (3): 544 (2008).

Basionym *Orchis pauciflora* TENORE, Fl. Napol. 1. (1811), Prodr.: LIII; Syll.: 456 (1831).

Synonyms *Orchis provincialis* subsp. *pauciflora* (TENORE) LINDLEY, Gen. Sp. Orchid. Pl. (4): 263 (1835). – *Orchis provincialis* subsp. *pauciflora* (TENORE) ARCANGELI, Comp. Fl. Ital. ed. 1: 657 (1882), nom. illeg. – *Orchis provincialis* var. *pauciflora* (TENORE) J.A. BATTANDIER & L.C. TRABUT, Fl. Algerie 1 (2): 195 (1895). – *Orchis provincialis* var. *humilior* PUCCIN, Syn. Pl. Luc.: 478 (1848).

Type Italy (Campania): Mountains above Castellammare di Stabia, leg. M. TENORE (1820), Fl.

Etymology From the Latin *pauciflorus*, few-flowered, referring to the lax and few-flowered inflorescence.

Description Plant small to medium-sized, 10 to 25 cm tall. **Stem** robust, green to dark green. **Leaves** concentrated along the lower part of the stem, unspotted, channelled, shiny, greatest width around the middle; the lower oblong-ovate to elliptic, acuminate, arranged in a basal rosette, lying close to the ground or patent; upper leaves grading into long sheaths, not reaching the lowermost flowers. **Inflorescence** shortly cylindrical to cylindrical, spreading widely, lax and few-flowered, with 2 to 14 flowers. **Bracts** lanceolate to oblong-lanceolate, acuminate, pale to yellowish-green, about as long as the ovaries and closely appressed to them. **Flowers** large, bright yellow (yolk yellow), spreading obliquely from the rachis. **Perianth** pale yellow. **Sepals** obliquely ovate to ovate-lanceolate, obtuse; the laterals steeply erect, twisted outwards; dorsal sepal a little shorter, curved over the petals and forming a lax hood with them. **Petals** obliquely ovate, obliquely bent forwards, converging to form a hood. **Lip** bright yellow (yolk yellow), roundish to elliptic, three-lobed in the lower part; mid-lobe somewhat patent, slightly bifurcated, with dentate margins, mostly strongly reflexed along the midline, with numerous brownish-red, regularly arranged spots in the centre (often suffused with greenish in this area); lateral lobes semi-elliptic, slightly shorter than or as long as the mid-lobe, notched to denticulate, flat to strongly reflexed. **Spur** cylindrical, remarkably long, rather thick, obliquely erect, obtuse, about 1.5 times as long as the ovary.

Flowering Mid-March to mid-May, an early flowering species.

Habitat Nutrient-poor meadows, maquis, phrygana, garigue, oak scrub, shrub formations, abandoned vineyard terraces, roadside slopes, open deciduous and coniferous forests as well as rocky (karst) slopes; on moderately dry, calcareous and skeletal soils. Preferable on rocky cliffs and sparsely vegetated habitats in full sun.

Elevation From sea level to 1,800 m.

Distribution Central and eastern Mediterranean: Corsica, Italy (Tyrrhenian coastal area from La Spezia to Cosenza, on Elba and Mt. Gargano), Croatian-Dalmatian coastal area and its islands (Croatia, Bosnia-Herzegovina, Montenegro, Albania) and Greece (Islands of Corfu, Lefkada, Kefalonia, Ithaca, Zakynthos, Crete as well as in Attica, Chalkidiki and the Peloponnese, plus several isolated occurrences in the northwest of the country to Thrace).

Remarks Characterized by the relatively robust but short growth, the lax and few-flowered inflorescence with large, bright yellow flowers, and unspotted dark green, shiny leaves. The species is very uniform in its appearance, varying only slightly in the colour of the lip, which ranges from greenish-yellow to yolk yellow.

