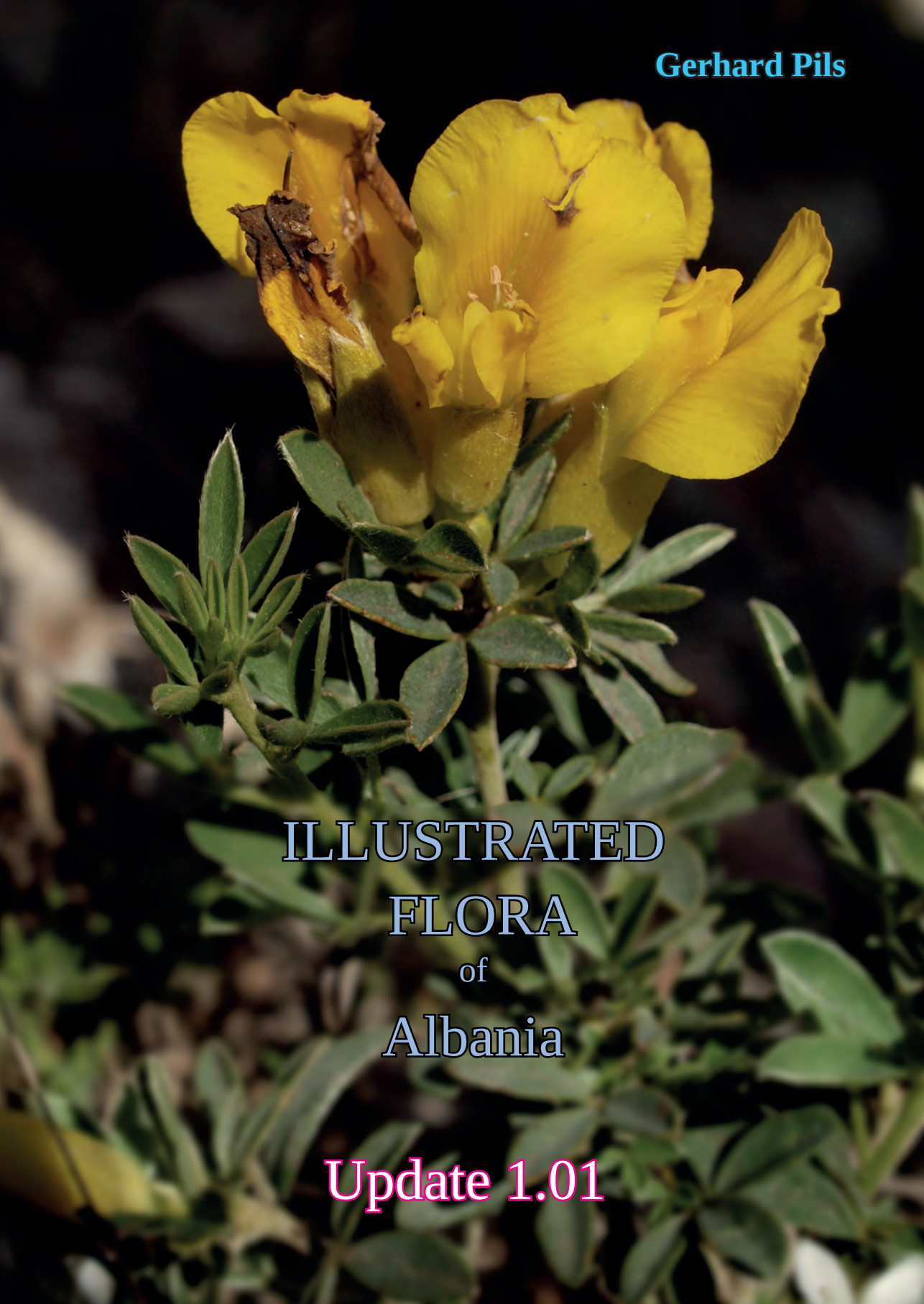
Gerhard Pils



ILLUSTRATED FLORA of Albania

Update 1.01

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Front cover: *Chamaecytisus pseudojankae*

Introduction

The need for this update: When Illustrated Flora of Albania ("IFA") was published in 2016, knowledge of the flora of Albania still was a mixture of speculation and truth. Since then, 7 years have passed and numerous new data on the flora of Albania have been published, in particular 2 distribution atlases. Consequently, well documented knowledge is gaining ground steadily, and speculation is in rapid decline. With this update IFA tries to keep pace with this progress and hopefully will remain a reliable gateway to the highly diverse flora of this small country.

Vangjeli's Flora Albanica Atlas had been announced as a monumental 3-volume edition, showing photo and distribution map for each species. Up to now only the first volume has been published (Vangjeli 2017). Unfortunately, this Atlas remains completely stuck in the tradition of the already existing Albanian Floras. Basis of the (often dubious) distribution maps are "*the National Herbarium and a data base which includes data from both, foreign as well as native literature*". Not at all mentioned are origin and authorship of the photos. Most, if not all, can be found on the internet using Google search. Plants not obtainable from this source have been represented by drawings, seemingly from the author himself. Unfortunately, their coloration is gravely misleading in some case, presumably because they were drawn from herbarium specimens (e.g. *Sanguisorba albanica* with black-purple flowers, instead of bright yellow). As Vangjeli's data do not fulfil even the simplest standards of citation, there was no other choice as to exclude them completely from this update.

Barina's Distribution Atlas (Barina & al 2017; "DA") is based on both, numerous field excursions as well as extensive literature and herbarium studies, carried out by a dedicated group of young Hungarian and Albanian botanists. Moreover, it has been supplemented by the Checklist of vascular plants of Albania (Barina & al 2018; "CA"), whose base is a very thorough evaluation of the floristic literature concerning Albania. Altogether we consider it to be a highly successful effort to create a solid base for further exploration of the Albanian flora.

The main purpose of this update therefore is the incorporation of the most important results of Barina's works into IFA. Moreover, great effort was made to include also the results of other recent publications as well as to eliminate errors and deficiencies which have been detected in IFA. The attached index hopefully enables seamless integration of this update into IFA.

Fingerprint species. During the last decade the application of molecular genetics (e.g. AFLP) has become state of the art in systematics. Consequently, the number of cryptospecies, i.e. taxa who are defined rather by their genetic identity than by morphological traits ("fingerprint species"), is also increasing rapidly. They are a particular challenge for classic Floras, as their determination without sequencing machines tends to be a matter of statistics. "Geographical determinations" are in those cases often more reliable than lengthy statistic measurements, as a lot of these fingerprint species are in fact vicarious taxa, formerly classified as subspecies. Although we have included such "cryptospecies" in our update, we integrated them into the determination keys only when this seemed reasonable.

Citing of sources. Unless otherwise stated, information on species-distribution within Albania comes from Barina's Distribution Atlas and/or Barina's Checklist, cited as {DA} and {CA} and explained in more detail in chapter "signs and abbreviations" on the last page of this update. Distribution in neighbouring countries has routinely been evaluated by using the following sources: Flora Croatica Database, Checklist Greece (Dimopoulos & al 2013) and Flora Jonica (https://floraionica.univie.ac.at).

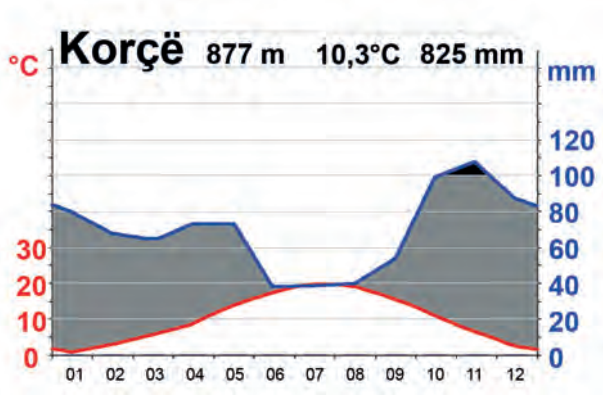
Data collection for future updates. Barina's checklist is the highly appreciated first inventory of the Albanian Flora meeting modern scientific criteria, i.e. rigidly distinguishing between confirmed and still unconfirmed taxa. Reducing the long list of unconfirmed taxa remains the task for future generations of botanists. IFA will try to accompany this evolution by means of further updates. Any help for achieving this aim will be received with gratitude.

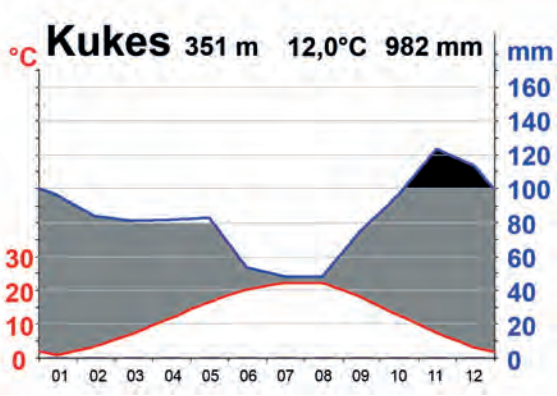
Acknowledgements. For reporting errors and/or other useful information I am grateful to Franco Kämmer (Freiburg, Germany), Jolanda Krummenacher (Escholzmatt, Switzerland), Bruno Van Puyenbroeck (Antwerpen), and Helmut Wittmann (Salzburg), Authors of photos are given credit in the respective paragraphs.

Signs and abbreviations. See last page of this update.

Feldkirchen in Kärnten, February 2024 Gerhard Pils

Misprint on front cover, inner face: Climate diagrams of Korce and Kukës have been partly cut of in IFA.





Fern Allies

Allosorus pteridioides (?)err {?CA}. =*Allosorus maderensis*, =*Cheilanthes maderensis*.

Asplenium petrarchae (+)? {-DA}. Might be overlooked.

Blechnum spicant (?)+ {+DA}. A single station in Jablanica Mts. on serpentine, 1400-1600 m.

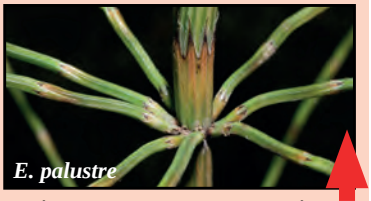
Dryopteris affinis* (-)+ {+DA}. A single station in the very N (N of Vermosh), humid bech forest, 1000-1400 m. ≠*D. filix-mas* in junction of pinna stalk and rachis brown to blackish; pinnules parallel-sided. ►Austria, Carinthia.

Dryopteris dilatata* (-)+ {+DA}. Very rare in Prokletije Mts. in humid bech forest on limestone, 1200–1800 m. ►Austria, Carinthia.

Dryopteris expansa* (-)+ {+DA}. Very rare in Prokletije Mts. in humid forest on limestone, 1200–1800 m. ►Austria, Carinthia.

Key to *Dryopteris carthusiana* agg. (expansion of "*carthusiana*" in couplet 2 of *Dryopteris* key IFA p. 18))

1 Rhizome semi-creeping, fronds in irregular groups; in fens and wet woodland.....*Dryopteris carthusiana*
1´ Rhizome upright, fronds forming a wide funnel ("shuttlecock").....2
2 Fond light green, pinnules flat, scales light green, lowest pinna strongly asymmetric.....*D. expansa*
2´ Fond dark green, pinnules usually curved backwards, scales with dark stripe down centre, lowest pinna less asymmetric.....*D. dilatata*



***Equisetum arvense*! - *Equisetum palustre*!** (IFA P1). Change species names in photos as shown here.

Equisetum sylvaticum* (-)+ {+DA}. Only in a small area on Kallabak Mts., wet woodland, 1400–1700 m. ►Austria, Carinthia.

Isoetes histrix (+)? {+DA, +CA}. The single record for Al in DA and CA needs revision with the new key presented by Troia & Greuter 2015. As a result of this study *I. histrix* turned out to be a rather seldom species, occurring with certainty only on the Aegean Islands, while ***Isoetes gymnocarpa*** proved to be the most common species on Greek mainland. Like *I. histrix* it has numerous hardened, persistent black phyllopodia on top of the corm and around the leaf bases. But these phyllopodia have 3 irregular small teeth of similar length in *I. gymnocarpa*, and not 3–10 mm long lateral spine-like teeth, without (or with reduced) central tooth as in *I. histrix*.

Phegopteris connectilis (?)+ {+DA}. In the N part of Prokletije Mts. and on Mk-side of Jablanica Mts.

Osmunda regalis (+)? {?CA}.

Selaginella helvetica (?)err {errCA}.

Gymnospermae

Abies cephalonica (+)? {?DA}. Delimitation between *A. cephalonica* and *A. borisii-regis* is ±ambiguous and so are records of the former for Al.

Pinus sylvestris (+)cult {cultCA}. Present only as a planted forest tree.

Dicotyledonae

Acanthaceae

Acanthus greuterianus (+)+ {-CA}. Confirmed by photo IFA P10/3 from Lake Prespa, between Diellas and Gollomboc, 1070 m, grassland.

Aizoaceae

Carpobrotus edulis (?)nat {natDA}. Naturalized on coastal dunes in S-Al.

Amaranthaceae

Amaranthus hybridus*. Add. to IFA P11 where a photo of this species is missing. ► Austria, Carinthia.

Amaranthus powellii (+)+ {-DA, -CA}. Recently confirmed by Strid & al 2017 for a couple of stations on the Greek side of Lake Prespa area, very close to border with Al.– A common neophyte in C-Europa and present also in many Mediterranean countries. In Al hitherto probably not distinguished from *A. hybridus* and mingled into it as "*A. hybridus* s. lat.".

Amaranthus spinosus (+)cas {casCA}.

Atriplex hortensis (+)cas {casCA}.

Bassia laniflora (+)err {errCA}.

Bassia scoparia (+)cas {casCA}.

Chenopodium urbicum (+)? {?CA}.

Dysphania atriplicifolia (-)nat {natDA} (=*Cycloloma atriplicifolium*). Naturalized on coastal sands S of Shëngjin.– Originating from N-America. ► Matt Bergervia via iNaturalist (CC BY 4.0).

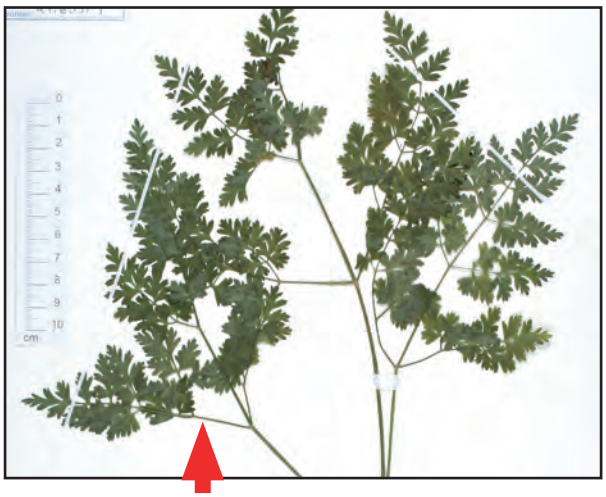
Dysphania pumilio* (-)nat (=*Chenopodium pumilio*). Reported by Z. Barina & al. (in Mesterházy & al 2017) from 5 locations in Gjirokastër and Korçë prov., always on muddy groud of dried up water reservoirs.– Originating from Australia and nat. in great parts of Europe. Keys out in IFA p. 79 with *D. ambrosioides*, but stems much lower, ±procumbent, inflorescence not paniculate; lvs. sinuate, with 3 or 4 lobes on each margin. ► Josep Gesti via WC.

Petrosimonia oppositifolia (+)? {?CA}.

***Suaeda splendens**.* Add to P135/8. ► Milan Chytrý via iNaturalist (CC-BY).

Suaeda vera (+)? {?CA}.

Apiaceae

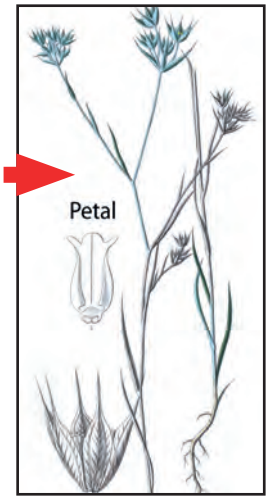


Anthriscus sylvestris* ssp *fumarioides* Add. to IFA P15/5. ► Herb GJO via https://gjo.museum-joanneum.at (CC BY).

Athamanta cretensis (+)err {?CA}. Substituted in Al by *A. turbith*.

Athamanta densa* (?)+ {+CA}. Confirmed by an old collection from Mt. Çika. Recently reported by M. Duchoň from the rather inaccessible E-flank of Mt. Nemërçka (in Herb BRNU, cf. https://www.gbif.org, no photo available).– ► Herb WU via https://www.jacq.org/; showing Isotypus from Mt. Parnassos (CC-BY 4.0).

Bupleurum apiculatum* (-)?. Reported by Strid & al 2017 from 3 locations on Greek side of the Prespa region, which makes occurrence in Al very probably. ≠*B. veronense* (IFA P20/9) in petals conspicuously lobed. ► Reichenbach 1837-.



Bupleurum affine* (-)+. Recently reported by Z. Barina (in Csiky & al 2017) from E of Braçanaj (Korçë prov.), 865 m, dry grassland.– Reaches its western distribution limit here. Differs from other annual *Bupleurum* taxa in inflexed lobe of petal very narrow in distal part, turning purple. ►Attila Lengyel via iNaturalist, CC-BY-NC.

Bupleurum falcatum ssp falcatum (+)? {?CA}.

Bupleurum lancifolium (+)err {errCA}.

Bupleurum longifolium (+)err {errCA}.

Prangos trifida* (=*Cachrys trifida*). Plants from E-Europa are frequently separated under the name ***Cachrys alpina*** (e.g. in CA, KEW). They differ from W-European *P. trifida* in lf.-lobes ≤60 mm (not ≤30 mm).– ►Herb MPU (CC BY 4.0).

Chaerophyllum villarsii (+)- {-CA}.

Cyclospermum leptophyllum (cas)nat {natDA}. Spreading in the lowlands and the surrounding areas, ruderal.

Dichoropetalum lavrentiadis (+)err {errCA}. Record of Pimenov & al 2007 for Al has to be attributed to *D. stridii.*

Dichoropetalum stridii (-)+ {+CA, +DA}. Valamara Mts. on serpentine; also reported by Strid 1986 from Mt. Grammos near summit.– RR (also N-Pindhos on serpentin). ≠ *D. lavrentiadis* (IFA P26/1) in rhizome without or with only few fibres at the very apex and style 0,8−1,2 mm (not 0,6−0,8 mm);

Ferula glauca (-)+ {?CA}. Close to *F. communis* and clumped together with it as *F. communis* ssp *glauca* in DA and CA. Confirmed by photo IFA P24/2 from S-Al, near Kelcyre, 170 m.

Geocaryum (=*Huetia*). DA and CA did not take account of the monography of Engstrand 1977 (unfortunately remaining unpublished) and only mention *Geocaryum cynapioides*, which in fact is endemic to C-Italy (Abruzzi Mts.). Our personal observations in Crna Gora, Al, and N-Gr coincide perfectly with data presented by Engstrand, which were the base for the key presented in IFA p. 23. In this update some additional photos are presented.

Geocaryum pindicola*. Add. to IFA P16/3. ≠*G. tuberosum* and *G. capillifolium* also in pedicels lacking small teeth at the apex. ►Gr, Pindos, Mt. Lakmos S of Metsovo.

Geocaryum tuberosum*. Add. to IFA P16/4. Photo on the right shows diagnostically important small teeth on apex of pedicels (=base of fr.). ►Ct, Starigrad, Paklenica gorge.

Hellenocarum multiflorum* ssp *multiflorum (?)+ {+CA}. Very close to *H. strictum* (*H. multiflorum* ssp *strictum*), see key in IFA p. 26. ►Crete; FOTIS-SAMARITAKIS via iNaturalist, CC-BY-NC.

Heracleum sphondylium* ssp *sphondylium (+)? {?CA}.
Heracleum sphondylium* ssp *ternatum (+)? {?CA}.
Heracleum sphondylium* ssp *verticillatum (+)? {?CA}.

***Laserpitium siler* s.lat. → *Siler montanum* agg.**. Nomenclatorial change by BANASIAK & al 2016. In their revision of this group CONTI & al. 2021 specified the distribution of the Albanian taxa as follows:

Siler montanum* ssp *montanum (?)- (=*Laserpitium siler* ssp *siler*): SW- and C-Europe, absent from the Balkans.

Siler zernyi* ssp *zernyi (=*Laserpitium siler* ssp *zernyi*): E-Al (S-Balkan Peninsula).

Siler zernyi* ssp *ochridanum (=*Laserpitium siler* ssp *ochridanum*): Endemic to Mali i Thatë region.

Siler montanum* ssp *garganicum (=*Laserpitum siler* ssp *garganicum*): Prokletije (Balkan Peninsula, C-and S-Italy).

Oenanthe montis-khortiati (+)?sys {+DA, +CA} (=*Oenanthe tenuifolia*). This is a notoriously misinterpreted taxon. The type (Herb Genève) has neither root tubers, nor clearly thickened rays when fruiting, nor 5-8 bracts. But these properties are ascribed to *O. tenuifolia* in the key of C.D.K.COOK (in FE vol 2, 1968) and in D. PEEV´S KEY in Flora Bulgaria (KOZUHAROV 1982). By general appearance the type voucher resembles *O. pimpinelloides* which makes it thinkable that records for Al (e.g. in DA) mainly refer to this species.

Pastinaca sativa (+)? {?CA}. DA does not distinguish between ssp *sativa* and ssp *urens*, while CA considers both as unconfirmed. Photo IFA P26/2 shows plant with long hirsute stem, petioles and lvs., i.e. matching ± *Pastinaca sativa* ssp *urens*. ►S-Al, Mt. Grammos, 1800 m.

Pastinaca hirsuta* (-)+. Reported by Dimitrov 2021 from S-Al, Mt. Ostrovicë, 1400 m, grassy places near a dairy farm. ≠*P. sativa* in the presence of several bracts and bracteoles. ►Herb. LZ via https://www.jacq.org/ (CC-BY 4.0).

***Peucedanum aegopodioides**.* Add. to IFA P25/6. ►Sergey Mayorov via iNaturalist (CC-BY-NC).

Peucedanum alsaticum (+)? {?CA}.

Peucedanum latifolium (+)err {errCA}.

Peucedanum longifolium (+)+ {?CA}. Confirmed by own photo IFA P24/9 from near E-entrance to Kalimash highway tunnel, 970m, serpentine.

Scandix australis* ssp *australis (+)? {?CA}.

Scandix australis* ssp *grandiflora (+)+ {?CA}. Confirmed by own photo IFA P15/7 from SE-Al, Mt. Mali i Thatë, 1281 m.