Croatia (Dubrovnik-Neretva): Smokovljani, 6.V.2016 [CK]

Greece (Crete): Miamou, 10.IV.2017 [CK]

Greece (Crete): Spili, 11.IV.2017 [CK]

Greece (Kefalonia): Digaletto, 15.IV.2018 [CK]

Androrchis laeta

Accepted Name *Androrchis laeta* (STEINHEIL) D. TYTECA & E. KLEIN, J. Eur. Orch. 40 (3): 543 (2008).

Basionym *Orchis laeta* STEINHEIL, Ann. Sci. Nat. Bot., Ser. 2, 9: 209-210, Tafel 7, Fig. 17 (1838).

Synonyms *Orchis provincialis* var. *laeta* (STEINHEIL) R.C.J. MAIRE & WEILLER in R.C.J. MAIRE, Fl. l'Afrique Nord 6: 276 (1959). – *Orchis pauciflora* subsp. *laeta* (STEINHEIL) KREUTZ, Kompend. Eur. Orchid.: 129 (2004).

Type Algeria (Numidia): Hills near Bone, today's Annaba, leg. A. STEINHEIL (1834), P.

Etymology From the Latin *laetus*, meaning pleasant, cheerful, referring to the attractive appearance of the plant.

Description Plant small to medium-sized, but relatively robust, 15 to 25 cm tall. **Stem** robust, green to dark green. **Leaves** mainly concentrated along the lower part of the stem, unspotted, shiny, greatest width around the middle; the lower broadly ovate-lanceolate to elliptic, shortly acuminate, in a basal rosette, lying close to the ground or spreading laterally; upper leaves gradually grading into long-sheaths in the upper part, not reaching the lowermost flowers. **Inflorescence** cylindrical, spreading, lax and relatively few-flowered, with 5 to 15 flowers. **Bracts** lanceolate to linear-lanceolate, acuminate, pale to yellowish-green, about as long as the ovaries and closely appressed to it. **Flowers** medium-sized, pale yellow, spreading obliquely from the rachis. **Perianth** pale yellow. **Sepals** obliquely ovate to ovate-lanceolate, hardly acuminate; lateral sepals steeply erect, turned outwards; dorsal sepal shorter, laxly curved over the two petals and forming a lax hood with them. **Petals** obliquely ovate, obliquely patent forwards, connivent. **Lip** bright yellow, roundish to elliptic, three-lobed in the lower part, with slightly patent, slightly bilobulate mid-lobe, with slightly notched margins. Mid-lobe slightly or strongly reflexed along the midline, with few, rarely numerous, irregular wine-red spots in the centre. Lateral lobes semi-elliptic, not much shorter than the mid-lobe, notched to denticulate, flat to strongly reflexed. **Spur** cylindrical, remarkably long, rather thick, curved obliquely to steeply ascending, obtuse, about twice as long as the ovary.

Flowering Mid-March to mid-April.

Habitat Open holm oak and cedar forests, oak scrub, shrub formations, maquis, garigue and rocky slopes; on moderately dry, alkaline-rich to siliceous or calcareous loamy substrates.

Elevation From 300 to 1,500 m.

Distribution Northeast Algeria (Tell Atlas, Blida area, Kabylia) and northwestern Tunisia (Krouminie).

Remarks *Androrchis laeta*, which shows a certain resemblance to *A. pauciflora*, consistently has bright to pale yellow flowers with an extremely long and ascending curved spur. It was often associated with *A. provincialis* because of the yellow flower colour, but the latter clearly differs from it in having strongly spotted basal leaves and a sheep's nose-like (kinked) lip. It only differs from *A. olbiensis*, with which it, sometimes grows together in the longer ascending, curved spur. In several parts of its distribution area in northwest Tunisia and northeast Algeria, plants with pink to pale red flowers occur, and even specimens with purely bright yellow flowers. These plants, whose habit resembles that of *A. laeta*, have been described as hybrids with *A. olbiensis* (*Orchis xblidana*). They should not be confused with typical specimens of *A. laeta*.

Algeria (Kabylia): Semaoune, 3.IV.2013 [CK]

Algeria (Kabylia): Semaoune, 3.IV.2013 [CK]

Algeria (Kabylia): Akfadou, 31.III.2013 [CK]

Algeria (Kabylia): Akfadou, 31.III.2013 [CK]





Ophrys battandieri

Accepted Name *Ophrys battandieri* E.G. CAMUS, P. BERGON & A. CAMUS, Monogr. Orchid.: 307-308 (1908). pro hybr.

Synonyms *Ophrys lutea* subsp. *battandieri* (E.G. CAMUS, P. BERGON & A. CAMUS) KREUTZ, Kompend. Eur. Orchid.: 105 (2004). – *Ophrys subfusca* subsp. *battandieri* (E.G. CAMUS, P. BERGON & A. CAMUS) KREUTZ, Die Orchidee (Hamburg) 57 (1): 102 (2006). – *Ophrys murbeckii* H. FLEISCHMANN, Österr. Bot. Zeitschr. 74 (7-9): 183 (1925). nom. conf., [non REICHENBACH fil., Icon. Fl. Germ. Helv. 13/14: 76, Tafel 165, Fig. 1-2 (1851)]; *Ophrys lutea* subsp. *murbeckii* (H. FLEISCHMANN) SOÓ, Repert. Spec. Nov. Regni Veg. 24: 25 (1927). nom. inval. [non REICHENBACH fil., Icon. Fl. Germ. Helv. 13/14: 76, Tafel 165, Fig. 1-2 (1851)].

Type Algeria (Algiers): Between old quarries of Bir Mourad Rais and the sanatorium, leg. J.A. BATTANDIER (1907), P.

Etymology Named after JULES AIMÉ BATTANDIER (1848-1922), French botanist, who made an outstanding contribution to the flora of Algeria.

Description Plant slender, medium-sized to tall, rather robust, 20 to 40 cm. Stem upright, strong, light green. Leaves yellowish-green; the lower ovate-lanceolate, in a basal rosette; the upper oblong-lanceolate, erect. Inflorescence lax and many-flowered, with 4 to 10 flowers. Flowers medium-sized, obliquely to perpendicular patent from the rachis, all-sided. Bracts yellowish-green, inrolled, broadly lanceolate, longer than the ovaries. Perianth wide open and forming a lax hood. Sepals olive-green to yellowish-green; lateral sepals broadly ovate to ovate, obtuse, bent forwards, several-veined; dorsal sepal broad to oblong-ovate, strongly bent over. Petals oblong-lanceolate, rather large, obtuse, with somewhat undulate margins, pale yellow to yellowish-green, bent forwards, about one-third to half as long as the lateral sepals. Lip roundish to ovate, medium-sized, without basal kink, 8 to 12.5 mm long and 7 to 11.5 mm wide, dark brown, reddish-brown, especially at the transition to the yellow margin, convex, strongly three-lobed, along the margins with a broad, pronounced, light yellow, vaguely demarcated zone, at the base with V-shaped notch, densely and shortly whitish to light brown hairy, at the base with a fine hairy groove, broad yellow margin zone of the lip glabrous. Lateral lobes shorter than the mid-lobe, strongly indented, reflexed, often slightly upturned at the margins. Speculum reduced, irregularly shaped, usually undivided, overlapping on the lateral lobes of the lip, shiny, bluish to greyish-blue or light purple, separated from the yellow margin by a reddish-brown transition zone, rarely delimited by a lighter omega-shaped speculum, with short and fine whitish hairs.

Flowering Early March to late April.

Habitat Nutrient-poor meadows, dry grassland, open phrygana, bushes, sparse pine forests, asphodel fields, open woodland, wasteland and road banks; on moist, alkaline to calcareous or sandy soils.

Elevation From sea level to 900 m.

Distribution North Tunisia and northern Algeria (Tell Atlas).

Remarks Rather robust plant, often tall and very slender, many-flowered with medium-sized flowers and often growing in larger groups. The lip is usually elliptic and convex, the mid-lobe curved, and the lateral lobes are somewhat recurved. The lip is yellowish, apart from the very variable central brown zone, which is usually rather reduced, with a small and bright speculum. The yellow marginal zone is very wide and separated by a reddish-brown transition zone from the brown crescents and the speculum. In recent times many new sites have been discovered, especially in the region of Constantine.