Scandix macrorhyncha (+)+ {?CA}. Confirmed by own photo IFA P15/7 from SE-Al, Mt. Mali i Thatë, 1640 m.

Scandix pecten-veneris (+)+ {?CA}. Confirmed by own photo IFA P15/7 from NW-Al, Shengjin, 20 m.

Seseli elatum (?)- (=*Seseli longifolium* ssp *longifolium*). Records for Al refer to ssp *gouanii* (=*Seseli kochii*). *S. elatum* s.str. is absent from the Balkan Peninsula (cf. KEW).

Seseli kochii (+)err? (=*Seseli elatum* ssp *gouanii*).{+DA, +CA}. In Ct absent from the S and also absent from Gr. Map in DA shows only one recent location, which is in C-Al far away from the coast and needs revision (cf. DA).

Seseli pallasii (+)+ {-DA, -CA}. Confirmed by own photo IFA P17/4 from road Kruma to Bajram Curri (Kukës-prov.), 400 m, serpentine.

Seseli peucedanoides*. Add. to IFA P17/9.► alexcm via iNaturalist (CC-BY-NC).

Seseli tortuosum (+)? {?CA}. Reported from the whole Dalmatian coast and most of continental Gr.

Silaum silaus (+)? {?CA}.

Torilis! (p. 29): Couplet 3 should be changed like this: "- Bracts 0-14" → "- Bracts 0-1".

***Torilis arvensis* s.lat.** Situation of subspecies remains unresolved in DA and in CA.

Trinia glauca* ssp *pindica (+)+ {?CA}. Confirmed by own photo IFA P21/6 from S-Al, Mt Grammos, 2360 m.

Apocynaceae (incl. Asclepiadaceae)

Cynanchium acutum*! - *Cionura erecta! (P30): Photo 8 shows *Cynanchium acutum*, 9 shows *Cionura erecta*.

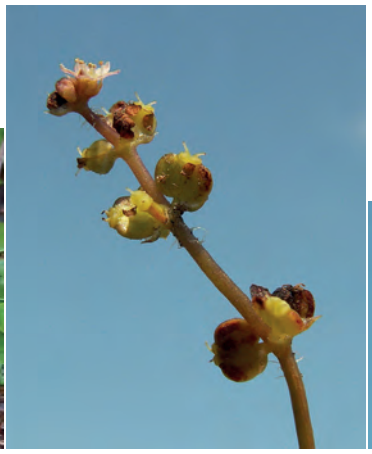
Vincetoxicum hirundinaria* ssp *hirundinaria (+)? {?CA}.

Vincetoxicum speciosum*. Add. to IFA P31/4.– Very rare in C- and SE-Al, limestone, 1400-1700 m. (DA). ►Krzysztof Ziarnek ("Kenraiz") via WC.

Araliaceae

Aralia spinosa* (-)cas {casCA}. ► CATSKILLBOB via iNaturalist (CC-BY-NC).

***Hydrocotyle vulgaris**.* Add. to IFA P12/7. Lvs.: ►ANONYMOUS via iNaturalist (CC BY-SA 4.0), Fl.:►KENRAIZ via iNaturalist (CC BY-SA 4.0).



Aristolochiaceae

Aristolochia sempervirens (?)+ {+DA}. Reported from a single station on maritime limestone cliffs in den Saranda-region.

Asteraceae

Achillea ageratifolia* ssp *serbica* (?)+ {+DA}. ≠Ssp *ageratifolia* mainly in stems with 2-5 capitula (not 1). ►Sr, Jerma river gorge (Pirot prov.).

Achillea baldaccii. (+)+ {+DA}. Still only known from the type collection S of Vlora.– Report for Sr in JOSIFOVIĆ 1977 is doubtful.

Achillea distans* ssp *distans* (-)+ {+CA}. ≠Ssp *tanacetifolia* (P41/1) in lf.-segments separated by a sinus, the rhachis dentate; ligules l−2,5(−3) mm, white, rarely pink. ► MOLNÁR ÁBEL PÉTER via iNaturalist, CC BY-NC.

Achillea clusiana (?)+ {+DA}. 4 locations in the mountains of N-Al.

Achillea pannonica (+)? (=*Achillea seidlii*) {errCA}.

Achillea setacea (+)? {errCA}. Present in Ct and Gr.

Achillea virescens* ssp *virescens* (?)+ {errCA}. Not listed in Bässler 1995, but confirmed by the photos of this update. ►SE-Al, Mt. Mali i Thatë.

Amphoricarpos autariatus* → *Amphoricarpos neumayerianus. Caković & al 2015 consider all *Amphoricarpos*-populations of the Balkans as synonymous with *A. neumeyerianus.*

Anthemis auriculata* (-)+. Reported for Sazani Island near Vlora already by Tomás-Vives 2014, what is considered to be erroneous by CA. Recently confirmed from Saranda and Butrint by Dimitrov 2021. ≠*Anthemis chia*, which is frequent in S-Al, in fr. uniformly with auricle 0,55–1,75 mm (not central fr. without auricles) and phyllaries with hyaline or pale brown scarious margin and apex (not dark brown to blackish). ► Herbarium Berolinense, Berlin (cc-by-sa 3.0).

Anthemis cretica* ssp *tenuiloba (+)- {-CA}.

Anthemis meteorica (+)?sys. Considered to be a "mutilated form due to grazing?" and consequently put into synonymy of *A. cretica* ssp *cretica* by Franzén 1986.

Anthemis tinctoria* ssp *parnassica (+)+ {errCA} (=*Cota tinctoria* ssp *parnassica*). Confirmed by own collection and photo IFA P39/1 from Mt. Nemërçka.

Aster amellus (+)? {?CA}.

Calendula officinalis (+)cas {casCA}.

Anthemis altissima (+)+ {errCA} (=*Cota altissima*). Confirmed by own collection from Lake Ohrid. Photo IFA P38/6 is from Spain, Llerida-prov.

Anthemis arvensis* ssp *arvensis (+)? {?CA}.

***Anthemis arvensis* ssp *incrassata**.** Add. to IFA P39/6. ►Sicilia, near Palermo airport.

Carduus carduelis (?)err {errCA}.

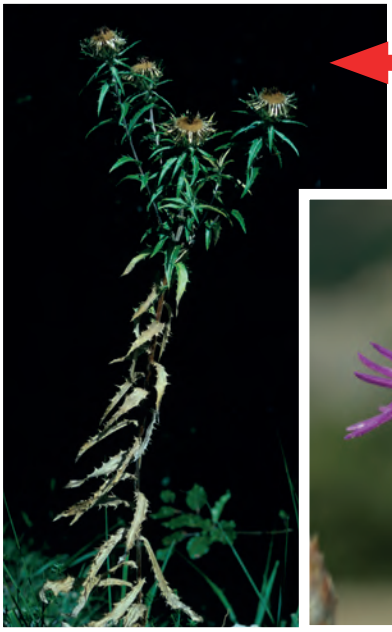
Carduus nutans* ssp *micropterus (+)? {?CA}.

Carduus pycnocephalus* ssp *marmoratus (+)? {?CA}.

Carduus nutans* ssp *scabrisquamus (+)? {?CA}.

Carduus pycnocephalus* ssp *pycnocephalus (+)? {?CA}.

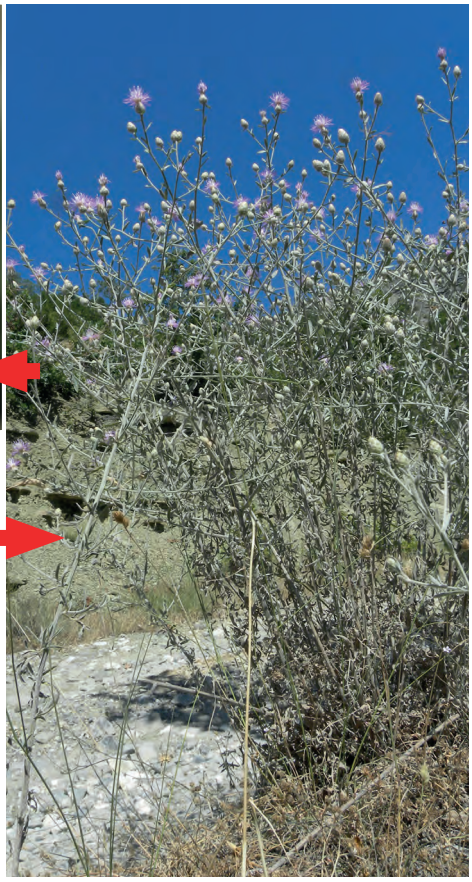
Carduus tmoleus* ssp *baldaccii (+)? {?CA}.



Carlina biebersteinii* ssp *brevibracteata* (-)+ {+CA} (=*Carlina vulgaris* ssp *intermedia*). ≠*C. vulgaris* in lvs. softer, less dissected and with weaker spines, gradually diminishing in size (i.e. the lower stems lvs. hardly smaller than the rosette-lvs). ►Upper Austria, Mühlviertel.

Carlina frigida (+)? {?CA}.

Carlina graeca (+)? {?CA} (=*Carlina corymbosa* ssp *graeca*).



Carpesium abrotanoides (+)? {?CA}.

Centaurea affinis* (+)+ {?CA}. Confirmed by the photo of this update. ►Osum valley above Çorovoda (Berat prov.), limestone, 413 m.

Centaurea attica (?)err {errCA}.

Centaurea finazzeri* (=*Centaurea rupestris* ssp *kozanii*). Add. to IFA P56/10. ►Gr., NE of Kranea (Grevena prov.).

Centaurea marmorea (-)?. Reported by Shuka & al 2023 from western Slopes of Mt. Mali i Thatë, 1530–1700 m.– *C. marmorea* hitherto has been reported from Prilep area (N-Macedonia), Mt. Falakro and Mt. Orvilos (Doumas & al 2022). It resembles *Centaurea drenovensis* (IFA P57, 376, 377) in phyllaries ±completly covered by their appendages, but differs at first sight by its ±densely lanate-floccose indumentum, while the photo in Shuka & al shows a plant with green lvs. and relatively smaller appendages. The systematic position of these populations with strong affinities to *C. drenovensis* needs further research (see comment on IFA p. 9).

Centaurea nicolai (+)+ {?CA}. Confirmed by own photo from S of Librazhd, 208 m, limestone (IFA P56/8).

Centaurea galicicae*. ► Shuka & Tan 2013 (CC BY 4.0).

Centaurea prespana (+)?sys. Put into synonymy of ***Centaurea soskae*** by Strid & al. 2017, KEW and Wangenitz & al 2018 (but not by E&M, 10.12.2023).

Centaurea soskae agg. This group of closely related taxa shows an astonishing variability in the Prespa-Mali i Thatë region. The following table gives a concise survey for this area (after Wagenitz & al 2018, Bergmeier & Strid 2019):

	colour of fl.	pappus/achene (relative length)	terminal spinule of phyllary append-age/lateral cilia (relative length)	
Centaurea tomorosii	pale yellow	1/2 to ≤1	<1	
Centaurea shumkana	yellow	<1	≥1	
Centaurea soskae* ssp *soskae	yellow	= (≥)	>>1	basal lvs. bipinnatipartite, plants not tufted, lvs. greyish
Centaurea soskae* ssp *albida	yellow	= (≥)	>>1	basal lvs. bipinnatipartite, plants tufted, lvs. snow-white
Centaurea soskae* ssp *aetiensis	yellow	= (≥)	>>1	basal lvs. entire
Centaurea galicicae	pinkish-purple	>1	>1	
Centaurea devasiana	pinkish-purple	½achene	>1	
Centaurea triniifolia* ssp *campylacme	pinkish-purple	> ½achene	≤1	
Centaurea grisebachii	pinkish-purple	< ½achene	≤1	

All these taxa grow on limestone rocks or open xeric grassland over stony ground. Such a number of only slightly deviating species on a comparatively small area, all flowering ±over the same period and occupying an ±identical ecological niche is unusual for sexually reproducing species – unless there is a large amount of hybridization involved.

Centaurea spruneri (+)? {?CA}. Present on Corfu and in N-Pindos, might reach Al in the extreme S.

Centaurea tymphaea (+)? {?CA}.

Centaurea thracica* (-)+. Reported by Shuka D. & al 2022 from SE-Al, Kolonja municipality, Qarri pass (Qafa e Qarrit, Korçë prov.), S-facing serpentine slopes in open woodland on serpentin, 1165 m, <30 individuals.– WSPR. ►A. van der Ent in Jakovljević & al CC BY 4.0.

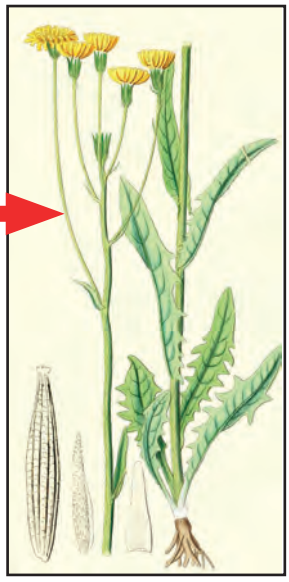
Cyanus nissanus (-)err {+CA} (=*Centaurea napulifera* ssp *nissana*). Listed in CA based on Baltisberger 1993, who in fact does not mention this species. Considered to be a local endemic of Svrljiska Planina in eastern Serbia by Olšavská & al 2013.

Crepis alpestris (+)? {?CA}.

Crepis capillaris (+)? {?CA}. Completely absent from Gr and no records from the very south of the Dalmatian coast either.

Crepis zacintha**. Add to P67/4. ►Ruth Flatscher (fl.) and Christian Gilli (fr.) via Flora Ionica (CC-BY NC).

Crepis froelichiana* ssp *dinarica (?)err {errCA} (=*Crepis praemorsa* ssp *dinarica*).
Crepis leontodontoides (+)? {?CA}.
Crepis macedonica (+)+ {?CA}. Confirmed by own photo in IFA P69/1 (►IFA p. 47).
Crepis micrantha (+)+ {?CA}. Confirmed by own photo IFA P67/6 from road Tirana-Elbasan, 46 km from Elbasan, 140 m.
Crepis mollis (+)? {?CA}.
***Crepis nicaeensis**.* Add. to IFA P68/1.- ►Reichenbach 1858-60 (public domain).
Crepis pantocsekii (+)err {errCA}.
Crepis praemorsa (?)err {errCA}.



Crepis reuteriana* (-)+ {+DA, +CA}. Confirmed only by some old vouchers from Al. Recently reported by Strid & al 2017 from the Prespa area in Gr, very close to the border to Al.– WSPR in the E-med. and rather distinctive among perennial *Crepis* sp. in stems branched from near base, with 0–1 normal lvs. and the rest bract-like; fr. without beak. ►Anatolia, Osmanye prov.

Crepis sancta (+)+ {?CA}. Confirmed by own collection from Mt. Mali i Thatë, 1100 m. (P66/6 is from Istanbul).– Present also on the whole Adriatic coast of Ct and on Corfu.

Crepis turcica* Only 2 old collections from border region of the Mt. Nemërçka chain towards Gr. ►Herbarium Berolinense, Berlin (cc-by-sa 3.0).

Echinops exaltatus (+)? {?CA}.
Echinops sphaerocephalus* ssp *sphaerocephalus (+)? {?CA}.
Echinops spinosissimus* ssp *neumayeri (+)? {?CA}.

Erigeron annuus (cas)nat {natCA}.
Erigeron uniflorus (-)err {+CA}. Confirmed record in CA is based on an old collection from Mt. Nemërçka (Baldacci 1896). Plants we encountered on this mountain (=IFA P33/1) are *Erigeron glabratus*, which in S-Balkans often has rather densely pubescent phyllaries (cf. FE).

Geropogon hybridus* (-)+ {+DA} (=*Tragopogon hybridus*). Only 3 records from dry, warm grassland in SW-Al.– A wspr. annual with its northernmost locations on the Dalmatian coast S of Zadar. ≠*Tragopogon* in outer fr. with pappus of scabrid, rigid hairs (not plumose hairs). Similar *Tragopogon porrifolius* has numerous ligulate fls (not 8-9). ► Cyprus, Limassol.

Gnaphalium norvegicum (+)- {?CA}. Absent from Gr.

Galatella cana (?)err {-CA}.
Galatella sedifolia* ssp *sedifolia (+)? {?CA}.

Glebionis coronaria* (?)? {?CA} (=*Chrysanthemum coronarium*). Present on all the major Ionic Islands and on the whole coast of Ct (but absent from N-Pindos). The complete absence of this common mediterranean wayside plant from Al would be stunning. ►It, Sicily.

Gnaphalium norvegicum (+)? {?CA}.

Hedypnois rhagadioloides* (-)+ (=*Hedypnois cretica*). Erroneously omitted in IFA.– Wspr. in the Mediterranean region and frequent on the whole Adriatic and Ionic coasts. ►S-Anatolia, Silifke.

Helianthus tuberosus* (-)nat {natCA}.

Hieracium moravense* Gottschl. & Selvi (-)+. A serpentinophyte, known only from its locus typi in SE-Al, Drenova, which is identical with the locus typi of *Centaurea drenovensis* (see IFA p. 9).– Characters of *H. moravense* are between *H. waldsteinii* subsp. *plumulosum* and *H. bifidum* (Gottschlich & Selvi 2023). ► © G. Gottschlich.

Inula bifrons (+)? {?CA}.

Jacobaea paludosa (?)ext? {extDA}. Only an old collection from Lake Maliq (Korcë-prov.), which has been completely drained in the 1960s.

Jurinea consanguinea* (-)+. Mali i Thatë, rocks between Podgorje and Poljan, leg P. Jakucs 1960 (Csiky & al 2017).– Wspr. and variable, especially in Anatolia. Reaches on Mali i Thatë its western limit of distribution (like *Bupleurum affine*, *Phelypaea coccinea*). ≠*J. mollis* in outer phyllaries adpressed or reflexed only at the very tips. ►Anatolia, Afiyon.

Jurinea micevskii* (-)?. This is an almost acaulous species, recently described by Matevski 2014 from the summit region of Mt. Magaro =northernmost peak of the Mali i Thatë massiv, which is already in Mk, but only c. 1 km from the border with Al. Hitherto no further locations have been reported. ►© Andreas Thomas-ser.

Lactuca hispida*. Add. to IFA P64/3. ► Sergej via iNaturalist (CC-BY-NC).

Lactuca quercina* ssp *wilhemsiana (+)? {?CA}.

Lactuca tuberosa. Scattered in S-Al (DA).– Erronneously omitted in the *Lactuca*-key on p. 45, though a photo has been presented in IFA P372.– Differs from other species of *Lactuca* in its inflorescence consisting of few, large capitula (remembering some species of *Crepis* sp.).

Leontodon saxatilis* ssp *saxatilis*! (=*Thrincia saxatilis*). Photo IFA P61 shows erroneously fruits of ssp *longirostris* (=*Leontodon longirostris*). It should be substituted by the photo of this update. ►Krzysztof Ziarnek, Kenraiz via WC.

Leontodon saxatilis* ssp *longirostris (?)+ {+CA} (=*Leontodon longirostris*, =*Thrincia hispida*). Widely distributed on Corfu and recently reported also from Gr in N-Pindos.– Photo in IFA P61 is from Morocco, Meknes area.– *L. longirostris* is a W-Mediterranean taxon whose local presence in the here circumscribed E-Mediterranean enclave is considered to be of anthropogenic origin by Talavera & Talavera in Castroviejo & al 2014:1155.

Key to subspecies of *Leontodon saxatilis* in Al.

1 Inner achenes with beak ≤1mm .....ssp *saxatilis*

1´Inner achenes with beak ≥2mm.....ssp *longirostris*

Onopordum tauricum (+)? {?CA}.

Picris pauciflora (+)? {?CA}. Not reported from Ct and Corfu.

Podospermum roseum* ssp *peristericum (-)+ {+CA}. Reported by Alston & Sandwith 1940 from Mt. Ostrovice. Distributed from S-Pindos to S-Mk (RR). ≠Ssp *roseum* in smaller size (usually ≤10cm), lvs. recurved (not straight, erect); rootstock not or only slightly fibrous at apex (not densely fibrous).

Senecio cacaliaster (?)+ {+DA}. Very rare, reported only from 2 isolated locations in Prokletije and Kruje region, 1400-1900 m.

Senecio squalidus (-)- {?sysDA, ?sysCA}. DA regards *Senecio squalidus* as synonymous with *Senecio rupestris*. However, in a recent revision of the *Senecio squalidus* group by Barone & al 2022 both taxa have been disentangled in the sense, that *S. rupestris* is the only taxon of this group in C-Europe, the Balkans and most of the Apennines, while *S. squalidus* is restricted to NW Europe and S-Scandinavia.

Scorzonera villosa* ssp *villosa* (-)+ {+DA, +CA}. Confirmed by CA on the base of old records, mainly from NE-Al, in Hayek 1924-1933 (corresponding vouchers in Herb W and WU).– Differs from other yellow-flowering taxa in pappus hairs pale reddish brown (not dirty white). ►Photo of fruiting head is from It, Trieste region, Andrea Moro via dryades.units.it (CC BY-SA 4.0), those from flowering plants are from Sl, Mt. Nanos, G. Pils.

Sonchus arvensis* ssp *uliginosus (+)? {?CA}.

Sonchus asper* ssp *asper (+)? {?CA}.

Tephroseris longifolia* ssp *gaudinii (?)? {?CA} (=*Senecio ovirensis*). Presence is highly unlikely.

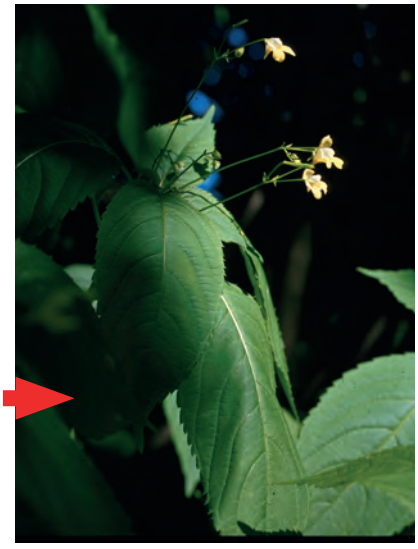
Tephroseris integrifolia* ssp *integrifolia! (+)? {?CA}. P46/5P (from Mt. Pashtrik) is not ssp *integrifolia*, but has glabrous fr. (as shown in photo) and is therefore ssp *aucheri* (as mentioned correctly in the key on p37).

Taraxacum sp. ist not included in this update. Reliable determinations of this genus are possible only for specialists.

Tragopogon pratensis (*ssp pratensis*) (+)? {?CA}.

Balsaminaceae

Impatiens balsamina* (-)cas. Reported as an occasional garden escape in Peshkopi by Barina & Pifkó 2008. ►Norbert Griebl via www.burgenlandflora.at (CC BY-SA 3.0 AT).