Pollinator *Andrena vetula*.

Tunisia (Ariana): Mt. Lansarine, 24.III.2003 [CK]

Algeria (Kabylia): Djurdjura, 2.IV.2013 [CK]

Tunisia (Jendouba): Bou Salem, 7.IV.2009 [CK]

Ophrys numida

Accepted Name *Ophrys numida* J. DEVILLERS-TERSCHUREN & P. DEVILLERS, Natural. belges 81 (Orchid. 13): 297 (2000).

Synonym *Ophrys lutea* subsp. *numida* (J. DEVILLERS-TERSCHUREN & P. DEVILLERS) KREUTZ, Kompend. Eur. Orchid.: 106 (2004).

Type Tunisia (Haut-Tell): Maktar (Mt. Skarna), leg. J. DEVILLERS-TERSCHUREN & P. DEVILLERS (1999), RBINS.

Etymology Derived from the Latin *numidus*, referring to the distribution of this species in northeast Algeria and northwest Tunisia (Numidia).

Description Plant medium-sized, rather robust, 10 to 30 cm tall. Stem upright, thick, pale to olive-green. Leaves bright to yellowish-green; lower leaves ovate-lanceolate to lanceolate, obtuse, forming a basal rosette; upper leaves oblong-lanceolate, held erect, sheathing the stem, not reaching the lowest flower. Inflorescence lax, with 3 to 8 flowers. Flowers medium-sized, held patent to obliquely downwards, arranged on all sides of the stem. Bracts olive-green to yellowish-green, curved, lanceolate, longer than ovaries. Perianth wide open forming a lax hood. Sepals olive- to yellowish-green with several veins; lateral sepals broadly ovate to ovate, obtuse, curved forwards, also curved at the margins; dorsal sepal oblong-ovate, strongly curved forwards. Petals oblong-lanceolate, relatively long, undulate margins, olive- to yellowish-green, slightly curved forwards, about half to two-thirds as long as lateral sepals. Lip medium-sized, 8 to 11.5 mm long and 7 to 10.5 mm wide; three-lobed; broadly ovate to oblong-ovate, without protuberances, longitudinally straight to slightly convex, transversely convex, with a V-shaped basal groove; brown to dark brown, sometimes reddish-brown, with a broad, pale yellow to greenish-yellow, glabrous marginal zone; hairs dense, short, whitish to pale brown; the brown area and yellow margin are delineated by a reddish zone with sparser hairs which is often narrow but sometimes extends almost to the lip margin, especially on the lateral lobes, giving the flower an appearance resembling *O. melena*. Mid-lobe broad, emarginate; lateral lobes shorter than mid-lobe, flat or slightly curved upwards at margins forming a marginal channel. Speculum relatively large, usually undivided, dark blue to grey-blue, almost always with a blue-violet, only slightly contrasting, omega-shaped margin; larger, darker coloured and significantly extended to the margins of the lip.

Flowering Late March to late April.

Habitat Nutrient-poor meadows, garigue, rocky pastures, shrubs, open phrygana, shrub, sparse pine and eucalyptus forests, rarely in asphodel fields and wasteland; on alkaline to calcareous, damp soils.

Elevation From sea level to 1,300 m.

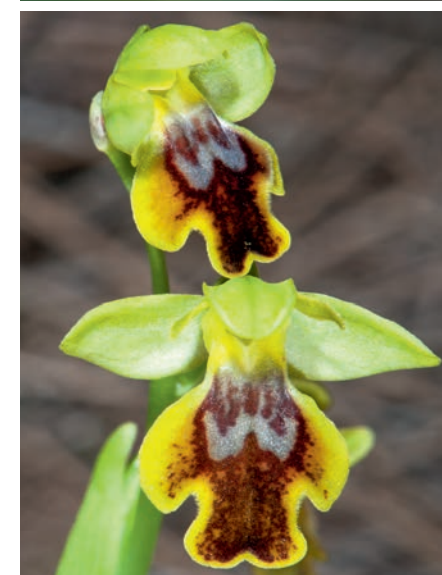
Distribution Northeast Algeria and northwest Tunisia (Numidia).

Remarks Characterized by the lip size approximately equal to that of *Ophrys sicula*, with a very similar average length about 8.5 to 9 mm, but with a narrower width. It often occurs in the same localities as *O. algerensis* but differs from that species in its more robust, taller growth, thicker stems, inflorescence with more and slightly larger flowers, which are on average about 15 percent longer than those of *O. sicula* and are held patent to obliquely downwards, and in its slightly later flowering period. Also, the speculum is significantly larger. In some cases, the brown area extends to the lip margins of the lip, and the brown-reddish hairs of that area grade into orange towards the yellow marginal zone of the lip.

Tunisia (Haut-Tell): Maktar, 21.IV.2009 [CK]

Algeria (Kabylia): Trouna, 2.V.2014 [CK]

Tunisia (Zaghwan): Jebel Zaghwan, 14.IV.2009 [CK]





Ophrys ampelaki

Accepted Name *Ophrys ampelaki* M. HIRTH, KREUTZ & PAULUS, spec. nov.

Holotype Greece (Aegean Islands): Mythilene, Themmastis (Samos), leg. C.A.J. KREUTZ (18 April 2016; L-0689864).

Etymology Named after the Greek ampeli = vineyard, *ampelaki* = small vineyard; from the habitat of the locus typicus.

Description Plant relatively short, spindly, small to medium-sized, 10 to 25 cm tall. **Stem** upright, slender, pale green to green. **Leaves** green to yellowish-green; the lower ovate-lanceolate to lanceolate, at the base arranged in a rosette, obliquely erect, sometimes patent; the upper narrowly lanceolate, sheathing, just reaching the lowest flower. **Inflorescence** particularly many-flowered with short internodes, with 6 to 12 flowers, occupying about two-thirds of the entire plant. **Flowers** quite small, patent to obliquely erect. **Bracts** pale green, steeply erect, strikingly long, inrolled, about twice as long as the ovaries. **Sepals** pale pink to dark pink with clearly green midvein; lateral sepals ovate to elliptic, shortly rounded at the apex, patent or slightly pointing downwards; dorsal sepal oblong-ovate to broadly lanceolate, erect or bending forwards, rarely backwards. **Petals** broadly triangular to triangular-lanceolate, ciliate, obtuse, dark pink, slightly darker than the sepals, villous at the margins, about a quarter to one-third as long as the lateral sepals. **Lip** very small, 5 to 8 mm long and 4 to 8 mm wide, more or less roundish, slightly trapezoidal or rectangular, convex, dark brown to reddish-brown, with very narrow yellowish margin. Lateral lobes in the basal and apical parts hairy, light to dark brown, recurved. **Protuberances** relatively elongated in very strong, sometimes rather long, pointed, curved upwards side-horns (at the inside yellowish-white to pale yellow and glabrous, on the outside brown to dark brown, densely pubescent). **Speculum** pale to dark purple or bluish, richly structured, elaborate with a purple central part, which continues outwards to the lateral lobes, sometimes with two small yellow stripes, extending more or less to the two-thirds of the entire labellum. **Appendage** well developed, large, yellowish to yellowish-green, pointing forwards or upwards. **Basalfield** large, dark reddish to dark orange with narrow, white, shield-shaped margin.

Flowering Mid-March to mid-April.

Habitat Bushy, dry and grazed phrygana, wasteland and vineyard terraces; on dry to moistened, calcareous soils.

Elevation From sea level to 200 m.

Distribution Greece: Samos.

Remarks Mainly characterized by the rather short but very spindly, medium-sized plant with many-flowered inflorescence, which occupies about two-thirds of the entire plant. In addition, by the short internodes and strikingly small flowers with roundish lip shape. The flowers belong the smallest in the genus *Ophrys*. The lip shape is very variable, ranging from round to more or less rectangular, even the speculum is not uniform and elaborate. The appendage is relatively very large.