Impatiens parviflora* (-)nat {natDA}. Recently discovered in humid habitats around Tropojan (Kukës prov.). ►Upper Austria.

Berberidaceae

Epimedium alpinum* ssp *albanicum (-)+.This endemic of NE- and E-Al has been recently described as new for science by Shuka & al. 2019c. ≠Ssp *alpinum* in leaflets broader, coriaceous, entire at the margin; inflorescence shorter than the cauline lf.; fl. fewer and larger. Intermediate forms have been observed in zones of contact.

Gymnospermium maloi (+)?sys. included in →***Gymnospermium scipetarum***. Neither morphometrical studies, nor application of genetic fingerprint analysis resulted in the detection of valid differences between both taxa (Barina & al 2015, Barina & al 2017b).

Gymnospermium scipetarum*. Add to IFA P74/3. ►Mihailo Jovicevic via iNaturalist (CC-BY-NC).

Boraginaceae

Anchusella variegata (?)- {-CA}.

***Cerinthe glabra*!** (+)- {-CA}. See also Selvi & al 2009.

***Cerinthe minor* ssp *minor*!** (+)- {-CA}. Absence confirmed by Selvi & al 2009.

Cerinthe minor* ssp *cleistostoma (-)+. Selvi & al 2009.

Necessary corrections for *Cerinthe*-photos.

IFA P78/1 erroneously does not show "*C. glabra*", but instead *Cerinthe minor.* The large photo is *C. m. ssp auriculata*, which is perennial and the most common ssp in Al (►Anatolia, Kop Gecidi). The detail photo, showing fl. without red band, is annual *C. m. ssp minor* from Austria, which does not occur in Al. The lower photo of IFA P77/5 shows *Cerinthe minor* ssp *cleistostoma*, a mainly biennial plant which differs in stronger branched inflorescence and more deeply (1/2-2/3) devided corolla often lacking a red belt. It is present also in Al (►Crna Gora, Plavsko Jezero near border to Al). Finally, upper photo of IFA P77/5 shows *C. glabra* (from Anatolia, Hakkari), which is easily distinguishable by its corolla with short, broad lobes. It is present in Crna Gora on Mt. Durmitor, but not confirmed from Al.

Cynoglossum germanicum (?)?sys {?DA, ?sysCA). Confirmation in CA is dubious, as this species is wrongly considered as conspecific with *Cynoglossum montanum* Höjer =*C. montanum* L. (cf. KEW, E&M, both 10.1.2023).

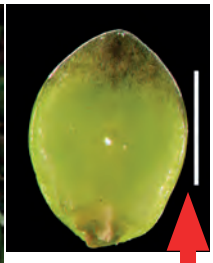
Cynoglossum hungaricum Simonk. sensu DA =***Cynoglossum montanum*** L.

Heliotropium curassavicum (nat)ext {extCA}.

Heliotropium suaveolens*. (-)+ {+DA}. Rare in the extreme S of Al, on dry, open places.– WSPR from It eastwards. ≠*H. europaeum* in stigma shortly conical to hemispherical (not linear-subulate), fl. scented (not scentless), 4–6,5mm in diameter (not 2–4,2mm). ►Gr, Peloponnese, Xilokastro.

Heliotropium supinum*. Add. to IFA P75/2. ►Krzysztof Ziarnek, Kenraiz via WC.

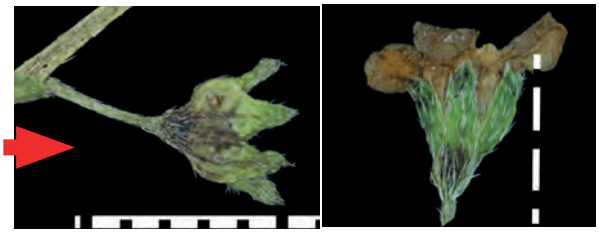
Lycopsis arvensis (+)? {?CA}.



Myosotis alpestris* (ssp *alpestris*) (?)+ {+DA}. Frequent in the Prokletije Mts., scattered elswhere.– Separation from *Myosotis suaveolens* is delicate (see key IFA p. 54), therefore many authors prefer subspecific rank for the latter (*M. alpestris* ssp *suaveolens*; e.g. in MFG, KEW). Distribution of both taxa is widely overlapping in Al. This is remarkable for closely related taxa which occupy a ±identical ecological niche, as it contradicts the principle of competitive exclusion.– In Gr ssp *alpestris* is mostly substituted by ssp *suaveolens* (MFG). ►Austria, Carinthia, Reißeckgruppe, 2620 m.

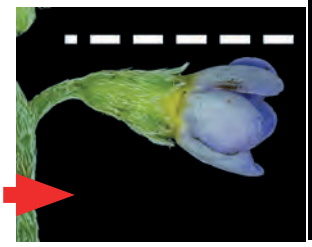
Myosotis discolor (+)? {?CA}.

Myosotis laxa* ssp *caespitosa* (+)+ {-DA, ?CA}. Not confirmed in CA, what is rather surprising due to its presence in surrounding countries (see remarks under *M. scorpioides*). Presence in Al is confirmed by own voucher & photo IFA P82/7 from marshy grassland on shore of Lake Ohrid 17 km N of Pogradec, 700 m.



Myosotis nemorosa* (+)+ {+DA}. Only 2 isolated records (E-Prokletije and on border to Makedonia), 1200-1800 m.– Wspr. mainly in siliceous regions. ►Austria, Carinthia.

Myosotis scorpioides* (-)+ {+DA} (=*Myosotis palustris*). By far the most frequently reported species of *M. scorpioides* agg. in DA. Remarkably, its distribution area ends abruptly on the Greek border, where it is substituted completely (!) by very similar *M. laxa* ssp *caespitosa* (cf. CG). As plants as a rule not recognise national boundaries, different determination criteria on both sides of the border should not be excluded for this interesting case of mutual exclusion.



Key to members of ***Myosotis scorpioides* agg**. after Schuster 1967 (expansion of couple 5 in key IFA p. 54).

5 Lower part of stems with spreading hairs, without sharp edges; calyx divided to c. 1/3.....*scorpioides*
5´ Lower part of stems glabrous or with appressed hairs 6
6 Calyx divided to c. 1/2; lower part of stem without sharp edges, subglabrous or with hairs upwardly pointing .....*laxa* ssp *caespitosa*
6´ Calyx divided to c. 1/3; lower part of stem with sharp edges, glabrous or with appressed hairs downwardly pointing.....*nemorosa*

Myosotis secunda (?)err {-CA}.

Myosotis sicula* (+)? {?CA}. Add. to photo to IFA P82/6). Collected once by Janchen 1920 near Lake Shkodra.– Absent from Mk and Cg (cf. E&M). ►Andalucía.

***Onosma arenaria* - *Onosma heterophylla* - *Onosma pseudoarenaria*.** Delimitation between different taxa depends from subtle quantitative differences mostly of indumentum. Therefore, DA uses the epithet "*arenaria*" in a very broad sense, including *O. pseudoarenaria* s.str. and *O. pseudoarenaria* ssp *fallax* (=*Onosma albanica*). The corresponding distribution map of this *Ononis arenaria* s.lat. shows a very dense packing of records in the very S of Al. Like in the case of *Myosotis scorpioides/M. laxa* species delimitation seems to be different on both sides of the Gr/Al border, as only *O. heterophylla* is included in https://www.greekflora.gr.

Pulmonaria rubra (+)+ {?CA}. Confirmed from Gjallica Mt. by Shuka & al 2019b.

Solenanthus apenninus (?)err {errCA}. Old record from Mt. Pashtrik in Hayek 1924-1933 is due to confusion with *S. scardicus*.

Solenanthus scardicus* (?)+ {+DA}. Rare, confirmed for less than a dozen locations in C and E-Al, woodland, 1000-1800m.– Photo is add. to illustration IFA P84/9. ►Gr, Mt. Grammos; ©Katerina Goula.

Symphytum officinale (+)? {?CA}.

Brassicaceae

Alyssum desertorum (+)? {?CA}.
Alyssum minutum (+)? {?CA}.
Alyssum strigosum (+)? {?CA}.

Arabis alpina! (p. 58): Change "med-alp" → "mont-alp"
Arabis nova (+)? {?CA}.
Arabis ciliata (+)err {errCA}.

Armoracia rusticana* (-)cas {casCA}.

Aubrieta deltoidea (+)- {-CA}. Data in FH and Phitos 1970 make presence of *A. deltoidea* in Al highly unlikely.

Barbarea longirostris (+)+ {-CA}. Confirmed by own photo IFA P88/11 from Mt. Gjallica (Kukës prov.), 1140 m, which shows plant with clearly hirsute lvs.

Berteroa orbiculata (+)? {?CA}. Probably absent.

Biscutella cichoriifolia (+)err {errCA}.

Brassica nigra (+)cas {casCA}.

Brassica rapa* (+)cas {casCA}. Add to IFA P100/10. ►Morocco, High Atlas.

Camelina rumelica (+)? {?CA}.

Cardamine chelidonia (+)err {errCA}.

Conringia orientalis (+)? {?CA}.

Diplotaxis viminea*. Add to IFA P100/9. ►Chiara Catalano via iNaturalist (CC-BY-NC).

Draba dolichostyla (+)err {errCA}.

Erucastrum nasturtiifolium (+)err {errCA}.

Erysimum comatum (+)+ {?CA}. Confirmed by own photo IFA P86/10 from Kukës, gorge between Mt. Gjallica and Mt. Koritnik, limestone, 360 m.
Erysimum diffusum (+)err {errCA}.
Erysimum odoratum (+)err {errCA}.
Erysimum repandum (+)? {?CA}.

Lepidium bonariense (+)? {?CA}.
Lepidium latifolium (+)? {?CA}.
Lepidium perfoliatum (+)? {?CA}.

Matthiola incana (+)? {?CA}. Wspr. on Corfu and other Ionian Islands.

Noccaea tymphaea* (+)+ {-DA, ?CA}. Confirmed by Meyer 2006 for N-Al. Probably widespread in Al over serpentine. ►Gr, N-Pindos, Mt. Smolikas.

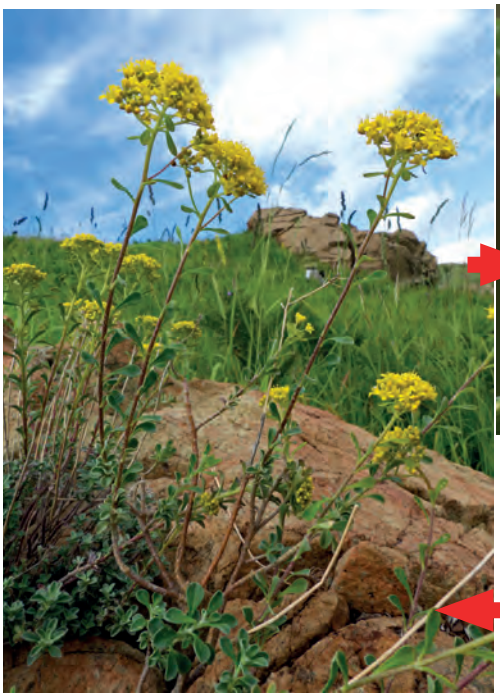
Odontarrhena (=*Alyssum* sect. *Odontarrhena*, listed in IFA under *Alyssum*). This group has proven to be monophyletic in latest research, which led to its separation from *Alyssum* (Cecchi & al 2018 , E&M, KEW). Morphological differences from *Alyssum* are stamen filaments with denticulate appendages, the usual presence of solitary ovules in each locule of the ovary (vs. two ovules in *Alyssum* s.s.) and the usually branched racemes. For Albanian taxa Cecchi & al 2018 recently presented a detailed revision, which strongly changes former taxonomy of this group.

Key to Albanian taxa of *Odontarrhena* (after Cecchi & al 2018).

1 Basal lvs. orbicular-spathulate, ≤1 cm long, densely whitish pubescent on both sides, siliculae stellate hairy, obovate (wider in the upper half) with valves S-shaped in cross-section; seeds ± unwinged or nearly so.....*O. sibirica*
Possibly reaching Al in the very S
1´Basal lvs. usually >1 cm long, with upper surface green to greyish-green, siliculae elliptical to orbicular (maximum width near the middle) with valves ±symmetrically inflated; seeds winged or unwinged.....2
2. Siliculae densely covered with stellate hairs.....*O. albiflora*
A single station on limestone rocks between Pogradec and Korçë, 1000-1300; LOC
2. Siliculae glabrous or with sparse stellate hairs.....3
3. Basal lvs. narrowly lanceolate, with indistinct petiole, up to 22 mm long; siliculae ca. 4 mm with flat valves; flowering stems ≤20 cm high..... *O. rigida*
3´Flowering stems >20 cm high and/or basal lvs. obovate-spathulate.....4
4. Flowering stems ≤ 20 cm; inflorescence simple or 2(-3)-branched..... 5
4´ Flowering stems ≥ 20 cm; inflorescence 3-multi-branched.....6
5 Seeds unwinged or almost so; inflorescence simple to 2-branched; siliculae broadly lanceolate.....*O. moravensis*
5´ Seeds winged; inflorescence mostly 2-branched; siliculae ovate, subacute.....*O. smolikana* ssp *glabra*
6. Siliculae broadly elliptic to suborbicular; sterile shoots usually absent or few at flowering time and fertile stems branched in the upper quarter; pedicels thin, sometimes flexuous ..... *O. chalcidica*
6´ Sililculae narrowly to broadly ovate, acute to subacute, sterile shoots at the base always present and more or less abundant, often forming densely leafy cushions (like in *O. smolikana* ssp *glabra*).....*O. decipiens*

Distribution of *Odontarrhena*-species in Al (after Cecchi & al 2018). 1 = *O. moravica*, 2 = *O. albiflora*, 3 = *O. rigida*, 4 = *O. decipiens*, S = *O. smolikana* ssp *glabra*, X = *O. sibirica*.

Odontarrhena albiflora (-)+ (=*Alyssum albiflorum* F.K.Mey). Only known from the type location: Limestone rocks between Pogradec and Korçë, 1000-1300 m.– In the original description of Meyer 2011 petal colour is described as "alba (pallescentia?)", probably due to bleaching of the dried petals in his voucher. Cecchi & al l.c. do not mention flower colour in their description but their photo shows a plant with yellow petals. This is the only taxon of *Odontarrhena* in Al with densely stellate hairy siliculae like *A. montanum* s.str., but is said to differ from the later in its very dense indumentum of stellate hairs, giving the whole plant a whitish appearance.



Odontarrhena chalcidica (+)+ (=*Alyssum chalcidicum*). Wspr. in Al on non calcareous soil, notably on serpentine.– Circumscription of this species has considerably been enlarged by Cecchi & al 2018. In this revised sense it includes *Alyssum markgrafii* and *Alyssum bertolonii* ssp *scutinarum.*

Odontarrhena decipiens* (-)+ (=*Alyssum decipiens** Nyárády.). Only on serpentine and very close to *O. smolikanum* ssp *glabrum*. RR, also in Kosovo, Macedonia and N-Greece. ► Diber prov., above Quafe Shtame pass, 1480 m, serpentine.

Alyssum markgrafii (+)?sys → incl. in *Odontarrhaena calcicida.*

Alyssum moravensis (F.K.Mey) Pils in IFA → ***Odontarrhena moravensis*** (nomenclatorial change).

Alyssum murale (+)err → ***Odontarrhena murale***. Cecchi & al 2018 attribute all former records from Al to other taxa, mostly to *O. chalcidicum*. In this new sense *O. murale* is re-defined as a taxon with siliculae densely stellate hairy, growing on calcareous soil and absent from Al.

Odontarrhena rigida* (-)+ (=*Alyssum rigidum** Nyárády). Endemic (RR) to Elbasan and Librazhd prov.– Easily recognized by its green narrow lvs. (Cecchi & al l.c.). ► Shushicë near Elbasan, 250 m, serpentine.

Odontarrhena sibirica* (?)? (=*Alyssum sibiricum**). Add. to IFA P94/1.– Known only from a historical collection on the right bank of river Vjosë (Aoos) at the border with Greece, on non serpentinous soil (Cecchi & al. 2018). ►Gr, Meteora (a), Xilokastro (b).

Odontarrhena smolikana **ssp** ***glabra*** (=*Alyssum smolikanum* ssp *serpentinicola* F.K. Mey.). LOC in C-Al on serpentine, 1100-2000 m. Probably a local high-mountain biotype of *O. decipiens*, from which it differs only in lower stems and less branched inflorescence.

Rorippa prolifera*. Add to IFA P89/3. ►Alexander Baransky via iNaturalist (CC-BY-NC).

Schivereckia doerfleri (+)err {?CA} (=*Draba doerfleri*). Described from "Sar Dagh" =Šar Planina, which at that the time was considered to be in "Albania", but in fact today forms the border between Ks and Mk.

Sinapis alba (+)? {?CA}.
Sinapis pubescens (+)err {errCA}.

Sisymbrium irio (?)err {-DA, -CA}. Wspr in the Mediterranean but seems to be absent from Al. Very rare in adjacent parts of Gr.

Cactaceae

Austrocylindropuntia subulata* (-)cas. Reported by G. Domina, M. Meço & A. Mullaj in Nobis & al 2018 from Saranda prov., Lukovë, 50 m. ►Andalucia, Sierra de Filabres.

Opuntia ficus-indica* (-)cas {casCA}. ►It, Calabria.

Opuntia stricta* (-)cas. Reported by G. Domina & G. Bazan (in Nobis & al 2018) from Permet, 250 m, few individuals among ruins of abandoned building. ≠*O. ficus-indica* in stems <1m; segments <30 cm (not >30 cm); areols often spineless. ►Anatolia, Isparta prov.

Campanulaceae

Campanula macrostachya (+)err. Restricted to the central and eastern part of the Balkan Peninsula (Schmotzer & Táborská 2016).

Campanula patula* ssp *patula* (?)+ {+CA}. Presence in Al has been confirmed in CA, but distribution remains unclear, as map in DA does not distinguish between *C. patula* and *C. abietina*. We have no own record of typical *C. patula* ssp *patula* from Al. ►Cg, Mt. Durmitor, subalpine grassland.

Campanula abietina*! (=*C. patula* ssp *abietina*). Photo IFA P104/5 is erroneous (probably shows untypical *Campanula rapunculus*).– *C. abietina* ≠ *C. patula* in inflorescence denser, few-flowered, and the presence of thin stolons, ending in small rosettes of broadly elliptic lvs. It is a plant of humid subalpine forest and grassland. Presence in Al is confirmed in CA, but distribution remains unclear ►Romania, Bucegi Mts.

***Campanula sibirica* ssp *sibirica*.** In Al *C. sibirica* is restricted to Kukës region around Mt. Pashtrik and Mt. Gjallica (DA). CA confirms only ssp *divergens* (=ssp *divergentiformis*) for Al. But this does not apply to our own photo IFA P103/3, which clearly matches ssp *sibirica* and comes from Kukës, gorge between Mt. Gjallica and Mt. Koritnik, limestone, 380 m.

***Campanula pyramidata-versicolor* agg.** Systematics of this chasmophytic group of bellflowers has been disentangled recently by Janković & al 2016, 2019. Application of molecular genetic criteria led to the distinction of 8 vicarious taxa (5 species + 3 ssp). However, these taxa differ only gradually and with considerable overlap in morphological criteria. In the following paragraphs we provide brief characterizations and distribution maps for the taxa relevant for Al.

Distribution of *C. versicolor* agg. in Al (after Janković & al. 2016, 2019 and Shuka & al. 2019).

Campanula austroadriatica* (-)+. This taxon has been recently described as new for science by Lakušić & al (2013). Its distribution area comprises the warm coastal areas from lower Neratva river in Cr to Krujë region N of Tirana. Its main characteristics are erect and tall (40-150 cm) stems, paniculate inflorescence and long-triangular, often clearly recurved corolla lobes. But limits towards related taxa, especially *C. montenegrina*, are rather fluid. Moreover, "paniculate" is a very relative term, as can be deduced from our photos which all have long and narrow inflorescences with side branches very short, appearing nearly racemose. ►Dubrovnik, above the town. IFA P105/5 shows plants from Krujë, 480 m.

Campanula versicolor* ssp *korabensis* (=*C. korabensis* in IFA). Comprises plants of the interior with corolla spreading-erect, very pale violet and centre whitish. Height depends from local climatic conditions and becomes very reduced (<20 cm) in plants from Mt. Korab at 2100 m. ►Mt. Korab above Radomirë, 2100 m; photo in IFA P105/4 comes from the gorge between Kukës and Topojan, 360 m).

Campanula versicolor* ssp *versicolor*. ≠*Ssp korabensis* in corolla flat with a clear dark violet eye and lobes often bent backwards. ≠*C. austroadriatica* in a more pronounced dark center of corolla. ►Gr, Korinthia prov., N of Mt. Kyllini, 1480 m; photo in IFA P105/3 comes from Vlora prov., Dhermi, 137 m.

Campanula montenegrina* (-)+. This taxon has been described recently by Jankovic & al 2016. It substitutes *C. austroadriatica* in higher regions of Cg and Prokletije Mts. As far as we can judge, the only really feasible difference to *C. austroadriatica* is lower growth, which may be interpreted as an obvious adaptation to climatic change with growing altitude. ►Cg, Kolasin, 1800 m; Sandro Icolavic via iNaturalist (CC-BY-NC).

Edraianthus wettsteinii (+)+ {?CA}. Confirmed by own photo IFA P108/1.

Jasione montana (+)? {?CA}.

Phyteuma confusum (+)? {?CA}.

Solenopsis laurentia (+)? {?CA}.

Cannabaceae

Celtis planchoniana* (-)+ {?CA}. Recently collected by Bruno Van Puyenbroeck from Lake Prespa in the localities Gollomboc and Golem Trad. ► Maxim Sharapov via iNaturalist (CC BY-NC 4.0).

Celtis tournefortii* (-)+ {+CA}. Recently collected by Bruno Van Puyenbroeck from Lake Prespa on the small island of Mali Grad. ► Tr, Kırıkkale prov., Çelebi.

Key to *Celtis* (after Strid & Tan 2000)

1. Twigs glabrous, even when young; stone weakly reticulate; fr. yellow or orange .....*Celtis planchoniana* (=*Celtis glabrata*)
1´ Twigs pubescent.....2
2 Fr. yellow or orange; stone ≠smooth with 4 ridges; lvs. acute or subacuminate, ±ovate, <2x as long as broad.....*Celtis tournefortii*
2´ Fr. brownish-black when ripe; stone reticulate-rugose; lvs. ±long acuminate, 2-3x as long as broad.....*Celtis australis*

Cannabis sativa* (-)nat {natCA}. Photo shows female plants. ►Morocco, Ketama.