Ophrys ampelaki was first discovered by NIKOS DIMOS of Ireo (Samos) in his own vineyard. The locality, northwest of Mythilene near the water reservoir is an abandoned nutrient-poor meadow with solitary bushes and grapevines where sheep grazing is prevented by the owner. Most plants are very small and hard to find among the bushes. The plants start flowering about mid-March to mid-late April. In this meadow several dozen specimens grow; in 2016 they were already going over by mid-April. In the direct vicinity, more sites with several substantial populations could possibly be found.

Pollinator Small *Eucera* spec.

Greece (Samos): Themmastis, 18.IV.2016 [CK]

Greece (Samos): Themmastis, 18.IV.2016 [CK]

Greece (Samos): Themmastis, 18.IV.2016 [CK]

Ophrys latakiana

Accepted Name *Ophrys latakiana* M. & H. SCHÖNFELDER, Ber. Arbeitskrs. Heim. Orchid. 18 (1): 13 (2001).

Synonyms *Ophrys oestrifera* subsp. *latakiana* (M. & H. SCHÖNFELDER) KREUTZ, Kompend. Eur. Orchid.: 109 (2004). – *Ophrys umbilicata* subsp. *latakiana* (M. & H. SCHÖNFELDER) N. FAURHOLDT & H.A. PEDERSEN, J. Eur. Orch. 40 (4): 695 (2008).

Type Syria (Latakia): Om al-Tuyour (Mt. Ansariye), leg. M. & H. SCHÖNFELDER (2000), HEID.

Etymology Named after the port of Latakia in northwest Syria.

Description Plant slender and very tall, 30 to 70 cm. **Stem** upright, relatively stout, pale green to yellowish-green. **Leaves** bluish-green to dark green; the lower ovate-lanceolate to lanceolate, in a basal rosette, obliquely erect to spreading; the upper steeply erect and grading into bract-like to long-sheaths, not reaching the lowermost flowers. **Inflorescence** very lax, extremely elongated, with 4 to eight tiny flowers. **Flowers** particularly small; lower flowers located very far above the ground, very laxly arranged, spreading obliquely from the rachis. **Bracts** much longer than the ovaries, inrolled, steeply erect. **Sepals** pale pink to reddish-violet, with distinct green central vein, sometimes constricted at the base; lateral sepals elliptic to broadly lanceolate, patent to pointing obliquely downwards; dorsal sepal oblong-ovate, strongly curved forwards across the column. **Petals** triangular to triangular-lanceolate, obtuse, pale pink to reddish-violet, usually darker than the sepals, the margin densely set with papillose hairs, about a quarter as long as the lateral sepals. **Lip** very small, 7.5 to 9 mm long and 5.5 to 8 mm wide, ovate to elliptic, appearing short and wide, upper part deeply three-lobed, strongly convex, reddish-brown to dark brown. Mid-lobe long and narrow, lateral margins strongly recurved, touching at the back. Lateral lobes reflexed. **Protuberances** short and obtuse (insides glabrous, outsides with villous hairs). **Speculum** mainly limited to the upper and middle parts of the lip, often also covering the centre of the lip, very variable, richly structured, usually with shield-shaped centre with several lateral branches that are repeatedly interconnected, steel-blue with ivory border. **Appendage** large and stout, multi-toothed, yellowish-green, pointing downwards. **Basalfield** pale orange to pale brown, with a narrow whitish border.

Flowering Late April to late May, rather late.

Habitat Boggy slopes, wet ditches, seepage areas, springs, grassy phrygana, garrigue, nutrient-poor grasslands, shrub formations and sparse, thermophilous pine forests; on wet, calcareous soils.

Elevation From 100 m in Syria up to 700 m in southern Türkiye (Hatay).

Distribution Southern Türkiye (Hatay) and northwest Syria (Latakia).