Capparaceae

Cleome ornithopodioides Add. to IFA P109/5. ► Krzysztof Ziarnek via WC, CC BY-SA 4.0.

Caprifoliaceae (incl. Dipsacaceae)

***Cephalaria pastricensis*!.** Unfortunately, this species has been misinterpreted in IFA and therefore confounded with *Cephalaria flava*, which in fact is absent from Al. Photo IFA P144/1 therefore shows *C. pastricensis* from Korçë-Prov, between Voskopoje and Marjan, 1180m, serpentine. *C. pastricensis* is RR in the area between C-Bosnia – E-Serbia – SE-Al – W-Mk (Teofilovski 2023).

Cephalaria flava! (+)err {?CA}. Record for Al in E&M (24.1.2024) is erroneous.

Revised **key to *Cephalaria***! in Al.

1 Annual, involucral bracts lanceolate, acute or acuminate..... *Cephalaria transylvanica*

1´ Perennial, involucral bracts ovate, obtuse.....2

2 Involucel with ± irregular, minute teeth or subentire (IFA P143/1).....*Cephalaria leucantha*

2´ Involucel with 4 or 8 prominent teeth.....3

3 Lf.-lobes glabrous or slightly ciliate at margins; teeth of involucel triangular, c. 1/4 of length of tube (IFA P144/1)..... .....*Cephalaria pastricensis*

3´ Lf.-lobes shortly pubescent; teeth of involucel ±pungent, >1/4 length of tube (P143/8).....*Cephalaria ambrosioides*

Knautia ambigua* (-)+. Reported by Z. Barina (in Csiky & al. 2017) from above village Velipojë (Shkodër prov.), in mountain grassland on limestone, 1640 m.– Distribution reaches from N-Gr to W-Bulgaria (BALK). ≠*K. arvensis* mainly in fls. pale yellow or pale pink (not bluish violet to lilac). ► New York Botanical Garden, CC BY 4.0.

Knautia dipsacifolia* ssp *dipsacifolia* (-)+ {+DA}. Confirmed only by a single collection from Tropoja valley in 1935.– ≠*Knautia drymeia* in sympodial growth of rhizome, i.e. flowering stems central and lf.-rosettes (=continuation of rhizome) lateral. ►Upper Austria, Mühlviertel.

Scabiosa taygetea* (-)+ {+DA,+CA}. Sporadically reported from the mountains, without recent confirmation. Most typical in S-Gr., further N tending towards *S. columbaria* (FE). ►Gr, Peloponnese, Mt. Chelmos.

Scabiosa triandra (+)? {?CA }. Not confirmed recently.

Succisella inflexa (+)? {?CA }.

Succisella petteri (+)? {?CA }.

Valeriana officinalis* ssp *collina (=*Valeriana wallrothii*) → ***Valeriana stolonifera* ssp *angustifolia*** (nomenclatorial change, cf. KEW).

Knautia orientalis* (-)+ {+DA}. Scattered in S-Al. ►Tr, Tekirdağ prov., Işıklar Dağı.

Lomelosia epirota (+)? {?CA}.

Lomelosia rotata (+)? {?CA}.

Lonicera caerulea (+)? {?CA}.

Lonicera glutinosa (+)err {errCA}.

Scabiosa cinerea (?)err {errCA}.

Scabiosa columbaria* ssp *columbaria (+)? {?CA}.

Scabiosa silenifolia (+)? {?CA}.

Valerianella muricata. Included in →***Valerianella eriocarpa*** (cf. E&M).

Caryophyllaceae

Arenaria cikaea (+)?sys {-CA}. Dubious taxon.

Arenaria gracilis (+)- {?CA}. Endemic to former Ju (Šilić 1990).

Cerastium arvense* ssp *arvense (+)? {?CA}.

Cerastium banaticum* ssp *banaticum (+)? {?CA}.

Cerastium brachypetalum* ssp *tenoreanum (+)+ {?CA}. Confirmed by own collection & photo IFA P117/7 from Mt. Gjallica, Brekije (Kukës prov.), 1350 m.

Cerastium decalvans. Based on genetic fingerprint three subspecies with overlapping characters and partly overlapping distribution have been described from Al (Niketić & al. 2021).

Cerastium dubium (-)+ (=*Cerastium anomalum*). Reported by Th. Gregor (in Raabe-Strauss & Rauss 2017) from the Albanian side of Lake Ohrid, near Lin; wet depressions in fields.– Keys out with *C. cerastioides*, which also has 3 styles, but differs in habitat and stems ±erect, covered with minute viscid glands. ►Tr, Istanbul.

Cerastium hekuravense (-)+ {+CA}. Known only from 3 localities in the Prokletije (Buni Jezercë, Maja Hekurave and Maja Kakisë) on N-exposed, long snow-covered screes.– This is a fingerprint-species, destinguished from sympatric *Cerastium dinaricum* by a combination of statistical parameters, but also in slightly different general appearance, i.e. stems more decumbent and with somewhat longer internodes (Čaković & al 2017).

Cerastium rectum* ssp *rectum (+)? {?CA}.

Cucubalus baccifer* (-)+ {+DA}. Very few locations near eastern border of Al in damp scrub, 400-900 m. ►Austria, Carinthia.

Dianthus behriorum (?)? {?CA}. Still unconfirmed from Al side of Mt Pashtrik.

Dianthus biflorus (+)err {errCA}.

Dianthus corymbosus* (-)+ {+DA}. A single record from Erseka (near frontier to Gr).– Resembles *D. armeria* in calyx glandular-pubescent, but perennial with ±woody base and much larger fls. ►Gr, Thessaly, Mt.Ossa.

Dianthus galicicae Micevski ?sys. This is an unplaced name for a doubtful species (KEW, E&M), described from Mt. Galicica and reported also from adjacent Mali i Thatë area.

Dianthus giganteus (?)err {errCA}.

Dianthus leucophoeniceus (+)? {?CA}.

Dianthus monspessulanus (+)err {errCA}.

Dianthus pelviformis (+)? {?CA}.

Dianthus pinifolius* ssp *serbicus (+)- {-CA}.

Dianthus pinifolius* ssp *pinifolius (+)- {-CA}.

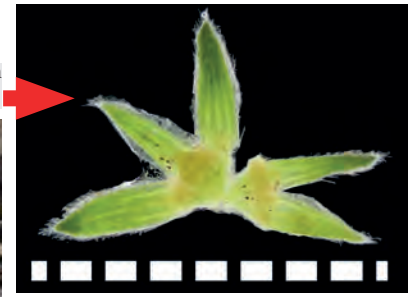
Dianthus scardicus (+)+ {?CA}. Confirmed by photo IFA P131/4 from Mt. Korab on Radomire side, 1750 m.

Dianthus superbus* (-)+ {+DA}. Only 2 locations in NE-Al near border (Prokletije, Sharr Mts.). ►Austria, Carinthia.

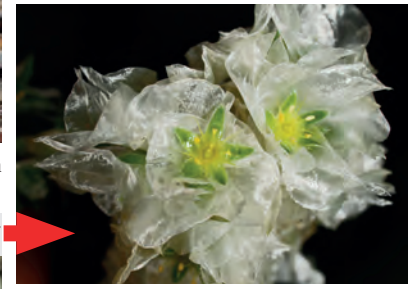
Dianthus stribrnyi* (-)+ {+DA}. Included in *D. moesiacus* by some authors. Only on Mt. Pashtrik in rocky grassland, 1000-1600 m.– RR (N-Al to C-Bu).– Fl. small, pale pink. ≠ *D. pancicii* (=*D. tristis*), which is more wdspr. in NE-Al, mainly in lvs. 2-3 mm wide (not 1-2 mm). ►Herb W via https://www.jacq.org/, CC-BY 4.0.

Minuartia setacea (+)? {?CA}.

Paronychia albanica*. Add. to IFA P119/2, showing unequal sepals. ►Between Maquellare und Bulquiza (Diber prov.), limestone, 611 m.



Paronychia cephalotes* (?)+ {+DA}. Scattered in the mountains, 1000-2200 m. ►Hungary, Balatonfüred.



Paronychia chionaea (+)+ {?DA}. Confirmed by own photo IFA P119/3 from SE-Al, Mt. Mali i Thatë, 1900 m.

Paronychia kapela ssp kapela*. Add. to IFA P119/4, showing equal sepals. ►Spain, Pyrenees, La Seu d'Urgell.

Paronychia macedonica* (?)+ {+DA}. In Al only a single old collection from the very south, 1400 m. ►Gr, Thessaly, Mt. Ossa, limestone, 1900 m.

Paronychia taurica (?)err {errCA}.

Key to ***Paronychia*** in Al (after FH, FE and own collections).

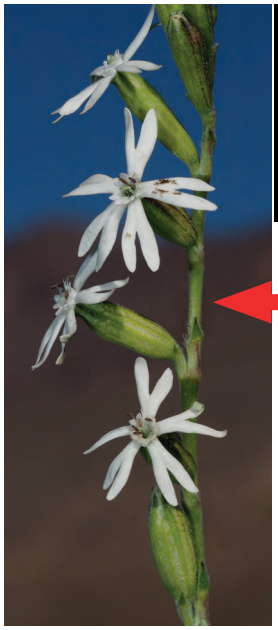
Note: petals are absent in Paronchia.

1 Lvs. pubescent on both sides.....2
1´ Lvs. glabrous or glabrescent on both sides, margins ciliate...3
2 Lvs. imbricate, softly appressed pubescent; plant forming compact cushions.....*macedonica*
2´ Lvs. not imbricate, ±spreading, ±hirsute; plant forming lax mats.....*chionaea*
3 Sepals clearly unequal, oblong-lanceolate ±acute.....*albanica*
3´ Sepals equal or slightly unequal.....4
4 Sepals 3−4 mm long.....*cephalotes*
4´ Sepals 1,5−2,5 mm long.....*kapela* ssp *kapela*

Sagina saginoides (+)? {?CA}.

Scleranthus uncinatus (+)? {?CA}.

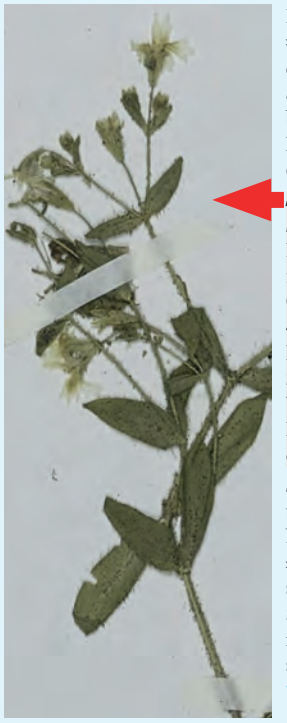
Silene acaulis* ssp *bryoides (+)+ {?CA}. Confirmed by Shuka & Tan 2019a from Prokletije, Doberdol, acid rocks, 2230 m.
Silene apetala (+)? {?CA}.
Silene borysthenica (?)err {errCA}.
Silene conica* ssp *subconica (+)? {?CA}.
Silene damboldtiana (+)? {?CA}.
Silene densiflora (+)? {?CA}.
Silene flavescens (+)? {?CA}.
Silene frivaldszkyana (+)? {?CA}.
Silene niederi (+)+ {-CA}. Confirmed by photo IFA P123/5 from Mt. Nemërçka above Poliçan, 1070 m.



Silene nocturna* (+)? {?CA}. Probably overlooked/undercollected; present on Corfu. ►Morokko, High Atlas.

Silene pusilla* ssp *chromodonta* (?)+ {+CA}. Only 2 locations in NE-Al, on limestone rocks, 350-1000 m. ►Gr, Makedonia, Mt. Olympus.

Silene retzdorffiana (-)+. Recently reported by Shuka & al 2020 from a single station in Prokletije, in a moist half-cave above Cemi river, limestone, 204 m.– RR (also around Neretva valley in BH). ≠*S. pusilla* ssp *chromodonta* in the presence of short and long glandular hairs in combination with long eglandular hairs ≤1 mm long (not only glandular hairs <0,5 mm).



Silene retzdorffiana* ssp *nikolicii* (?)+ (=*Silene nikolicii*). Reported by Shuka & al 2020 from NE-Al, Bicaj Canyon and Çaja Canyon (both Kukës prov.), 450-650 m.– LOC (also nearby Kosovo). ≠*S. pusilla* ssp *chromodonta* in lvs. thicker, bracts broader and more acuminate.►-Herb WU via https://www.jacq.org/ (CC-BY 4.0).

Silene tommasinii (?)?. Dubitatively Reported by DA from N-Al.– RR (also Cr).– Lvs. with ±sparse glandular hairs. ≠*S. p.* ssp *chromodonta* and *S. r.* ssp *nikolicii* in stock less woody, non flowering shoots rarer and shorter (cf. Niketić & Stevanović 2007).

***Silene pusilla* agg.** (=genus *Heliosperma*). The deep ravines and gorges of the Balkans, untouched from glacial devastation during the Pleistocene, have been a "breeding ground" for this group. But differentiation is still weak and primarily limited to details of indumentum. Nevertheless, most taxonomists chose the easiest way, i.e. the description of every newly discovered local form as a new species. Consequently, KEW (4.12.2023) lists 10 *Heliosperma* species (plus some subspecies) for Europe, all of which also occur on the Balkans. Most of them have been reported from Al during the last years. A detailed key (excluding widespread *Silene pusilla* s.str.) can be found in Niketić & Stevanović 2007.

Silene veselskyi* (-)+ (=*Heliosperma veselskyi*). Reported by Z. Barina (in Csiky & al 2017) from Jablanica Mts, c. 5.5 km S of village Steblevë (Elbasan prov.), limestone rock, 1810 m.– Not included in the key of Niketić & Stevanović 2007. ≠*S. retzdorffiana* in capsule ≥3x carpophore (not ≤2x carpopophore).– Hitherto believed to be endemic to the southeastern margin of the Alps. With this newly reported outpost the distribution is strongly reminiscent of *Wulfenia carinthiaca*. ►Slovenia, Gračnica.

Spergularia diandra (+)? {?CA}.
Spergularia marina (+)? {?CA}.

Stellaria palustris (+)err {errCA}.

Cistaceae

Cistus monspeliensis (+)err {errCA}.

Fumana scoparia (+)err. Not mentioned in CA and DA. Unvouchered records from Al are probably due to confusion with *F. ericoides*.

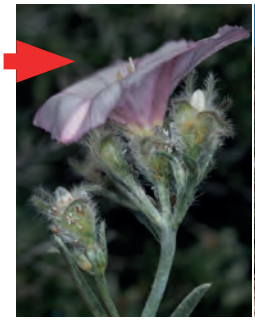
Fumana ericoides (+)+. {-DA, -CA}. Confirmed by own collection from Shëngjin (IFA P137/7 is from Spain); present also on Corfu (vouchers in FJ), though not listed for Gr in CG.

Helianthemum leptophyllum (-)+ {-CA} (=*Helianthemum jonium*)**.** Reported already by Chaytor & Turrill 1934 and Alston & Sandwith 1940. Recently confirmed for coastal sands in the Durrës region by Bodganović & al 2020.– WSPR in the western Mediterranean on coastal sands or rocky calcareous garrigue near coast. ≠*Helianthemum apenninum* in fl. yellow (not white or pink), sepals with simple hairs (not with densely stellate indumentum). ►It, Puglia, Matera.

Convolvulaceae

Convolvulus cneorum (+)err {errCA}.

Convolvulus oleifolius* (-)+ {+DA}. A single station at the foot of Mt. Çika, rocky grassland, limestone, 200-500 m. ►Cyprus, Capo Greco.



Convolvulus siculus (-)+ {+DA}. A single station at the southernmost part of Al, limestone 300-400 m. ►Morocco, near Rabat.

Cuscuta! (p. 81): Couplet 1: Change "-Styles and stigmas ……..2" → "Styles and stigmas 2……..2

Cuscuta approximata (+)? {?CA}.

Cuscuta brevistyla (+)? {?CA}.

Cressa cretica (-)ext? {ext?DA}. Around Vlora in saline grasslands, without recent confirmation. ►Gr, Crete, Heraklion.

Dichondra micrantha (-)nat {casCA}. Naturalized in watered lawns. ►Gr, Athens.

Crassulaceae

Jovibarba globifera* ssp *globifera (+)? {?CA}.
Jovibarba globifera* ssp *hirta (+)err {errCA}.

Sedum pallidum (?)? {?CA}. No recent confirmations.
Sedum sediforme (+)? {?CA}. No recent confirmations, formerly reported from Vlora.
Sedum rupestre* ssp *rupestre* (-)?. Reported by DA as "Very sporadic, occurrences need revision". Unambiguous confirmation still needed. ► Italia, Abruzzo, Campo Imperatore.
Sedum stellatum (+)? {?CA}.

Cytinaceae

Cytinus ruber (-)+ {+DA} (=*Cytinus hypocistis* ssp *clusii*). Rare in southernmost part of Al. ►It, Sicilia.

Elaeagnaceae

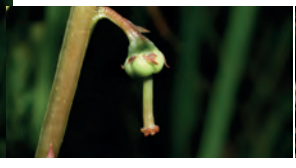
Hippophae rhamnoides (-)nat {natDA}. Widely naturalised in the Ostrovica Mts. and surroundings due to plantations in the 1970s. ► Austria, Vienna, Lobau.

Ericaceae (incl. Empetraceae und Pyrolaceae)

Pyrola media (-)+ {+DA}. Very rare in mountain forests. ≠*P. minor* in style ≥5 mm (not 1-2 mm), exserted (not included). ► Austria, Carinthia, near Villach.

Rhododendron ferrugineum (+)err {?CA}.
Rhododendron myrtifolium (?)err {?CA}.

Vaccinium vitis-idaea (+)? {?CA}.



Euphorbiaceae

Euphorbia* Sect. *Chamaesyce

Euphorbia nutans* (-)nat {natDA}. ►It, Venice-Mestre.

Euphorbia maculata* (-)nat {natDA}. ►Portugal.

Euphorbia prostrata* (-)nat {natDA}. ►Gr, Athens.

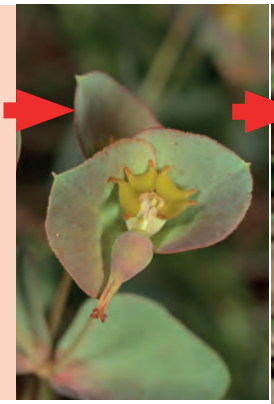
Key to the Albanian species of sect. *Chamaesyce*:

1 Plant completely glabrous.....2
1´Plant at least in some parts with hairs.....3
2 Seed seed irregularly tuberculate-rugulose, 1,2 mm long...*Euphorbia chamaesyce* →4´
2´ Seed smooth, 3 mm long, on coastal sands.....*Euphorbia peplis*
3 Fr. glabrous; plant growing ±erect; cyathia mostly ±umbellate..... *Euphorbia nutans*
3´ Otherwise.....3
4 Fr. uniformly covered by adpressed hairs..... .....*E. maculata*
4´Fr. with spreading hairs.....4
5 Fr. with hairs on the keels only; seed deeply transversely furrowed.....*E. prostrata*
5´Fr. uniformly patent-pubescent; seed irregularly tuberculate-rugulose....*E. chamaesyce* (=*Chamaesyce canescens*)

Distribution in Al is insufficiently known for all taxa.

Euphorbia esula* {CA}. Confirmed for Al is only *Euphorbia esula* ssp *tommasiniana* (=*Euphorbia virgata*). ≠ Ssp *esula* in less axillary rays, smaller umbels and narrower lvs. ►Serbia, Pirot.– Photo IFA P154/2 shows ssp *esula* from Romania, Ploiesti.

***Euphorbia barrelieri* s.lat*!** (+)+. Photo P153/5 erroneously shows *E. deflexa*, which differs in glands of cyathia with longer horns. But presence of *E. barrelierei* s.lat is confirmed by update-photos. ► Near end of Kalimash tunnel (Kukës prov.), serpentin, 968 m.– Exact systematic position of these plants according to the classification of Frajman & Schönswetter 2017 is problematic, as they strongly resemble *E. barrelieri* s.str. from It (B. Frajman in lit., 25.1.2024).



Euphorbia lingulata (+)? {?CA}.

Euphorbia nicaeensis (+)?. DA lists 3 locations in NE-Al close to Kosovo, though Stojilkovic & al 2022 do not mention *E. nicaeensis* s.lat. for Al.– Photo in IFA shows recently described *E. adriatica* Stojilkovic & al. from It, Abruzzo, which is the Italian fingerprint variant of *E. nicaeensis*.

Euphorbia rigida (+)? {?CA}.

***Euphorbia segetalis**.* Listed in DA only in the perennial form (var. *pinea*, =*Euphorbia pinea*) and only from coastal sands around Vlora. ►Spain, Cataluña.

Euphorbia oblongata (+)? {?CA}.

Euphorbia phymatosperma* (-)+. Reported by Z. Barina (in Csiky & al. 2017) from Griba Mountains, ca 2.5 km south of Tepelenë (Gjirokastër prov.), 162 m. This widespread annual, keys out with *E. helioscopia*, but differs in fewer rays, lvs. entire (not serrate), and seeds with depressions (not tubercles). ►Christian Gilli in FJ (CC-BY-NC).

Euphorbia seguieriana**.* Genetic fingerprint analysis by Frajman & al 2019 resulted in upranking of **ssp *niciciana → ***Euphorbia niciciana*** (=photo IFA P153/4 from Tr, Istanbul). Distinction from *E. seguieriana* s.str. is still only possible by the combination of characters used in the key in IFA .– As Frajman & al l.c. do not mention the latter for Al, we confirm its presence by the update photo. ►Rubik (Lezha prov.), 60 m, serpentine.

Euphorbia verrucosa. Photo IFA P151/4 shows plants from Spain (=*E. flavicoma*). Balkan populations are very smilar, but show a certain degree of genetic divergence which led to their separation as *Euphorbia montenegrina* (Caković & al 2021).

Fabaceae s.l.

Acacia dealbata* (-)nat. {natDA}. Mountains around Tirana (DA). Tr, Istanbul.

Amorpha fruticosa. Widely naturalized and invasive along the northern coast and Lake Shkodra (DA,CA).

Astracantha parnassi (+)+ {errCA}. Confirmed by photo IFA P159/2 from N of Tomorri Mt, 800 m, Flysch. Also listed for Al in Podlech 2008.

Astragalus boeticus (+)? {-CA}. Present in all surrounding countries, but not listed for Al neither in Podlech 1995, nor in Podlech 2008.

***Astragalus lacteus*!** P161/1. Number 4 (in picture of *A. lacteus*) is superflous and should be deleted; white delimitation line between photo 1 and 2 should be drawn.