Remarks Well-delineated, easily recognized, late flowering species. It clearly belongs to the group of *Ophrys oestrifera*, and differs from this species in particularly small flowers, which are arranged very laxly along the stem, with large internodes, in the particularly small lip with strongly recurved lateral lobes and amphoroid medium-sized mid-lobe, making the perianth lobes appear comparatively oversized, and above all in the dorsal sepal, which is strongly curved forwards, concealing the column. The plants are on average about 40 to 60 cm tall, therefore giving them a very slender appearance. The lowest flower is placed very high on the stem, about 20 to 40 cm above the ground. The flowering period is very late and begins in late April.

Syria (Latakia): Om al-Tuyour, 26.IV.2005 [CK]

Türkiye (Hatay): Hanyolu, 16.V.2011 [HWZ]

Syria (Latakia): Om al-Tuyour, 26.IV.2005 [CK]





Ophrys tarentina

Accepted Name *Ophrys tarentina* GÖLZ & H.R. REINHARD, Mitteilungsbl. Arbeitskr. Heim. Orch. Baden-Württ. 14 (1): 25-26 (1982).

Type Italy (Apulia): Mottola (Taranto), leg. H.R. REINHARD (1981), Z.

Etymology The name refers to the geographical distribution in the wider area of the city of Taranto and north of the Gulf of Taranto.

Description Plant short but rather stout, 15 to 25 cm tall. Stem pale green, erect, thin with a large base rosette. Leaves light green to green; the lower in a basal rosette, broadly ovate to ovate-lanceolate; the upper linear-lanceolate, erect and sheathing, not reaching the lowermost flowers. Inflorescence cylindrical, rather lax and relatively few-flowered with 3 to 8 flowers. Flowers medium-sized. Bracts pale green to yellowish-green, narrowly lanceolate, upright, inrolled, longer than the ovaries. Sepals light green to yellowish-green, rarely whitish with several diffuse green veins, rounded; lateral sepals oblong-ovate to lanceolate, patent; dorsal sepal is usually upright or slightly bent forwards, more lanceolate than lateral sepals. Petals oblong-lanceolate, rounded, green to brownish-green or yellowish-green, hairy and with undulate margins, sometimes their margins are slightly darker, about two-thirds as long as the lateral sepals. Lip medium-sized, 10 to 13.5 mm long and 9.5 to 11.5 mm wide, ovate to oblong-ovate, often slightly three-lobed, usually elongated and reflexed at the margins, blackish-brown to reddish-brown, strongly pubescent orange or yellowish villous hairs at the lip margins and usually with a very narrow yellow, completely glabrous marginal zone. Protuberances inconspicuous or absent. Speculum centrally placed, coherent, completely or partially detached from the lip base, often with of a reduced pattern in the form of spectacles, a crescent shape or a simple H that completely encloses the basalfield. Appendage usually present but very small, not articulated, pale yellow to greenish-yellow, pointing downwards or forwards. Basalfield concolorous with rest of lip.

Flowering Mid-March to mid-April.

Habitat Meadow and dry grassland, road banks, asphodel fields, olive groves, open rocky phrygana, rocky corridors, rarely in open pine forests; on calcareous to sandy substrates.

Elevation From sea level to 800 m.

Distribution Endemic species of southern Italy: Brindisi-Fasano-Taranto triangle (Apulia) southwards through a narrow coastal zone from Basilicata (Matera) to the northeastern part of Calabria (Cosenza).

Remarks *Ophrys tarentina* and *O. promontorii* have several characters in common. Both species having a pronounced dark lip colour with villous hairy margins and a well defined but reduced speculum. *Ophrys tarentina*, however, differs from *O. promontorii* in possessing elongated rather than broadly ovate green *O. sphegodes* like petals, a more or less three-lobed lip, lacking or with only slightly developed protuberances and in its wide or narrow, yellow, completely glabrous margins. It varies in the shape of the speculum, which is often separated from the lip base and reduced to spectacles, crescent shapes or a simply H-pattern.

Ophrys tarentina prefers open, extensively grazed meadows and dry grassland, as well as rocky garigue on lime and sandy soils. In some localities it is not rare and sometimes really abundant. The distribution range extends from the Brindisi-Fasano-Taranto triangle (Apulia) southwards through a narrow coastal zone from Basilicata (Matera) to the northeastern part of Calabria (Cosenza).