Astragalus mayeri* → *Astragalus sericophyllus. Nomenclatorial change (cf. KEW, E&M).

Astragalus spruneri (+)+ {-CA}. Confirmed by Podlech 2008.

Chamaecytisus (=*Cytisus* sect. *Tubocytisus*; serie *Tubocytisus* sensu Cristofolini 1991)
Due to many transitional forms and poorly differentiated local taxa, this is one of the taxonomic minefields on the Balkans. Different authors tend to interpret identical names often differently. The most current key including Al is that of Cristofolini 1991. But in the last decennia, D. Pifkó & Z. Barina extended the list of Albanian taxa so much, that this key can only serve as a rough guide. As both authors never published a key, we dared to give it a try:

Key to the taxa of *Chamaecytisus* (=*Cytisus* subgen. *Chamaecytisus* in IFA) occurring in Al (after DA, Pifkó & Barina 2016, Cristofolini 1991 and own observations):

1 Fls pink, rarely white, in long and dense leafy racemes.....*C. purpureus* (mostly in NE)
1´ Fls. yellow or if white then only in terminal heads.....2
2 Fls. white or whitish 3
2´ Fls yellow.....4
3 Branches, leaves and calyx with both patent and appressed hairs.....*C. albus* (mostly NE Al, various substrates)
3´ Branches, petioles and leaflets patent-hairy.....*C. frivaldszkyanus* (SE-Al)
4 Fls. single or in small clusters at the leaf-axils, i.e. in long, leafy racemes.....5
4´ Fls. in leafless terminal heads or in very short (almost capitate) leafy racemes.....7
5 Fr. glabrescent.....*C. leiocarpus* (2 locations in NE, on serpentine)
5 Fr. villous..... 6
6 Fls. exclusively in long, leafy racemes on this years twigs.....*C. triflorus* (common)
6' Fls. in early spring in leafy racemes on last years twigs, summer fls. in dense terminal heads on this years shoots.....
.....*C. hirsutus* (→8)
7. Standard often tinged brownish towards base, densely covered with long white hairs on upper side.....*C. lasiosemius*
...(NE-Al, on serpentin)
7´Standard not tinged brownish towards base or if so, then standard glabrous or with sparse hairs.....8
8 Stems and lvs. with spreading hairs.....*C. hirsutus* (incl. *C. supinus*). Reports from Al probably refer to *C. lasiosemius*)
8´ Stems and lvs. ±adpressed hairy.....9
9 Calyx with spreading hairs.....10
9´ Calyx with adpressed hairs.....12
10 Standard completely glabrous; fls in very short, leafy racemes ("subcapitate").....*C. korabensis*
... (Korab and Jablanica regions, limestone)
10´ Standard ±pubescent on upper side; fls in terminal heads.....11
11 Lvs. greyish due to densely appressed indumentum on both sides, lanceolate.....*C. austriacus* (Gjallica Mt.)
11´ Lvs. broadly lanceolate to ovate, green, ±glabrous on upper side .....*C. tommasinii* (common, but not in S)
12 Standard sericeous on upper side; fls. in terminal heads; shoots horizontally creeping, forming ±flat cushions.....
... *C. jankae* (only in NE-Al on Pashtrik Mt.)
12´ Standard glabrous or only with few hairs on midvein; fls in very short, leafy racemes ("subcapitate"). .....
... *C. pseudojankae* (LOC in Thatë Mts., limestone)

Chamaecytisus austriacus* (+)+. Reported from Mt. Pashtrik (DA), where we only found *C. jankae*. Update-photo and IFA P156/3 show plants meeting the criteria for *C. austriacus* from Mt. Gjallica (Kukës prov.).

Chamaecytisus eriocarpus (?)?. Reported by DA from "around Shishtavec (Kukës prov.) and Thatë Mts" (the later is not marked in the distribution map). As stated already in IFA (p. 89), plants from Al described in Barina & al. 2009 differ profoundly from the type of this taxon (Boz Dag bei Izmir). E.g. the latter has fls. in terminal heads, while Pifkó & Barina 2016 describe their plants as having fls. in leavy racemes. A short glance on the vouchers presented in gbif.org shows rather impressively, that "*C. eriocarpus*" from the southern Balkans is a very heterogeneous conglomerate of taxa, with probably none of them respresenting original *C. eriocarpus*.

Chamaecytisus frivaldszkyanus (-)?. Reported from 10 locations in SE-Al, some of them directly on the border to Greece, on flysch and limestone (DA, CA). This species formerly had been considered to be endemic to Bulgaria (KEW, FE, Jordanov & al 1976) and its fls. have been described as white (Velchev 1984). Cristofolini 1991 took a somewhat different view, treating it as a synonym of more widespread *Ch. lasiosemius*, which he keys out as yellow flowering. Unfortunately neither CA, nor DA give any description of Albanien plants, not even regarding colour of fl.

Chamaecytisus heuffelii (+)? {errCA} (=*Chamaecytisus austriacus* ssp *heuffelii*). Listed for Al in FE, KEW and Cristofolini 1991, but probably due to confusion with one of the taxa included in our key.

Chamaecytisus hirsutus! (+)- {-DA, -CA} (=*Chamaecytisus supinus*). Former records of *C. supinus* for Al (in all relevant sources, including Cristofolini 1991) probably are mainly due to confusion with very similar *C. lasiosemius*, which differs in standard ±densely hairy. Photo P156/4 (from NE-Al, N of Kruma, 460 m) shows in fact *C. lasiosemius*.

The biological reason for merging *C. supinus* into *C. hirsutus* is a seasonal modification of *C. supinus*. As described by Skalická 1986, *C. hirsutus* tends to flower twice a year. Fls. appearing in early spring are clustered in small fascicles at the lf.-axils of the previous year's twigs. Plants collected at this stage correspond to *C. hirsutus* in the traditional sense. But when flowering a second time in summer, plants change into *C. supinus*-phenotype, i.e. with fls. arranged in dense terminal heads.

Plants with fls. constantly racemose (= most of *C. hirsutus* in the traditional definition) are now assigned to *C. triflorus*.

Chamaecytisus jankae* (+)+ {-CA}. Update-photo and IFA P156/1 are from Mt. Pashtrik, (1080 m), from where *C. jankae* is already reported by Dörfler (in Hayek 1924). This is questioned by CA, who assigns plants from Mt. Pashtrik to *C. austriacus*. Our plants have calyx adpressed pubescent and grow in the form of flat cushions, reminiscent of some *Thymus* species. Both traits are characteristics of *C. jankae*.

Chamaecytisus lasiosemius* (-)+ {+DA}. Scattered in the northeastern hills of Al, on serpentine. Probably includes also former records of "*C. supinus*" ►N of Kukës, 400 m, serpentine.

Chamaecytisus leiocarpus (-)+ {+DA}. 2 locations over serpentin, 1000-1300 m in NE-Al. Also mentioned in Cristofolini 1991 for Al.– BALK.

Chamaecytisus korabensis (-)+. Recently described by Pifkó & Barina 2016 as new for science. LOC in Korab und Jablanica Mts. (E-Al).– Resembles *C. pseudojankae* in its very shortly racemose inflorescence and glabrous standard but differs in calyx with spreading hairs.

Chamaecytisus pseudojankae* (-)+. Recently described by Pifkó & Barina 2016 as new for science. Endemic to Thatë Mts. (SE-Al).– Less vigorous than *C. jankae*, with lvs. relatively shorter and standard glabrous to glabrescent.

Chamaecytisus triflorus (Lam.) Skalická* +(+) (=*Cytisus hirsutus* in IFA). This name applies to plants formerly named *C. hirsutus* and bearing their fls. in small clusters along the stems.– Frequent throughout the hills and mountains of Al (DA). ►Mt. Grammos (S-Al).– IFA P155/6 is from Al, Diber-Prov., Shtam-Pass, serpentine.

Cytisus (=***Corothamnus***). Differs from *Chamaecytisus* in calyx campanulate and lvs. simple. DA records all eight European taxa for Al, which were accepted by Skalická 1967 in her short revision of this group. But this classification failed to achieve major acceptance, as it gives too much weigth to differences in indumentum. Consequently, the current taxonomical "mainstream" (FE, E&M. KEW, A. Strid in FH) reduces the number of accepted taxa in Al. to 4, including *C. procumbens* whose presence in Al was still doubted when IFA apperaed.

Key to *Cytisus* in Al (mainly after A. Strid in FH). This key substitutes paragraph 1-4 in the *Cytisus*-key of IFA p. 89. It excludes *Chamaecytisus*, which has been treated already on p. 35.

1 Lvs. trifoliate, bush reaching 1-2,5 m hight; only in the extreme S of Al.....*Cytisus villosus* (=*Cytisus triflorus* L'Hér., not to confuse with *Chamaecytisus triflorus* (Lam.) Skalická.). ►IFA P155/5

1´Lvs. simple, shrublets <0,5 m.....2 (Sect. *Corotamnus*)

2 Young branches with 5 ridges; grooves between ridges ±wide and deep, U-shaped .....*Cytisus decumbens*.....3

2´ Young branches with (5−)10 ridges which are widened in the distal part; grooves narrow, shallow, with minute, curly hairs.4

3 Pods glabrous; plant glabrous or with appressed indumentum; on serpentine.....*Cytisus decumbens* ssp *pindicola* (=*Corothamnus medius*, =*Corothamnus glaber*, =*Cytisus pseudoprocumbens* in IFA, =*Corothamnus adpressipilosus*). ►IFA P155/3

3´ Pods villose; plants with spreading indumentum.....*Cytisus decumbens* ssp *decumbens*

4 Procumbent to ascending; young twigs, lvs. and pods appressed-pubescent.....*Cytisus procumbens*

4´ Suberect; young twigs, lvs. and pods patent-villous.....*Cytisus agnipilus*

Cytisus agnipilus (?)? (=*Corothamnus rectipilosus*). Mapped in DA as "very scattered in E-Al".– The nomenclatorial type is from Bu and is densely long-villose in all vegetative parts. From the data available it seems to be a local vicariant of *C. procumbens* which is probably connected by intermediate populations with the former. Presence of typical plants in Al needs confirmation.

Cytisus decumbens* ssp *decumbens* (?)+ {+DA}. Reported from 3 locations over serpentine in N-Al. ►C-Al, between Burrel and Bulqiza, 839 m, serpentine.

Cytisus procumbens* (-)+ {+DA}. Scattered in the mountains, on limestone and serpentine. ►E-Al, Mt. Mali i Thatë, 1704 m, limestone.

Genista sylvestris* ssp *sylvestris (+)? {?CA}.

Hedysarum spinosissimum (?)- {-CA}.

Hippocrepis emerus* ssp *emerus* (-)+ {+CA}. Distribution within Al is unknown. ≠*Ssp emeroides* in peduncles ≤lvs.; heads 1- to 5-flowered (not ≤8-flowered). ►Upper Austria.

Lathyrus angulatus (+)? {?CA}.

Lathyrus cicer! P169 (text). Change *cicer* → *cicera*.

Lathyrus laevigatus* (-)+ {+DA}. Just reaching the northernmost mountains near border to Cg., limestone, 1500-1800 m ►Slovenia, Bohinj.

Lotus preslii (+)? {?CA}.

Medicago arborea (+)ext {extCA}. Extinct on ist only known site on the southern coast.

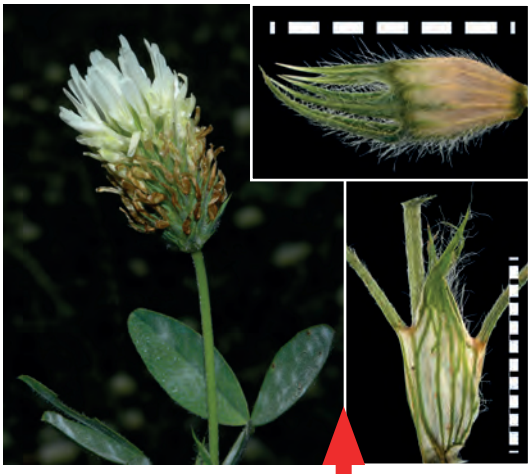
Ononis viscosa* ssp *viscosa (+)- {-CA}. Only ssp *breviflora* is confirmed.

Oxytropis lapponica (+)err {errCA}.

Oxytropis prenja*! (+)+ {+DA,+CA}. Photo IFA P163/1 from peak of Mt. Tomorri does not show *O. prenja*, but recently described *O. tomorriensis*. Neither Šilić 1990, nor Kuzuharova & al 2007 mention *O. prenja* for Al. Shuka & al. 2017 refer to a single voucher from Al whose prominence is rather dubious. Hence the three dots on the map of DA (Prokletije, Korab and Jablanica Mt.) are the first records of *O. prenja* from Al. ►Bosnia, Mt. Prenj (user Echinops in WC).

Oxytropis tomorriensis (-)+. Recently described by Shuka & al 2017 as new for science from the summit of the northern peak of Mt. Tomorri. These plants have formerly been identified as *O. halleri* (DA) or *O. prenja* (IFA P163/1). From the latter they differ in racemes with 5-10(-12) fls. (not 1-4). *O. korabensis* (="*O. halleri*" in DA) differs in stipules branched-veined in the free apices, adnate for less than half their length and densely white adpressed-hairy (not 1-veined in the free apices, adnate to the petioles for half their length or more and sparsely white adpressed-hairy) and proportion of black hairs to white hairs in legume higher.

Securigera parviflora (+)? {?CA}.



Trifolium alexandrinum* (-)cas {casCA}. As a remnant of cultivation sometimes in and around fields. ►Morocco, Larache.

Trifolium constantinopolitanum* (-)? {?DA, +CA}. No recent record in DA, but occurence in Al confirmed by a voucher in Tirana herbarium (CA). Probably a casual weed of cultivated fields in lowland areas. ►Tr, Istanbul, Gümüşdere.

Trifolium dubium (+)? {?CA}.

Trifolium glanduliferum var nervulosum (+)? {?CA}.

Trifolium heldreichianum (+)+ {?CA}. Presence in Al confirmed by own photo IFA P178/6 from Cudhi Kant W of Qafë Shtama (Durrës prov.), 740 m, serpentine.

Trifolium michelianum* (-)+ {+CA}. Without recent confirmation, but confirmed by old voucher. ≠*T. nigrescens* in all calyx-teeth 2−4 times as long as the tube (not upper 2 calyx-teeth equalling or only slightlyexceeding the tube); heads 20−25 mm wide (not 10−20 mm); corolla 8−11 mm (not 6−9 mm).– WSPR. ►Gr, Ionic Islands, Ch. Gilli in FJ (CC-BY-NC)

Trifolium mutabile (+)? {?CA}.

Trifolium pannonicum (+)? {?CA}.

Trifolium phleoides (+)? {?CA}.

Trifolium setiferum (+)? {-CA}. Not mentioned in CA but mentioned for Al in Zohary & Heller 1984; overlooked or extinguished.

Trifolium squamosum (+)? {-DA, -CA}. Present on Corfu, probably overlooked by DA.

Trifolium squarrosum (+)? {-DA, -CA}. Present on Corfu, probably overlooked by DA.

Trifolium strictum* (-)+ {+DA, +CA}. Lacking recent confirmation.– Annual; stipules denticulate; veins of lvs. and stipules ending in glandular teeth. ►fl.: Spain; near Madrid (Miguel A. Casado via iNaturalist); lf.: Portugal (Miguel Porto via https://flora-on.pt); both: CC-BY-NC.

Trifolium trichopterum (+)?. Not mentioned in CA but listed in Zohary & Heller 1984; overlooked or extinguished.

Trifolium velebiticum (+)? {-CA}. The record of Zohary & Heller 1984 for Al lies in Kosovo (Monasteria Visoki Decani, Rechinger fil.).

Tripodion tetraphyllum* (-)+ {+DA} (=*Anthyllis tetraphylla*). Only in the very south and mainly near the sea.– Fl. may also be tinged reddish. ►Tunisia, Djerba.

Vicia johannis (+)err {-CA}.

Vicia pannonica* ssp *pannonica (+)? {?CA}.

Vicia pisiformis (+)? {?CA}.

Trigonella graeca* (-)+ {+DA}. Two locations in S-Al, limestone, 300-1500 m. ► Gr, Attiki (Giorgios Pantakis via iNaturalist CC-BY-NC).

Vicia tenuifolia* ssp *tenuifolia* (-)+ {+CA}. ≠Ssp dalmatica in lvs. 2-6 mm wide, linear-lanceolate (not 1-2 mm wide).

Vicia villosa* ssp *villosa (+)? {?CA}.

Fagaceae

Quercus robur* ssp *robur (+)? {?CA}. *Q. robur* is represented in Al mainly by ssp *brutia* (DA).

Quercus robur* ssp *pedunculiflora (-)+ {+DA, +CA}. Reported by DA from 3 locations in the very S of the country. ≠Ssp *brutia* in lvs. persistantly greyish puberulent beneath (not only when young); petiol often >5 mm long.– This is the dominant form of *Q. robur* in Gr. and E-Anatolia.

Frankeniaceae

Frankenia hirsuta (+)? {?CA}. Present on nearby Corfu which makes presence in S-Al highly probable.

Frankenia pulverulenta (+)? {?CA}. Known from all surrounding countries (KEW).

Gentianaceae

Blackstonia perfoliata* ssp *serotina (+)? {?CA}.

Cicendia filiformis (+)? {+DA}. A single collection in 1965 near Tirana.

Gentiana acaulis* ssp *acaulis (-)? {+CA}. *G. acaulis* s.str. is said to differ from *G. dinarica* (=*G. acaulis* ssp *dinarica*) in corolla with green spots in the throat and calyx-teeth usually <1/2 as long as the tube (FE). But these differences are rather blurred and both taxa are now regarded mostly as intraspecific vicariants (e.g. in KEW). FE draws the line for for the latter in C-Yugoslavia, whereas CA reports *G. acaulis* s.str. also from Prokletije Mts., where this group reaches its southern limit on the W-Balkans.

Geraniaceae

Geranium divaricatum (+)? {-CA} (=*Geranium bohemicum*). A widespread, but generally rare species.

Geranium phaeum (+)+ {?CA}. Confirmed for Prokletije on border to Cg by Shuka & al 2019b.

Grossulariaceae

Ribes petraeum (+)err {errCA}.

Hypericaceae

Hypericum annulatum (+)? {?CA}.

Hypericum dubium (+)- {-CA} (=*H. maculatum* ssp *obtusiusculum*).

Hypericum empetrifolium (+)? {?CA}.

Hypericum humifusum (+)? {?CA}.

Hypericum montanum (+)? {?CA}. Should be searched in the Prokletije Mts.

***Hypericum olympicum*!** (+)? {?CA}. Not confirmed for Al but reported from the Greek side of the Prespa region in Strid & al 2017. White delimitation line in IFA P192 should be changed like shown in thumbnail.

Hypericum perfoliatum (+)+ {?CA}. Confirmed by own photo IFA P194/2 from between Bulquiza und Burrel (Peshkopi-prov.), serpentin, 739 m. Widely distributed on Corfu.

Hypericum rochelii (?)- {?CA}.

Hypericum spruneri. In DA this species is undercollected or misinterpreted, as only 2 recent locations are shown, both in Prokletije Mts., 1600-1800 m. *H. spruneri* is in fact widespread in med. and submed. parts of Al, as shown also on the rough distribution map in Hypericum Online. It is also rather common on Corfu.

Hypericum triquetrifolium (+)? {errCA}. Presence in Al is possible, as the species is confirmed for Cg and Gr.

Lamiaceae

Ajuga iva* (-)+ {+DA}. Near coast and mainly in the S, mostly on limestone.– WSPR in the Mediterranean region. Fls. may be pink or yellow. ►It, Vallone Pulsano.

***Galeopsis pubescens*! - *Galeopsis bifida*!** IFA P197 (Text): Change "11 *G. pubescens*, 10 *G. bifida*" → "10 *G. pubescens*, 11 *G. bifida*".

Lamium galeobdolon* ssp *galeobdolon (+)? {?CA}.

Lamium album (?)- {-CA}. Absent also from Gr (but present again in Tr).

Clinopodium graveolens* ssp *graveolens* (-)+ {+DA} (=*Acinos rotundifolius* in DA). Local in the mountains in serpentine areas. ≠ *Clinopodium alpinum* in lvs. very broadly ovate (≤1,5 times as long as wide), abruptly acuminate or mucronate (not ±obtuse). ►Tr, Karaman-prov., Karadağ.

Marrubium velutinum* (-)+ {+CA, sub *M. cylleneum*}. *Marrubium cylleneum*, *M. velutinum* and *M. thessalum* are very close and supposed to to be vicarious in Gr (cf. MFD, Tan & Iatrou 2001). As there is some overlap in morphology, the former ones are often reduced to subspecific level (*M. velutinum* ssp *cylleneum* and *M.v.* ssp *velutinum*). From N-Pindos only such a broadly delimited M. velutinum is reported in CG. As *M. cyllenum* s.str. is said to be endemic to Peloponnisos (Tan & Iatrou 2001) it may be supposed that "*M. cyllenum*" in DA and CA refers also to *M. velutinum s.lat.* ►Gr, N-Pindos, Mt. Lakmos near Metsovo, 1500 m.

Marrubium thessalum (+)?. Reported from 2 older collections, one of them from Mt. Mali i Thatë by Baltisberger & Baltisberger 1995. ≠*M. velutinum* s.l. in corolla white (not yellowish) and lvs. ovate (not very broadly ovate to nearly orbicular).– The fact, that both collections come from locations, where *M. velutinum* is also confirmed (cf. DA), hints towards a possible confusion. Presence of *M. thessalum* in S-Al therefore needs further confirmation.

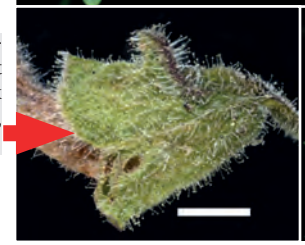
Mentha spicata* ssp *condensata* (-)+ {+CA} (=*Mentha microphylla*). Scattered in whole Al. ≠*Mentha longifolia* in lvs. ≤45 mm long (not 50-90 mm). ►N-Gr., Makedonia, Kaimaktsalan, 1000 m.

Nepeta parnassica (?)+ {+CA}. Reported from 3 locations in S-Al.

Salvia aethiopis* (-)+ {+CA}. A single location in SE-Al near Gr border, roadside, 900 m. ≠*Salvia argentea* and *Salvia candidissima* in fl. 10-15 mm (not 15-30 mm), upper lip of corolla only weakly falcate, stems eglandular. ►Tu-E, Istanbul.

Scutellaria albida (+)err {-CA}.

Scutellaria hastifolia* (-)+ {+DA}. Few stations around Korçë and Tirana without recent confirmation. ≠*Scutellaria galericulata* in calyx glandular-pubescent; lvs. usually ±hastate. ► Sr, Vojvodina.



Sideritis scardica (+)err {errDA}.

Stachys arvensis (+)? {?CA}.

Stachys anisochila* (?)+ {+DA}. Rare in Prokletije Mts.– BALK. ► Herb Z+ZT (CC BY 4.0).

Stachys parolinii (err)err. The record of Meyer 2011 from Korab, 1800-2300 m is maintained in DA and CA, based on a voucher in Herbarium Jena. We still doubt this record, as *S. parolinii* find its upper limit in Gr at 900 m and towards N it does not surpass Lefkada Island (FJ, map in Tan & Iatrou 2001).

Teucrium fruticans* (-)+ {+DA}. Formerly collected from maritime limestone rocks around Saranda. ► Tunisia, Cap Serrat.

Thymus ciliatopubescens {DA. CA} included in → ***T. boissieri*** (cf. KEW).

Thymus alabrescens (-)? {?DA}. Only old reports, all in need of revision.

Thymus heterotrichus (-)? {?DA}. Only old reports, all in need of revision.

Linaceae

Linum alpinum* (-)+ {+CA} (=*Linum perenne* ssp *alpinum*). ≠*L. perenne* ssp *extraaxillare* in upper cauline lvs. 1-veined (not 3-veined); inner sepals <twice as long as wide ► It, Alpi Apuane.

Linum maritimum* (-)+ {+DA}. Rare on maritime sands.– Differs from other yellow and large-flowering species in lvs. without glands at the base; stem terete (not with narrow wings decurrent from lf.-bases) ► Stefan. Lefnaer via WC.

Linum tauricum* (-)+ {+DA}. Scattered in the mountains. ≠*L. flavum* in inflorescence with 10–20 fl. (not 20–40); stock much-branched, often woody, with numerous non-flowering rosettes and flowering stems. ► Bu, Black Sea coast S of Varna.

Linum thracicum* (-)+. Reported by Z. Barina (in Csiky & al. 2017) from Pashtrik Mt. (1500 m) and Lake Ohrid area.– Very similar and easily confused with *L. flavum*; differs in stems lower, more numerous; sepals 8−10 mm, up to twice as long as capsule (not 6−8 mm, scarcely exceeding capsule). ► Herbarium Berolinense, Berlin (cc-by-sa 3.0).

Linderniaceae (former Scrophulariaceae)

Lindernia procumbens* (-)nat. Very rare around Lake Shkodra (Mesterházy A. & al.2017) ► Cheng Te Hsu via CC-BY-SA.

Key to *Lindernia* (after Castroviejo 2009).

1 Fertile stamens 4; pedicels usually exceeding subtending leaf; most of the fls. cleistogamous (i.e. corolla not exceeding calyx); lvs. ±entire ...*L. procumbens*

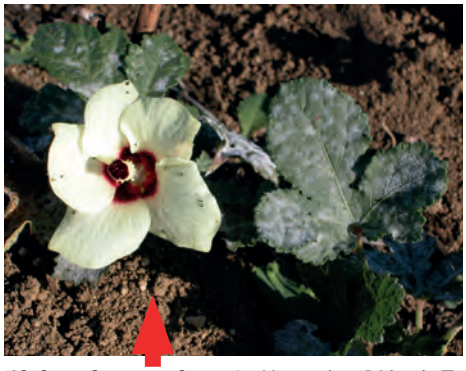
1′ Fertile stamens 2, staminodes 2; pedicels usually shorter than subtending lf.; fl. mostly chasmogamous, with corolla 7−8 mm; lvs. ±distinctly serrate ....*Lindernia dubia*

Lythraceae

Ammannia coccinea* (-)nat (=*Ammannia latifolia*). On mud in water reservoirs. Probably a remnant of former rice field cultivation (Mesterházy et al. 2017). ► Forest & Kim Starr on WC.

Lythrum virgatum (+)? {?CA}.

Malvaceae (incl. Tiliaceae)



Abelmoschus esculentus* (-)cas {casCA}. ►Tr, Yalova.

Alcea rosea* (-)nat {natDA}. Along roadsides scattered in whole Al. ≠*A. biennis* in stems glabrous or sparsely steose. ►S-Al, near Gjirokaster.

Malva arborea (+)? {?CA} (=*Lavatera arborea*).

Tilia rubra (+)? {?CA}.

Meliaceae

Melia azedarach* (-)cas {casCA}. Frequently planted.

Moraceae

Broussonetia papyrifera* (-)cas {casCA}. ► Kristof Zyskowski & Yulia Bereshpolova via WC.

Myrtaceae

Eucalyptus globulus* (-)cas {casCA}. Reminiscent of former cultivation ► Murray Fagg via WC.

Nyctaginaceae

Bougainvillea glabra* (-)cas {casCA}. Rest of former cultivation.

Mirabilis jalapa* (-)cas {casCA}.

Oleaceae

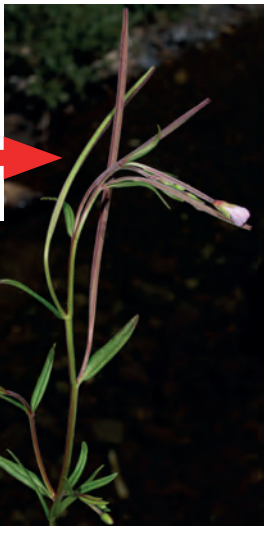
Syringa vulgaris (+)cult {cultCA}. Considered as spontaneous in all relevant sources (KEW, E&M), probably due to the distribution map in Horvat & al 1974, which includes NE-Al.

Onagraceae

Epilobium alpestre (+)? {?CA}.

Epilobium collinum (+)? {?CA}. Present in N-Gr.

Epilobium palustre*. Add. to IFA P218 (photo omitted). ►Spain, León-prov.



Epilobium obscurum (+)? {?CA}. Present in N-Gr.
Epilobium tetragonum* ssp *lamyi (-)+ {+CA}. ≠Ssp *tetragonum* in lvs. shortly petiolate, not decurrent.

Ludwigia palustris* (-)+ {+CA}. Mainly around Lake Shkodra, on muddy ground.– WSPR. ►Tr, Istanbul, Belgrad Ormanı.

Oenothera speciosa* (-)nat. Obviously already widespread in the lower parts of Al (Mulay & al. 2017). ►Al, Quark Fier (Vlora-prov.), 6.6.2014.

Orobanchaceae (incl. part of former Scrophulariaceae)

Bartsia alpina (+)err {errDA}.

Euphrasia drosocalyx (+)? {?DA}.
Euphrasia hirtella (+)? {?DA}.
Euphrasia rostkoviana* ssp *rostkoviana (-)+ {+CA}.

Melampyrum fimbriatum (+)? {?DA}.
Melampyrum nemorosum (?)+ {+DA}.
Melampyrum trichocalycinum (?)? {?DA}.

Orobanche cernua* (-)+. Confirmed by Gregor & al (in Raab-Straube & Raus 2017) from Lake Ohrid near Lin.– With our update photo we provide a further confirmation. ►Between Drenova and Moravë (Korçë-prov.), serpentin, apparently on *Artemisia alba*, 1100 m.

Orobanche grisebachii (-)+. Confirmed by T. Gregor & H. Uhlich (in Raab-Straube & Raus 2017) from near Orikum (Vlora-prov.), host plant not mentioned.– A rare E-med. species, considered to be conspecific with *Orobanche minor* by some authors (e.g. in E&M, not so in KEW). ≠*O minor* in inflorescence compact also at the end of flowering time (not usually early elongate and lax), filaments with dense, long hairs for about 60 % of filament length (not mostly with few hairs) and elongate oval, long cuspidate anthers (not broadly ovate, shortly cuspidate).

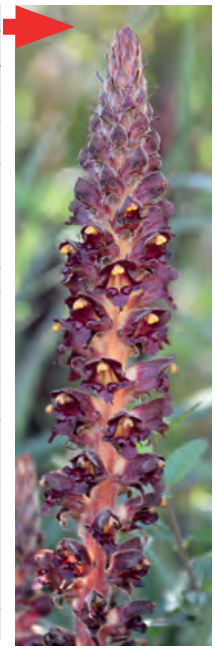
Orobanche crenata (+)? {?CA}. Present in surrounding countries, including Corfu and N-GR. Absence from coastal Al is very unlikely.

Orobanche elatior (-)err. Reported in DA mainly from Prokletije Mts., but probably due to confusion with very similar *O. krylowii* (see comment in IFA p. 118).

Orobanche pancicii (+)? {?CA}.

Orobanche serbica* (-)+. Reported by G. Domina & G. Bazan (in Nobis & al 2018) from Mt. Dhëmbel above Përmet on *Artemisia alba*, 900-1300. ►Olivier Rollet via iNaturalist (CC-BY-NC-ND).

Orobanche variegata* (-)err. Reported by Shuka & Tan 2019a: "Widespread in serpentine areas of C- and N-Al, always on *Genista hassertiana*".– According to V. Lazzeri (in Raab-Straube & Raus 2024) the photo presented by Shuka & Tan corresponds not to *O. variegata*, but to widespread *Orobanche gracilis*.– Main reason for the frequent confusion between these two species seems to be the inadequate key in FE, which uses a single criterion for distinguishing both taxa, namely the relative larger central lobe of the lower lip of *O. variegata*. As can be easily proved by our own extensive photo collection, this criterion is misleading due to the large variability of *O. gracilis* in this aspect. Differences between both species are best described with Lazzeri`s own words: "*Orobanche variegata* is always a larger plant, often producing more than one stem, while its corolla is almost always uniformly dark red in the upper 3/4–4/5 without any yellow colour in its upper part". The distribution area of *O. variegata* comprises Morocco [doubted by us], Algeria, Tunesia, Sicily and Sardegna (Sánchez Pedraja & al 2024). ►It, Zingharo; tiner via iNaturalist (CC-BY-NC).



Orobanche oxyloba (+)?sys (=*Phelipanche oxyloba*). Photo IFA P219/3 has been revised by H. Uhlich to *Orobanche gussoneana* (=*Phelipanche gussoneana)*.– Differences between *Phelipanche mutelii, Phelipanche oxyloba* and *P. gussoneana* are very subtle. Rätzel & al 2017 consider *O. oxyloba* to be no more than a "tall and larger-flowered variety of *Phelipanche mutelii* with acuminate petal lobes (=*Phelipanche mutellii* var. *oxyloba*). Differences of *Phelipanche gussoneana* and *P. oxyloba* are still more subtle, as the former is described by Rätzel & al 2018 as taller than *P mutelii*, with bracts sticking out from the inflorescence in bud and dark bluish veins on the corolla. This probably implies, that most (if not all?) former *Orobanche oxyloba* and *Orobanche mutelii* from the E-Mediterranean will share the fate of *O. oxyloba* in IFA, i.e. undergo name change to *Phelipanche gussoneana*.

Phelipanche gussoneana (-)+. Probably includes all former *O. oxyloba* and *O. mutelii* reported from Al (and Gr?) and, moreover, also part of the plants mapped as *Orobanche ramosa* in DA. ►Photo IFA P219/3 ("*Orobanche oxyloba*") is from S-Al, Mt. Ostrovicë ("Ostravica ") above Marjan village, 1250 m., rev. H. Uhlich.

Pedicularis comosa (?)+ {+DA}. Rare in N- and C-Al, 1600-2400 m.

Pedicularis friderici-augusti* (?)+ {+CA}. Very rare in C- and NE Al; rocky grassland on limestone and serpentine, 1400-2000 m. ► Alenka Mihoric via iNaturalist (CC BY-NC 4.0).

Pedicularis graeca! (p. 150): Change "med-alp" → "mont-alp".

Rhinanthus angustifolius* (-)? {+CA}. Only old collections from Prokletije Mts., no recent confirmation.– Keys out in IFA p.150 with *R. pindicus* (calyx glabrous), but differs in tooth of upper lip of corolla 1,5-2 mm long (not c. 1 mm long, square). ►Rm, Piatra Craiului Mts.

Rhinanthus mediterraneus*! Photo is an update to IFA P284/4, which erroneously does not show *R. mediterraneus*, but in fact *R. melampyroides*. We collected plants referable to *R. mediterraneus* only in S-Al and found it later in the same ecologic position in N-Pindos (Mt. Timfi) ►S-Al, Mt. Ostravica (Ostrovicë), alpine grassland, 2180.– Map in DA shows only 3 old locations, one of them from NE (Mt. Gjallica?).

***Rhinanthus melampyroides**.** Comparison of photo IFA P284/4 ("*R. mediterraneus*"), collected from Mt. Pashtrik with the original material of Dörfler from the same location has shown that our plant is in fact *R. melampyroides*.The photo of this update is from E-entrance to Kalimash highway tunnel (Kukës-prov.), 970m, serpentine.– DA knows only old collections of *R. melampyroides*.

Rhinanthus pindicus (+)+ {-CA}. Confirmed by own photo IFA P284/3 from S-Al, Mt. Nemërçka, damp alpine grassland, 2400 m.

Rhinanthus songeonii (?)err {errCA}.

Oxalidaceae

Oxalis articulata* (-)cas. Reported by G. Domina, M. Meço & A. Mullaj (in Nobis & al 2018) as cultivated in coastal regions and sometimes excaping. ►Tr, Istanbul.

Oxalis dillenii (+)? {?CA}.

Oxalis pes-caprae* (-)nat {natCA}. Naturalized in coastal S-Al. ► Gibraltar.

Paeoniaceae

Paeonia mascula* ssp *russoi (+)err {-CA, -KEW}. Endemic to SW-It and Sicilia.

Paeonia arietina (+)?sys. *P. arietina* belongs to *Paeonia mascula* agg., which is confirmed in DA. Exact systematic position of the Albanian plants remains unresolved in DA.

Papaveraceae

Corydalis blanda (+)? {?CA}. FH lists ssp *blanda* also for Al. Confirmation needed.

Fumaria gaillardotii (+)? {?CA}. Rare and mostly in the S in Gr, but present on Corfu and also further N on the Dalmatian coast (Rottensteiner 2014).

Fumaria macrocarpa (?)? {?CA}. Rare on Corfu, but not reaching N-Gr on the mainland.

Fumaria officinalis* ssp *ragusina (+)? {?CA}.

Fumaria parviflora (+)? {?CA}. Widespread in the Mediterranean, present in whole Gr (also Corfu) frequent on the coast of Cr. Very probably undercollected in Al.

Fumaria petteri (+)? {?CA}. Present on Corfu and also further N on the Dalmatian coast (Rottensteiner 2014).

Glaucium corniculatum (+)? {?CA}.

Hypecoum imberbe (+)? {?CA}.

Hypecoum pseudograndiflorum (?)err {?CA}.

Papaver argemone (+)? {?CA}.

Papaver dubium* ssp *dubium (+)? {?CA}.

Roemeria hybrida (+)? {?CA}.

Plantaginaceae (incl. Callitrichaceae)

includes also part of Scrophulariaceae in traditional sense

Callitriche palustris (?)err {?CA}.

Callitriche truncata* ssp *occidentalis(+)? {?CA}. Map in Lansdown 2008 shows presence in a tiny region S of Lake Shkodra.

Kickxia spuria* ssp *spuria (+)? {?CA}.

Linaria arvensis (+)? {?CA}.

Linaria reflexa (?)err {?CA}.

Plantago bellardii* ssp *deflexa (+)? {?CA}.

Plantago maritima* ssp *serpentina (+)err (=*Plantago serpentina* All) → ***Plantago strictissima*** (nomenclatorial change). Reported by Meyer 2011 for Al but corresponding vouchers proved to be *P. subulata* (Barina 2017).

Plantago holosteum (+)?sys → ***Plantago subulata.*** Hassemer & al 2017 have demonstrated, that all characters used hitherto to separate both taxa (mainly lf.-length, stiffness of lvs.) show continuous variation without relevant geographical pattern. Hence, all those local strains of narrow-leaved plantains formerly distinguished arduously as *P. serpentina*, *P. holosteum*, and *P. subulata* are now recognized as a single species: *Plantago subulata*.

Plantago serraria (+)? {?CA}.

Veronica agrestis (+)? {?CA}.

Veronica catenata (+)? {?CA}.

Veronica hederifolia (+)+ {?CA}. Probably undercollected. Present on Corfu and in whole Gr.

Veronica orchidea (+)err {errCA}.

Veronica peregrina*! P278 Text: Change: 3 *V. acinifolia* → 3 *V. peregrina* [P278/3 is *V. peregrina*; *V. acinifolia* is illustrated on P279/4].

Veronica polita (+)+ {?CA}. Very probably undercollected in Al, because rather common on Corfu, N-Gr and Ct.

Veronica rhodopaea* (?)+ {+DA}. A single old collection from the Albanian side of Mt. Jablanica. Photo is from the Macedonian side of this mountain, 1500-2100 m, serpentine. – E-Al to W-Bu (RR).- Life photo: ► Jean Jacques Godon via iNaturalist (CC-BY-NC).– Voucher: ► Seregin A. P. (Ed.). 2023 (CC BY 4.0).

Veronica spicata (+)err {errCA}.

Veronica sublobata (?)err {-CA}. Reaches its southern distribution boundary on the W-Balkans in N-Cr.

Plumbaginaceae

Armeria alpina (?)? (=*Armeria maritima* ssp *alpina*)**.** CA does not provide new facts, therefore presence in Al is still in need for confirmation.

Armeria rumelica (-)? {+CA}. Reported from Prokletije and Gjallica region, but not confirmed recently.– BALK. ≠*A. canescens* by inner lvs. mucronulate (not ±obtuse).

Goniolimon dalmaticum*. Photo is add. to IFA P228/3. ► Sandro Bogdanović via iNaturalist (CC BY-NC 4.0).

Limonium anfractum (+)err. Listed in KEW (29.1.2024) but not in Bodganović & al 2022.

Limonium himariense* (?sys)+. Endemic to coastal rocks of the Albanian Riviera. ►From Bogdanović & al 2022 (© Sandro Bogdanović).

Limonium ksamilum* (-)+. Recently described LOC endemic of the promontory SW of Ksamil village (S-Al, Butrint-area), as well as on the small islets facing the village (Bogdanović & al 2022).– ►From Bodganović & al 2022 (© Sandro Bogdanović).

Limonium sinuatum (-)? {+CA}. Reported by Alston & Sandwith 1940 from Saranda, but without recent confirmation. Generally very rare on the eastern Adriatic and Ionian coasts, with a single ancient record from Corfu.

Updated key to Albanian species of ***Limonium*** (after Bodganović & al 2022).

1 Lvs. sinuate, stem winged, calyx lobes blue.....*Limonium sinuatum*
1` Lvs. entire, stem not winged, calyx lobes white.....2
2 Stems without sterile branches, leaves very large, with nerves pinnate.. .....*Limonium narbonense*
2´ Stems with sterile branches, leaves linear-spathulate, 1-nerved.....3
3. Lf.-margin flat, stem rigid not fragile at the nodes, inner bract markedly curved..... *Limonium virgatum*
3´ Lf.- margin revolute, stem curved, fragile at the nodes, inner bract straight.....4
4. Spikelets 6–6.5 mm long, inflorescence more contracted...*L. himariense*
4´ Spikelets 4.5–5.2 mm long; inflorescence ±loose.....*L. ksamilum*

Polygalaceae

Polygala vulgaris* ssp *vulgaris (+)? {?CA}.

Polygonaceae

Fagopyrum esculentum* (-)cas {casCA}. ►Spain, Andalucía.

Fagopyrum tataricum* (-)cas {casCA}. ► User PlayMistyForMe via WC.

Fallopia baldschuanica* (-)cas {casCA} (=*Fallopia aubertii*). ►Spain, Ronda (naturalized).

Persicaria salicifolia (+)? {?CA} → ***Persicaria decipiens*** (nomenclatorial change).

Persicaria mitis (+)? {?CA}.

Polygonum arenastrum (+)? {?CA}.

Polygonum bellardii (+)? {?CA}.

Polygonum longipes (+)? {?CA}.

Polygonum patulum* (-)cas {casDA}. A single old collection from Tirana. ≠ *Polygonum albanicum* in fl. subsessile, crowded towards the ends of the branches; nut 2-3 mm (versus distinctly pedicellate, not crowded; nut 1,5–2 mm) ► Valerii Glazunov via iNaturalist (CC BY 4.0).

Rumex arifolius (?)+ {+DA}.

Rumex balcanicus (+)+ {?CA}. Confirmed by photo IFA P231/9 from Ks, Mt. Gjeravica, c. 200 m from Albanian border. (42.517500, 20.149722), 2000 m, on damp siliceous ground.

Rumex bucephalophorus (+)? {?CA}. Confirmed northern border is Corfu.

Rumex crispus (+)? {?CA}. Probably undercollected; frequent on the Dalmatian coast, present in whole Gr (incl. Corfu).

Rumex cristatus (+)? {?CA}. Present on Corfu.

Rumex dentatus (?)? {?CA}.

Rumex maritimus (?)err {errCA}.

Rumex thyrsiflorus (?)+ {+DA}.

Primulaceae

Primula acaulis* ssp *rubra (+)- {-CA}.

Primula elatior* ssp *elatior (+)- {-CA}.

Soldanella dimoniei ?sys. Mapped in DA, though regarded as conspecific with *Soldanella pindicola* by Zhang & Kadereit 2004 (also in IFA). *S. pindicola* s.lat. is present in all the higher mountains of E-Al, but absent from the S (cf. DA).

Soldanella hungarica (err)?sys. Reported in DA from Prokletije, Korab and Jablanica Mts. According to Zhang & Kadereit 2004 all records from Al belong to ***Soldanella chrysosticta***.

Ranunculaceae

Aconitum burnatii* ssp *pentheri (+)+ {?CA}. Record of this species in Hashani & al 2015 is confirmed by own photo IFA P236/7 from Ks, Prokletije, Mt. Gjeraciva, 1850 m (2,2 km from border to Al).

Aconitum variegatum* (-)+. Reported by Z. Barina (in Csiky & al. 2017) from Prokletije, upper part of the Tropoja valley, streamside, 1500−2000 m. ►Austria, Carinthia.

Anemone blanda (+)? {?CA} (=*A. apennina* ssp *blanda*). Situation in Al needs further research, as from nearby Corfu only *A. blanda* is reported and not *A. apennina*.

Anemone pavonina, Anemone hortensis. Both taxa are very close and often reduced to ssp or even varieties of *A. hortensis*. Such a broad definition of *A. hortensis* was applied in DA and CA, both of which do not distinguish both taxa. The situation in Al therefore is unsufficiently known. From adjacent areas in Gr, including the Ionian Islands, only *A. pavonina* is reported, while *A. hortensis* is said to reach Al from the N (cf. FH).