Pollinator *Osmia tricornis*.

Italy (Apulia): Massafra, 17.IV.2022 [CK]

Italy (Apulia): Grottaglie, 13.IV.2001 [CK]

Italy (Apulia): Massafra, 17.IV.2022 [CK]

Ophrys promontorii

Accepted Name *Ophrys promontorii* O. & E. DANESCH, Die Orchidee (Hamburg) 22 (6): 258 (1971).

Type Italy (Apulia): Monte Sant'Angelo (Gargano Promontory), leg. O. & E. DANESCH (1970), IB.

Etymology The name refers to the Gargano Promontory in Apulia (Italy).

Description Plant short, rather robust, 10 to 20 cm tall. Stem pale green, erect, stately with large basal rosette. Leaves light green to green; the lower lanceolate; the upper lanceolate, erect. Inflorescence lax, sometimes elongated and relatively few-flowered with 2 to 7 flowers. Flowers medium-sized. Bracts pale green, narrowly lanceolate, erect, inrolled and extending beyond ovaries and flowers. Sepals pale green to yellowish-green, occasionally more or less white, or pink, rarely suffused with reddish, with a diffuse greenish midvein running through, rounded; lateral sepals broadly ovate, patent; dorsal sepal usually erect or reflexed. Petals very large and broad (sometimes larger than lateral sepals), ovate to broadly ovate, obtuse to pointed, hairy, dark olive-green, yellowish-green, reddish-brown to brown-green, hairy at the margins and very undulate, margins, sometimes darker coloured, about two-thirds to almost as long as lateral sepals. Lip medium-sized, 10 to 13.5 mm long and 8 to 10.5 mm wide, ovate to oblong-ovate, undivided, evenly convex, reflexed at the margins, maroon, dark purple to reddish-brown, marginally lighter at the margins. Lip margin narrow and densely hairy, evenly covering the entire marginal zone; lateral margins recurved, extending upwards. Protuberances inconspicuous, rarely prominent (glabrous on the inside and strongly villous hairy on the outside). Speculum isolated from the lip base and reduced to two grey or steel-blue isolated patches on the centre of the lip, shield-like or horseshoe-shaped, more rarely attached to the base and then presenting an extended basalfield reaching to the centre of the lip. Appendage very small, pale yellow to greenish-yellow, pointing obliquely downwards to forwards, inserted into a small notch at the lip base. Basalfield dark to light brown, often lighter than the lip colour.

Flowering Mid-April to mid-May, relatively late.

Habitat Asphodel fields, sparse phrygana, nutrient-poor meadows and rocky areas; on moist neutral to alkaline substrates.

Elevation From 150 up to 1,400 m.

Distribution Central and southern Italy: Apulia (Foggia), Lazio (Frosinone, Latina), Abruzzo (L'Aquila, Chieti, Pescara) and Campania (Napoli).

Remarks Characterized by the large number of extremely uniform characters, including perianth colour, lip shape, lip colour and hairs, and shape and size of the protuberances. Only in two characters does this species show obvious variability: arrangement and shape of the speculum and in the shape of the petals. The speculum is fragmented and reduced and isolated from the lip base. It usually consists of two greyish-blue, more or less elongated spots on the middle of the lip. These two spots may be greatly reduced or even absent or shaped like a horseshoe. Alternatively, the spots or dots may be connected, or consist of two narrow strips connected to the margins of the stigmatic cavity, enclosing a basalfield and extending to the central part of the lip.

It has been stated several times that *Ophrys promontorii* is of hybridogenic origin involving *O. bertoloniiiformis*, *O. incubacea* and *O. garganica*. However, the constant characters of this species and its extended distribution range argue against this.

Pollinator *Osmia mustelina*.

Italy (Mt. Gargano): Mattinata, 17.IV.2001 [CK]

Italy (Mt. Gargano): Mattinata, 23.IV.2013 [CK]

Italy (Lazio): Acquafondata, 7.V.2021 [CK]