Adonis microcarpa (+)? {?CA}. Probably absent. In Gr only further S and not approaching border to Al.

Aquilegia vulgaris! (-)+. Photo IFA P243/7 is erroneously attributed to *A. ottonis*, but in fact shows *A. vulgaris*, which is widely distributed in the Albanian mountains.

Aquilegia ottonis*! (+)+ {DA}. A single location in the Prokletije Mts.– Easily recognised by its bicoloured fls. ►Greece, Mt. Olymp; user STOLBOVSKY via iNaturalist (CC-BY).

Delphinium balcanicum (+)? {?CA}. Reported from the Gr side of the Prespa region (FH).

Eranthis hyemalis* (-)+. Reported by BARINA & PIFKÒ 2009 from a single location in S-Al: Mali i Gribes NE of Bënçë (Tepelenë distr.), 1220-1420m, probably native ► user SHUVAEV via WC.

Pulsatilla vernalis* (-)+ {+DA}. Only in the siliceous part of Prokletije Mts. ►Spain, E-Pyrenees, Vallter2000.

Ranunculus acris (+)? {?CA}. Reported in CG from the Lake Prespa area, close to the Albanian border.

Ranunculus aquatilis (?)? Reported in DA and CA as "Not rare mainly near the coast. In saline waters of marshes, ponds, canals". This record is highly dubious and probably includes the whole *R. aquatilis* agg. *R. aquatilis* s.str. is a more northerly plant, which is rare in Mediterranean countries and limited to higher altitudes there.

Ranunculus brutius (+)? {?DA, ?CA}. Present in N-Pindos but probably not reaching Al.

Ranunculus concinnatus (+)? {?DA, ?CA}.

Ranunculus fontanus (+)+ {?CA}. Recently confirmed by SHUKA & al 2019b from E of Mt. Gjallica (Kukës prov.).

Ranunculus magellensis (+)?sys → ***Ranunculus bertisceus***. *R. bertisceus* is a recently described fingerprint species within *Ranunculus crenatus* s.lat. It comprises calcicole populations from Prokletije, which hitherto have been treated as conspecific with *R. magellensis* from the Abruzzo-Mts (KUZMANOVIĆ & al 2021). Distinction from deeper lober forms of *R. crenatus* from Mk (Popova Schapka, Bjelsica) is delicate. KEW (30.12.2023) accepts *R. bertisceus*, but considers *R. magellensis* as synonym of widespread *R. crenatus*, though data of KUZMANOVIĆ & al hint into the opposite direction.– Photo IFA P239/6 is from Prokletije Mts., thus showing *R. bertisceus*.

Ranunculus montanus agg. DA and CA transferred the central European taxonomic concept to Albania, distinguishing *Ranunculus montanus* s.str, *Ranunculus carinthiacus* and *Ranunculusx oreophilus*. The resulting distribution map lacks a convincing pattern and all these taxa reach their (artificial?) distribution boundary at the Greek border, as A. STRID in FH chose to merge the whole intraspecific variety of *R. montanus* s.lat. in Gr. into a single taxon, i.e. *Ranunculus sartorianus*. Without further detailed studies we continue adhering to STRID´s solution, already applied in IFA.

Ranunculus polyanthemos s.lat.

- ***Ranunculus polyanthemos* ssp *polyanthemos*** (+)- {Baltisberger & Hess 1986}.– Note: Record of *R. polyanthemos* in DA refers to *R. polyanthemos* s.lat., i.e. probably to *Ranunculus polyanthemoides*, which is confirmed for Al by Baltisberger & Hess l.c.
- ***Ranunculus serpens**** (?)+ (=*Ranunculus polyanthemos* ssp *serpens*). Confirmed by our photo in this update. ►Al, 4,6 km N of Burrel (Dibra-prov.), 229 m, woodland margin.– Note: Distribution in Al remains unclear, as DA and CA do not distinguish between *R. serpens* and *Ranunculus tuberosus* (=*Ranunculus polyanthemos* ssp *nemorosus* in IFA). Occurrence of the latter in Al is confirmed by Baltisberger & Hess 1986.

Ranunculus trilobus (?)err {-CA}.

Thalictrum flavum* (err)+ {+DA}. Frequent around Lake Shodra, rare elsewhere.– WSPR. ≠*T. lucidum* in the presence of a far creeping rhizome with stolons, young lvs. with stipules. ►Upper Austria, Linz.

Thalictrum simplex* (-)? {?DA}. A single old record from Prokletije, Theth.– Distinguished by inflorescence narrow-oblong.► François-Xavier Taxil via iNaturalist (CC-BY-NC).

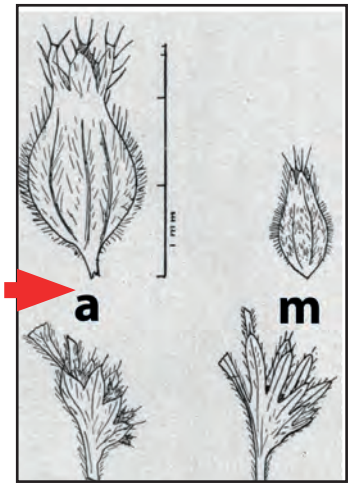
Rhamnaceae

***Rhamnus pumila*!** (p. 131): Change "med-alp" → "mont-alp".

Rosaceae

Alchemilla lineata, Alchemilla glabra, Alchemilla cinerea (-)+ {+DA}.
Alchemilla acutiloba, Alchemilla colorata, Alchemilla fissa, Alchemilla glomerulans, Alchemilla serbica (+)? {?CA}.

Aphanes microcarpa* (-)+ {+DA}. Prokletije, 500-1000m, rare.– A plant of sandy, acid soils.– a = *A. arvensis*, b = *A. microcarpa*. ► Reichgelt 1952 (CC BY 3.0 NL).



Crataegus pentagyna (+)err {errCA}.

***Malus florentina**.** Add. to IFA P253 (photo omitted). ► Guido Sardella via iNaturalist (CC-BY-NC).

Potentilla aurea* ssp *aurea (+)? {?CA}.

Cydonia oblonga* (-)cas {casCA}.

Geum heterocarpum (+)+. The only record is from the summet ridge of Mt. Strakavac (S-Al S of Këlcyra), 1850 m, limestone (Alston & Sandwith 1940).

Malus dasyphylla* (+)? {?CA}. Add. to IFA P253. ► Sr, Suva Planina.

Potentilla calabra* (?)+ {+DA}. Scattered in dry grassland, distribution insufficiently known. ≠*P. argentea* in lvs. grey-green to whitish above (not green), pedicels and calyx densely white-tomentose (not sparsely tomentose). ►It, Basilicata, Mte. Pollino.

Potentilla sterilis (+)? {?CA}.

Potentilla tabernaemontani (+)? {?CA}.

Potentilla tommasiniana (+)? {?CA} (=*Potentilla cinerea*).

Potentilla visianii (+)? {?CA}.

Pyrus elaeagrifolia (+)? {?CA}.

Rosa balsamica (+)? {?CA}.

Rosa facsarii (-)? {+CA}. A recently described microspecies with glandular lvs, only listed for Hungary in KEW and E&M.

Rosa micrantha (?)+ {+CA}. Very sporadically reported from the mountains without recent records.

Rosa sherardii (-)+ {+CA}. Part of *Rosa tomentosa* agg. sensu FE. Differs from *Rosa villosa*-*Rosa mollis* (couple 21 in IFA-key) in prickles ±curved (not straight) and sepals soon deciduous in fruit.

Rosa turcica* (-)+ {+CA}. A single record from Mt. Grammos.– Keys out with *Rosa micrantha* (*Rosa rubiginosa* agg), but differs in prickles mixed with numerous setae and stipitate glands; stems ≤0,5 m. ►Bu, Black Sea-coast near Kap Emine.

Waldsteinia geoides* (-)?. Collected before 1939 by B. Schütt on Mt. Pashtrik, without recent confirmation (Barina & al 2016). ► Agnieszka Kwiecień via WC.

Rubiaceae

Galium. The detailed revision of the Albanian taxa by Krendl 2014 has not been taken into account in DA and CA (though mentioned in the bibliography of DA). This results in a considerable mismatch between the different inventories. Taxa reported only in CA are *Galium aristatum*, *Galium sylvaticum*, and *Galium intermedium*; those listed exclusively by Krendl are *Galium protopycnotrichum*, *Galium wirtgenii* and *Galium breviramosum*, while *Galium procurrens* is confirmed by Krendl, but listed as unconfirmed in CA.

Galium glaucum* (-)+. Reported by Dimitrov 2020 from "Lugi" (probably Jugj), NW-side of Mt. Gjallica (Kukës prov.), 1200 m, limestone.– Easily recognized by its clearly cup-shaped fl. ►Hungary, Balatonfüred (photo of stem is from lower 1/3, further up stem is normally glabrous).

Galium kerneri (+)? {?CA}. Not listed by Krendl 2014, but mentioned in MFG for S-Al.

Galium setaceum* (-)+. Reported by Gjeta & al. 2020 from Elbasan and by Dimitrov 2020 from above Saranda. ►Morocco, High Atlas.

Galium tenuissimum (+)+ {-DA, -CA}. Not mentioned in Kreindl 2014, but confirmed as new for Al by own collection and photo IFA P259/7 from Korçë-prov on serpentine.

Galium verrucosum (+)? {?CA}. Not recorded from Corfu, but present on southern Ionic Islands and very sporadically on the coast of Dalmatia.

Salicaceae

Salix aurita (+)err {?CA}.

Salix bicolor* (-)? {+DA} (=*Salix phylicifolia* ssp *bicolor*). Very rare, a few specimen in the Kallabak Mts. (border to Ks), 1600-1800m. ≠*S. waldsteiniana* in lvs. entire.– This is the first record for the Balkans (cf. KEW and E&M). Hopefully a more detailed documentation of this interesting finding will follow. ► Petr Filippov via WC.

Salix fragilis (+)? {?CA}.

Salix hastata (+)? {?CA}.

Salix herbacea (?)? {?CA}.

Salix pentandra (+)? {?CA}.

Salix reticulata (+)? {?CA}.

Salix serpillifolia (?)err {errCA}.

Salix silesiaca* (-)? {-DA,+CA}. Recently reported as new for Al in CA, but without info about locations (probably in N-Al?).– *S. silesiaca* is wspr. in E-Europa. It is a bush ≤3m, distinguished by ovary glabrous and pedicel ≥half as long as ovary. ►Rm, S-Carpathians, Piatra Craiului.

Salix viminalis* (-)+ {+DA}. Very sporadic along streams, also cultivated.– Lvs. resemble those of *Salix eleagnos*, but are sericeous beneath (not lanate). ►Czech Republic, Bohemia.

Santalaceae

Comandra umbellata* ssp *elegans* (?)+ {+DA}. Reaches Al in Mali i Thatë region and was formerly also collected near Tirana; on limestone scrub, 1100-1300 m. ►Tr, Istanbul, Ormanlı.

Thesium auriculatum! Species info in IFA p. 141 is missing: P, ≤25 , 7-8, rocky slopes, smed-mont, N-Al, RR (BH Cg Sr).

Thesium humile (?)- {-DA}.

Thesium linophyllon* ssp *montanum (+)? {?DA}.

Sapindaceae (incl. Aceraceae)

Acer hyrcanum* ssp *hyrcanum (?)err {errCA}.

***Acer hyrcanum* ssp *intermedium**.** Add. to IFA P11/1. ►N-Al, Prokletije Mts.; NATURALPRIEST via iNaturalist (CC-BY-NC).

Saxifragaceae

Saxifraga pedemontana* ssp *cymosa (?)? {?CA}. Presence in the siliceous part of the Prokletije Mts. highly probable, cf. IFA p 143.

Scrophulariaceae

Verbascum chrysanthum (+)+ {-CA}. Confirmed by photo IFA P271/4 from Dhërmi (Vlora prov.).

***Verbascum densiflorum**!** (+)? {-CA}. Attribution of photos IFA P269/4 to *V. densiflorum* is erroneous. They in fact show →*V. macrurum*.– Occurrence of *V. densiflorum* in Al needs confirmation. ►S-Sr, Pirot.

Verbascum dieckianum (+)+ {-DA, -CA}. Confirmed by photo IFA P271/6 from Bicaj (Kukës prov.), 480 m.

Verbascum graecum (+)? {?CA}.

Verbascum guicciardii (+)+ {-DA, -CA}. Confirmed by photo IFA P270/2 from N of Llogara pass (Vlora prov.), limestone, 620 m

Verbascum macrurum* (-)+ {-DA, ?CA}. Confirmed by photo IFA P269/4 from S of Saranda (Vlora prov.), which is erroneously labelled "*V. densiflorum*" in IFA. Substitutes *V. densiflorum* in coastal S-Al. Reported from Saranda already by ALSTON & SANDWITH 1940, but overlooked by all later authors. ≠*V. densiflorum* in all filaments villose (not lower ones glabrous), inflorescence very dense with axis completely hidden by densely packed fls.

***Verbascum thapsus*!** (+)? {?CA}.

Verbascum vandasii (+)+ {-DA, -CA}. Confirmed by photo IFA P269/2 from Mt. Korab above Radomirë (Dibra prov.), limestone, 1750 m.

Solanaceae

Lycium europaeum (+)? {?CA}.

Nicotiana tabacum (-)cas {casCA}.

Physalis angulata (cas)nat {natCA}.

Physalis pubescens (cas)nat {natCA}.

Solanum eleagnifolium* (?)nat {-CA}. Listed in KEW for Al, present on Corfu und on the coast of Dalmatia.►Morocco, Midelt.

Solanum linnaeanum (nat)ext {extCA} (=*Solanum sodomaeum*).

Solanum physalifolium (cas)ext {extCA}.

Solanum triflorum (cas)ext {extCA}.

Styracaceae

Styrax officinalis (+)? {?CA}. Present on the coast of S-Dalmatia, but absent from Ionian Islands and N-Gr.

Tamaricaceae

Tamarix tetrandra (+)cult {cultCA}. Rather widespread on the Ionic Islands (also due to cultivation?).

Tamarix smyrnensis (?)? {?CA}.

Verbena supina* (-)+. A wspr. species, reported by Z. Barina & al (in Mesterházy & al 2017) from a single location in S-Al, Gjirokastër-prov., in the bed of a dried up water reservoir. ≠*V. officinalis* in stems much-branched from the base, usually procumbent, quadrangular with rounded angles; fruiting spikes ≤8 cm (not ≥10cm) ►Morocco, near Kenitra.

Violaceae

Viola brachyphylla (-)? {+DA}. Only on Mt. Munella, limestone, 1600-1900m.– Hitherto *V. brachyphylla* has been regarded as a very rare and local endemic of Mt. Voras (boder Gr-Mk). Even Erben 1985, who delivered a monographic study of SE-European mountain Violets was not able to recollect plants from the locus typi. Moreover, the only available photos in the internet (https://www.greekflora.gr/en/flowers/0744/Viola-brachyphylla) differ strongly from the type plants (In Herb Universitatis Carolinae Praha). Therefore, the uncommented record of *V. brachyphylla* 170 km away from the type location is in urgent need of further research and better documentation.

Viola chelmea* ssp *vratnikensis* (-)+ {+DA, +CA} (=*Viola dinarica*). Reported first by Barina & Pifkò 2009 from Prokletije Mts. and subsequently in Niketić & al 2015 from many locations in Al. Recently DA and CA do not longer confirm the presence of ssp *vratnikensis* in Al, using only the epithet "*Viola chelmea*", which in its narrower sense hitherto had been considered to be endemic to the mountains of C- and S-Gr (cf. MFG).– *V. chelmea* keys out with *V. pyrenaica*, but differs in lvs. truncate to slightly cordate, ovate to oblong (not cordate, broadly ovate to orbicular). Lvs. of ssp. *vratnikensis* often resemble stronly those of *V. ambigua* from E-Europe, with blades truncate, oblong.– ►Gr, S-Pindos, Mt. Lakmos S of Metsovo, 1980m. (*V. chelmea* s.str.)

Viola eximia (+)+ {?CA}. Confirmed by own collection & photo IFA P295/2 from S-Al, Mt. Grammos

Viola graeca (-)err (=*Viola heterophylla* ssp *graeca*). CA lists this species as "sporadically in the mountains". Without further confirmation these reports must be considered as erroneous, because *V. graeca* is considered to be endemic to Sterea Ellas and N-Peloponnese by Erben 1985.

Viola kosaninii (+)+ {+DA}. Map in DA shows several locations in W-Prokletije and Gjallica-Korab regions.

Viola perinensis (-)err. DA reports a single collection from Mt. Ostravica. This report is with all probability erroneous, as this species is considered to be endemic to NE-Gr and S-Bu.

Viola pyrenaica* (+)? {errCA}. A widespread but easily overlooked species, similar to *V. chelmea* ssp *chelmea* from C- and S-GR, but differing in nearly cordate lvs. Some records of *Viola chelmea* for Al (in DA, CA) might in fact refer to this species. ►Austria, Carinthia, Nockberge.

Thymelaeaceae

Daphne gnidium (+)? {?CA}.

Verbenaceae

Viola raunsiensis (+)+ {+CA}. Reported by Mullaj & al 2010 from road between Kolsh and Surroj (Kukës prov.), 1050m, serpentine (with blue fls). Considered to be "a very local endemic of the serpentine areas of NE-Al" by DA).– Keyes out with *Viola dukadjinica* in IFA p. 155.

Viola schariensis* (?)+ {+DA}. In Al only in the mountains of the east central areas, 1000-1900m.– Formerly regarded as endemic to Sar Planina in Mk/Ks (see IFA p. 156). ►Herb. Botanische Staatssammlung München (CC BY-SA 4.0); © Prof. Ljupco Melovski via Macedonian Ecological Society (Skopije).

Vitaceae

Vitis vinifera* ssp *sylvestris (+)?sys. Hitherto, spontaneously growing plants of grape-vine (*Vitis* sp.) have been subsumed unter *V. vinifera* ssp *sylvestris* (e.g. in IFA, DA, CA). But as pointed out by G. Domina & G. Bazan (in Nobis & al 2018), this is in most cases incorrect, because such plants tend to be rootstock hybrids on the basis of American species. In the case of the lower photo in IFA P296 (from near Gjirokaster) this is *Vitis* × *instabilis* (*V. riparia* × *V. rupestris*; det. G. Domina).

Monocotyledonae

Alismataceae

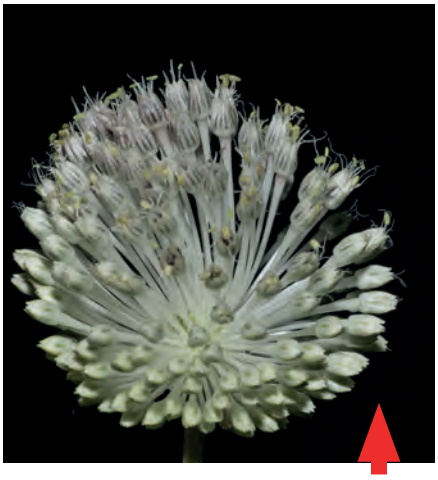
Alisma gramineum (?)+ {+DA}. Rare in marshes and shores of lakes.

Luronium natans (?)err {errCA}.

Amaryllidaceae

Allium cepa* (-)cas {casCA}. ►Morocco, High Atlas.

***Allium chamaespathum**.* Add. to IFA P296/9. ►Greece, Athens.



Allium guttatum* ssp *sardoum* (-)+ {+CA}. ≠Ssp *guttatum* in absence of a conspicuous suborbicular purple blotch on the tepals. ►S-Al, Mt. Nemërçka. Pink coloured ssp. *dalmaticum* seems to restricted to N-Al (IFA P299/11 is from Lezhe).

Allium guttatum* ssp *guttatum (+)+ {?CA}. Recently reported by Strid & al 2017 from the Greek side of Lake Prespa area, near the frontier post of Koula, stony calcareous ground, 850-900 m.– Ssp *guttatum* represents *A. guttatum* from E-Balkans eastwards.

Allium dentiferum (+)? {-CA} (=*Allium longispathum*). Present on the coast of Dalmatia and on all Ionian Islands; probably overlooked.

Allium neapolitanum (+)? {?CA}. Absent from Corfu, but rather frequent on the Dalmatian coast.

Allium rhodopeum (+)+ {-DA,-CA} (=*Allium paniculatum* ssp *villosulum*). Reported already in Barina & Pifkó 2011 from Korçë region, but subsequently not included in DA and CA. Recently confirmed by A. Strid (in Kofinas & Tan 2020) from Greek side of Prespa national park.

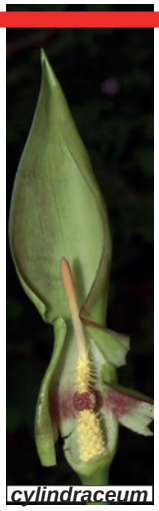
Allium scorodoprasum* ssp *scorodoprasum* (-)+ {+DA, +CA}. A single record from Saranda.– Similar to *Allium ampeloprasum*, but smaller, umbel denser (pedicels <20mm), stamens much shorter than perianth. WSPR, but not reported from Yugoslavia and Macedonia (cf. KEW). ►Upper Austria, Linz.

Allium tenuiflorum (+)? {-CA} (=*Allium pallens* ssp *tenuiflorum*). Present on the Dalmatian coast with exclusion of the very south.

Allium vineale (+)? {?CA}. Present on the Dalmatian coast, in N-Gr and on Corfu; overlooked?

Araceae

Arum maculatum (?)? {+DA,+CA}. All records for Al are dubious due to frequent confusion with *Allium cylindraceum*, which is wspr. in Al but not even mentioned neither in DA, nor in CA.



Arum orientale* ssp *orientale* (-)+ Reported by DA mainly from in E-Al.– These records need confirmation as A. orientale may easily be confused with *Arum cylindraceum**. The latter has also a vertikal rhizome, but differs in spathix not pedunculate.– ►*A. orientale*: NW-Anatolia, Birecik. ► *A. cylindraceum*: Al, near Kukës.

Arum orientale* ssp *longispathum (+)err. {errDA}.

Dracunculus vulgaris (+)? {errCA}. Present on the coast of S-Dalmatia, one very old record from Corfu.

Wolffia arrhiza(+)err {errCA}.

Zantedeschia aethiopica (-)cas {casCA}. ►Spain, Galicia.

Asparagaceae

Agave sisalana* (-)cas. G. Domina, M. Meço & A. Mullaj (in Nobis & al 2018) report a population of hundreds of mature and juvenile individuals in the Butrint area. ≠*Agave americana* in lvs. without marginal spines; inflorescence bearing numerous bulbils ►Lanzarote.

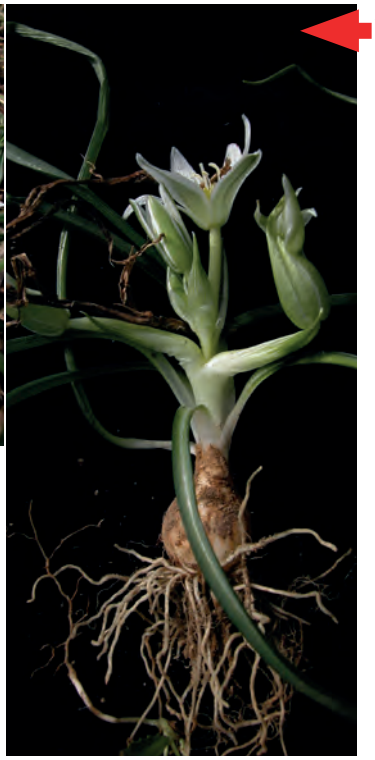
Asparagus tenuifolius* (?)+ {+DA}. ►It, Friuli.

Key for the determination of the 3 ±acaulous *Ornithogalum*-species ocurring in Al, based on the recent revision of Rat & Bogdanović 2021 in Croatia.

1 Bulb with numerous (>10) bulbils outside of tunics; bracts ≥pedicels .....*O. refractum*
1′ Bulb without bulbils; bracts ≤pedicels 2
2 Scape completely subterranen; inflorescence 1–8(15)-flowered; lower pedicels ≤30 mm long; pulvinus prominent; bracts subequal to pedicels .....*Ornithogalum sibthorpii*
2′ Scape partly subterranean, inflorescence 5–10-flowered; lower pedicels 35–42 mm long; pulvinus absent; bracts <pedicels .....*Ornithogalum exscapum*
Present in W-Al, but rarely collected recently (DA), IFA P303/3

Ornithogalum refractum (-)? {-DA, -CA}. Present on the whole Dalmatian coast and also in GR (hitherto not reported from Ionian Islands). Probably overlooked in Al due to confusion with similar taxa (see key).

Ornithogalum sibthorpii* (-)+ {+DA}. Mainly in the western parts of Al.– WSPR. ►Tu-E, Istanbul, Sariyer.



Polygonatum latifolium* (?)+ {+DA} (=*Polygonatum hirtum*). Only in the the extreme SE (Korçë region).►Hungary, Balatonfüred.

Yucca filamentosa* (-)cas {casCA}. ►F, Corse, Marina di Aleria.

Asphodelaceae (Xanthorrhoeaceae)

Asphodelus fistulosus* (-)+ {+DA}. Sporadic near coast, 0-150 m. Easily recognized by its small fls. ►It, Lago di Lesina.

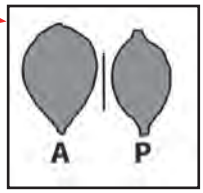
Colchicaceae

Colchicum doerfleri. Confirmed for Al only on Mt. Mali i Thatë (Malo & Shuka 2013).

Cyperaceae

***Carex atrata*!** P312/9**.** Detail photo of *C. atrata* should not be delimited from large photo. Correct situation is shown in thumbnail.

Carex agastachys* (-)+. This is a recently established twin species of widespread *Carex pendua*, which has already been reported from Tirana (together with *Carex pendula*, cf. Martín-Bravo & al 2022). Differences between both taxa are subtle: Ripe seeds are broader in *C. agastachys* (see illustration, A = *agastachys*, P = *pendula*, after Miguez & al 2018)), ligula of lower lvs. is reddish-purple (not whitish and later brownish) and peduncle of the lowermost spike and internode between the two uppermost female spikes are normally more scabrid.



Carex demissa {?CA}. Confirmed by Martín-Bravo & al 2022.

Carex flacca! *Photo IFA P316/1* shows ssp *erythrostachys* (with hispid utricles), and not ssp *serrulata* as erroneously indicated. KEW (7.2.2024) regards both taxa as synonymous, were ssp *erythrostachys* is the older = valid name.

Carex flava agg. *Carex flava* and *Carex lepidocarpa* are mapped in DA, but not so similar *Carex castroviejoi* and *Carex demissa.* Further studies are needed for reassessing the whole situation in Al.

Carex hispida (err)?**.** Reported by Martín-Bravo & al 2022 from Kukës area over serpentine, 500 m. From the same area, in identical ecological position, we collected *Carex flacca* ssp *erythrostachys*, which suits well to the short description of "*C. hispida*" in Martín-Bravo & al l.c. (see comments in IFA p. 167).

Carex hostiana* (-)? {?DA}. Confirmed only by old vouchers from serpentine areas in N-Al. ►Upper Austria, Irrsee.

Carex liparocarpos* (+)+ {-DA, -CA}. Confirmed by own collection already in IFA (see p. 167). ►Mt. Mali i Thatë, 1700 m.

Carex parviflora* (-)+. Martín-Bravo & al 2022 report the first locations for Al: Prokletije, Valbonë (1900 m) and Mt. Korab (2350-2764 m). ►Austria, Carinthia, Hohe Tauern.

Carex sempervirens* var. *bulgarica* → *Carex lazarei (nomenclatorial change; Koopman & al 2019).

Carex markgrafii Kükenthal (IFA p. 166). Mesterházy & al 2018 tried to relocate this enigmatic species on its locus typi. They found 3 different taxa there: *Carex kitaibeliana*, *C. halleriana* and a third species which they identified as *C. markgrafii*. DNA analysis of these plants showed great affinities to some species of Section *Mitratae* (*C. depressa*, *C. caryophyllea*, *C. umbrosa*). This placement is in accordance with Kükenthal´s original description of *C. markgrafii*, as he explicitly mentions "styli basis incrassata" in his original description (in Markgraf 1926).

But not in accordance with Kükenthal´s plant are at least two important traits of Mesterhazy´s recollection:

1) Kükenthal describes *C. markgrafii* as densely caespitose ("caespites densos formans") without any signs of stolons, while photos of in Mesterházy´s "*markgrafii*" shows clearly stoloniferous plants, not distinguishable in this point from *Carex caryophyllea*, which is one of the most common species in the mountains of Al.
2) Kükenthal describes the female glumes of *C. markgrafii* explicitly as "squamae oblongo-ovatae, obtusiusculae vel cuspidato mucronatae", while Mesterházy keys out *C. markgrafii* just in the opposite way, i.e. by female glumes "aristate, with an arista at least 1 mm long.

As 1) and 2) are characteristic traits of *C. caryophyllea* (female glumes are often aristate in this species), we strongly suspect that Mesterházy´s samples were simple *C. caryophyllea* - which leaves the real nature of *C. markgrafii* Kükenthal still "in the dark" (some hybrid of *C. caryophyllea*?).

Carex melanostachya (+)? {?CA}. Reported by Rakaj 2009 from Lake Shodra but documentation considered to be insufficient by CA.

Hydrocharitaceae

Elodea nuttallii* (-)nat {natCA}. ≠*Elodea canadensis* in lvs. ≤1,8 mm wide (not ≥2 mm), whorls more loosely arranged. ► pascal_samson via iNaturalist (CC BY-NC).

Stratiotes aloides (+)? {?CA}.

Najas graminea (cas)ext {extDA}. Collected once in the 1959s in rice fields".

Najas flexilis (?)err {errCA}. Confusion with *Najas minor*.

Iridaceae

Crocus bertiscensis* (-)+. This is a new fingerprint-species of *Crocus vernus* agg., up to know only known from around locus typi, which is in Prokletije Mts. around Lake of Dashi (Tropoja distr.), c. 2200 m. It has 2n=12 chromosomes and characteristic violet patches on base and distal ends of the perigone segments (Raca & al 2020). Such plants hitherto had been clumped together with *Crocus heuffelianus*, which in its narrowest sense is a plant with 2n=10 chromosomes, present in Slovakia, Romania and Ukraine (Raca & al 2023). ►Photo shows "*Crocus vittatus*" (=*C. vernus*) from Austria (Carinthia), which is indistinguishable in coloration from *C. bertiscensis*.

Crocus jablanicensis* (-)+. Recently described from Jablanica Mt. (border Al/Mk), 1800-2100 m (Ranđelović & al 2012). ≠*Crocus cvijicii* in fl. always white (versus yellow, cream or more rarely white), perianth tube glabrous (not pubescent).– Photo shows white flowering *C. cvijicii*, which on photo is indistinguishable from *C. jablanicensis* ►SE-Al, Mt. Mali i Thatë.

Crocus novicii (-)+. Recently described from Nemërçka Mt., 1700-1900 m (Miljković & al.) and since then also reported for N-Pindos (Flora of Greece Web). ≠ *C. jablanicensis* in fl. with violet coloring at the base, rarely completely lilac with darker lilac coloring at the base. *C. cvijicii*, *C. jablanicensis*, and *C. novicii* are closely related to *Crocus veluchensis*. Ranking as vicarious subspecies should be considered.

Crocus pulchellus (?)err {errCA}.

Crocus tommasinianus (+)err {errCA}.

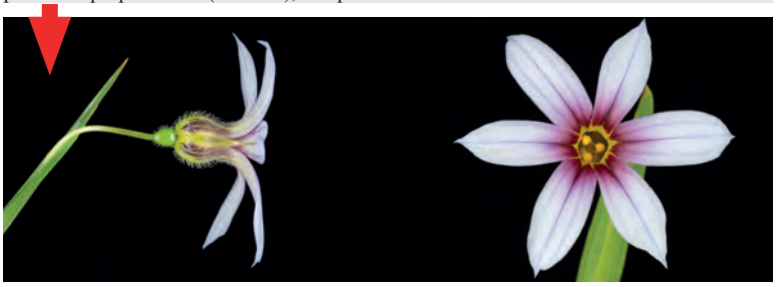
Iris aphylla (+)+ {?CA}. Confirmed by photo IFA P320/8 from near entrance to Kalimash highway tunnel, 970m, serpentin).

Iris germanica* (-)nat {natDA}. Commonly naturalized also in Al. ≠*I. pallida* in spathes not entirely scarious at anthesis. ►Morocco, High Atlas.

Romulea linaresii* ssp *graeca (+)? {?DA}. Confirmed for Corfu and therefore probably also present in coastal S-Al.

Romulea ramiflora* (-)? {?DA}. Rather widespread on Corfu and the other Ionic Islands. Presence in S-Al is therefore highly probable. ≠*R. linaresii* in lower bract completely herbaceous (not with a wide scarious margin) and upper bract (bracteole) with a clear herbaceous center (not completely scarious). Tr, Istanbul, Catalca.

Sisyrinchium micranthum* (-)nat? (=*Sisyrinchium rosulatum*). Reported by Gjeta & al. 2020 from Elbasan city in disturbed *Pinus haleppensis* stand in a park.– In Europe introduced also in Spain and Sardegna (KEW). ≠*Sisyrinchium angustifolium* in perianth pink with purple center (not blue), campanulate. ► Douglas Goldman via WC.



Juncaceae

Juncus anceps (+)? {?CA}.

Juncus capitatus (+)? {?CA}.

Juncus fontanesii (+)? {?CA}.

Juncus litoralis**! - *Juncus maritimus*****!** Error on P324. Photos 8 and 9 should change places, i.e. 8 = *J. littoralis* = plant with dark, congested flowers, 9 = *J. maritimus* = plant with green, loosely paniculate flowers.

Juncus subnodulosus* (-)+ {+DA}. Rare, 0-1200 m. ≠*Juncus articulatus* in all tepals obtuse (not outer acute); lvs. also longitudinally septate ("pluritubulose"). ► Fr.: Austria, Carinthia (G. Pils). ►Lf.: User Vyatka via iNaturalist CC-BY-NC.

Juncus ranarius* (-)+.Reported by T. Gregor & L. Meierott (in Raab-Straube & Raus 2017) from N-Al near, Velipoja, wet coastal sands. DA gives another single record from Prokletije Mts., 800-1000 m. ≠*Juncus bufonius* in inner tepals obtuse to subacute, ≤capsule; some fls. paired or in small clusters. ► User Vyatka via iNaturalist CC-BY-NC.

Liliaceae

Tulipa kosovarica (-)+. Reported from 2 localities in NE-Al, Kukës prov., serpentine, 870-1000 m (Shuka & al 2020). RR (also in central Kosovo). ≠*Tulipa albanica* in perianth base and filaments white (not yellow).

Gagea granatellii (+)? {?DA}.

Gagea minima (?)+ {+DA}. Scattered in the mountains, 1200-2000 m.

Orchidaceae

Anacamptis palustris ssp ***elegans*** (in IFA) = ***Anacamptis laxiflora*** ssp ***elegans*** (in DA).

Anacamptis collina (?)- {-DA}.

Cypripedium calceolus (?)err {errCA}.

Dactylorhiza baumanniana → ***Dactylorhiza majalis*** **ssp** ***pindica*** (nomenclatorial change; cf. KEW).

Himantoglossum jankae → ***Himantoglossum calcaratum*** **ssp** ***rumelicum*** (nomenclatorial change; cf. KEW).

Listera ovata → ***Neottia ovata*** (nomenclatorial change; cf. KEW).

Neotinea lactea* (-)+ {+DA}. S-Al. ≠*N. tridentata* in labellum with squarish-oblong or linear lobes and orbicular-obovate middle lobe, denticulate at apex.– WSPR. ►Sicily, Ficuzza.

Ophrys bertolonii* (-)+ {+DA}. Only around Vlora.– BALK and It. ►It, Emilia-Romagna.

Orchis mascula **ssp** ***speciosa*** (?)+ {+DA}.

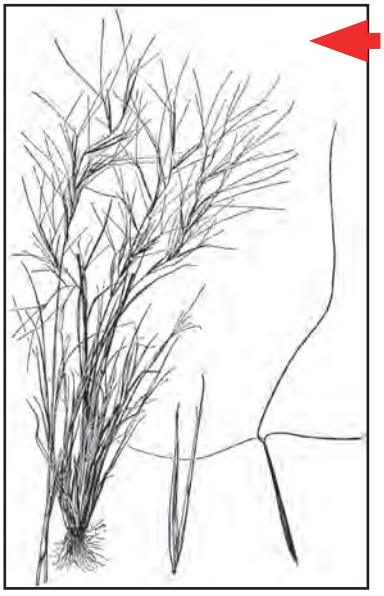
Orchis mascula **ssp** ***olbiensis*** (?)err {errDA}.

Pseudorchis albida (?)+ {+DA}. Prokletije and Mt. Gjallica.

Poaceae

Aegilops comosa **ssp** ***heldreichii*** (+)? {?CA}.

Andropogon distachyos (+)+ {?CA}. Reported from Saranda by Alston & Sandwith 1940. Widespread on Corfu and reaching Croatia from the south.



Aristida oligantha* (-)nat {+DA}. A single station in the valley of Osum river.– Native to N-America and naturalized also in Yugoslavia. ►Hitchcock 1950 via WC.

Brachypodium glaucovirens (?)err {errCA} (=*Brachypodium sylvaticum* ssp *glaucovirens*).

Brachypodium phoenicoides (+)err {errCA}.

Brachypodium pinnatum (+)? {?CA}.

Bromopsis erecta* ssp *transsylvanica (+)err {errCA}.

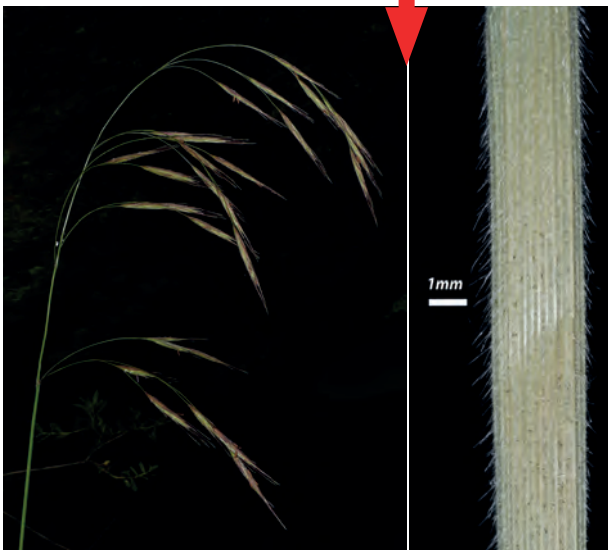
Bromopsis ramosa* (+)? {?DA}. Reported by Alston & Sandwith 1940 from beech-woods above Dardhe. Present also on Corfu and in Gr (exempt Aegean Islands). ►S-Al, Korçë prov., Drenova National Park.– Our collecion from Drenova N.P. has lf.-sheaths densely pubescent with hairs downwards-spreading, ±1 mm long (i.e. intermediate between *Bromopsis benekenii* and typical *B. ramosa*). Panicle corresponds perfectly to *B. ramosa* as described in FE, i.e. large (30 cm) and very lax, branches long, nodding, with spikelets pendent; lowest panicle-node with 2 branches, each with several spikelets.

Bromopsis inermis* (-)+ {+DA}. Korçë Basin. Differs from other *Bromopsis*-species in presence of long stolons and ±awnless lemmas. ►Austria, near Linz.

Bromus commutatus* ssp *commutatus (+)+ {?CA}. Confirmed by photo IFA P349/3 from Tirana airport

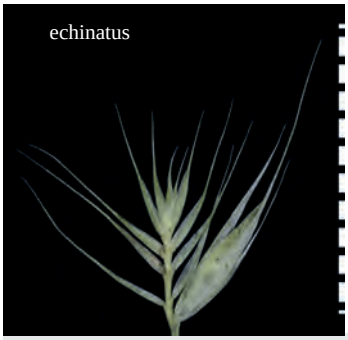
Bromus hordeaceus, incl. ***Bromus parvispiculatus.*** Intraspecific systematics of this highly variable species remains disputed. Ssp *mediterraneus* and *B. parvispiculatus* (=*B. hordeaceus* ssp *parvispiculatus* (H. Scholz) Barina in DA) are regarded as synonyms of *B. hordeaceus* ssp *hordeaceus* in KEW. Both are listed in CA for Al.

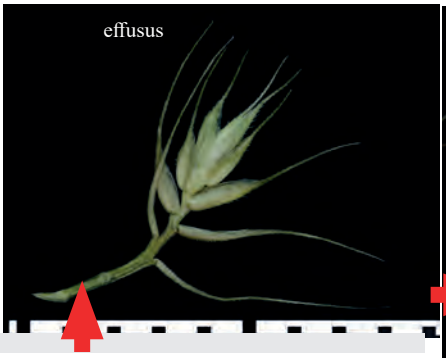
Bromus secalinus (+)ext {?DA}. Former casual without recent confirmation.



Corynephorus articulatus* (-)?ext. Once collected on the sandy coast of Kavajë (Herb. TIR; Barina in Csiky & al. 2017).– Today this part of the coast is completely urbanized. Should be searched in relictual sandcoast areas N of Shëngjin. ►Israel, Aschdod.

***Cynosurus effusus*! - *Cynosurus echinatus*!** Photos need to be interchanged. P345/1 = *C. echinatus* (with broad lvs.), P344/10 = *C. effusus* (photo is from Sicilia).





Cynosurus effusus* (+)+ {errCA} (=*Cynosurus elegans*). Confirmed by 2 photos ►Rocky area on the northern entrance to Pogradec city (Korçë prov.).– ***Cynosurus echinatus**** ► Near entrance of Kalimash tunnel (Kukës prov.).

Danthoniastrum brevidentatum (?sys)+ {?sysCA}. Considered as synonymous with *Danthoniastrum compactum* in CA, but accepted in all relevant Floras (KEW, E&M). Reported also by Czvelev 2009 from nearby Ks near Peć.

Desmazeria sicula (+)? {?CA}. Identification of the only available voucher from Al by Dimitrov 2009 is questioned by CA.

Digitaria ciliaris (nat)nat {-CA, -DA}. Listed in Josifović 1976 for Al (cf. E&M).

Festuca amethystina* ssp *kummeri (+)? {?CA}. Listed in E&M based on personal communication by Benito Valdés.

Festuca halleri* ssp *scardica (+)+ {?CA}. Confirmed by photo IFA P340/1 and voucher in Herb. Pils from Ks, Mt. Gjeravica, 2300m, frequent in damp grassland over siliceous rocks. This site lies c. 1 km NE of the Albanian border where equivalent habitats exist.

Festuca horvatiana (+)+ {-CA}. Confirmed by photo IFA P340/2 and voucher from S-Al, Mt. Grammos, 2480m.

Festuca korabensis (=*F. violacea* ssp *macrathera*? =*Festuca nitida* ssp *macrathera*?). Plant shown in IFA P340/4 is from Prokletije, Valbona towards Mt. Jeserce, 2130 m. This plant corresponds perfectly with an own collection of unambiguous *F. korabensis* from Mt. Korab (Type is illustrated in Kováts 2000). Further studies are necessary to clear the relation of the Albanian plants (*F. korabensis*) with those from the Apennin and C-Yugoslavia (=*Festuca violacea* ssp *macrathera* sensu Markgraf-Dannenberg in FE vol 5).

Glyceria arundinacea (?)err {errCA}.

Glyceria fluitans (+)? {errCA}. Present in whole continental Gr, hence probably undercollected in Al.

Helictochloa aetolica (=*Avenula aetolica*, =*Helictotrichon aetolicum*). In CA and Lange 1995 only reported from a single old collection from Mt. Nemërçka.– Seems to be rather wspr. in Al. Confirmed by photo IFA P354/2 from Mt. Pashtrik, limestone, 1770 m and by voucher in Herb. Pils from Korçë region (serpentin, 1160 m).

Helictochloa compressa (?)err {errCA} (=*Avenula compressa*).

Helictochloa versicolor (+)+ {-CA} (=*Avenula versicolor*). Not listed for Al in Lange 1995. Confirmed by photo IFA P354/1 from Korab Mt., 2300 m.

Holcus mollis (+)? {?CA}. Absence from Al probable, as there are no records from surrounding regions (in Gr only in NE).

Hordelymus europaeus* (-)+ {+DA}. Scattered in beech forests. ►Upper Austria.

Hordeum murinum* ssp *murinum (+)? {?CA}.

Koeleria eriostachya (+)? {?CA}. Absent from surrounding regions.

Koeleria nitida (-)?sys. Report from Z. Barina (in Csiky & al 2017) remains dubious due to nomenclatorial ambiguities discussed in Quintanar & Castroviejo 2008. KEW puts *K. nitida* into synonymy of *Koeleria macrantha* ssp *macrantha*.

Lagurus ovatus* ssp *nanus (-)+. Reported by G. Domina, M. Meço & A. Mullaj (in Nobis & al 2018) from S-Al, Orikum (Vlora prov.), sandy coast. ►Spain, Almeria, Cabo de Gata.

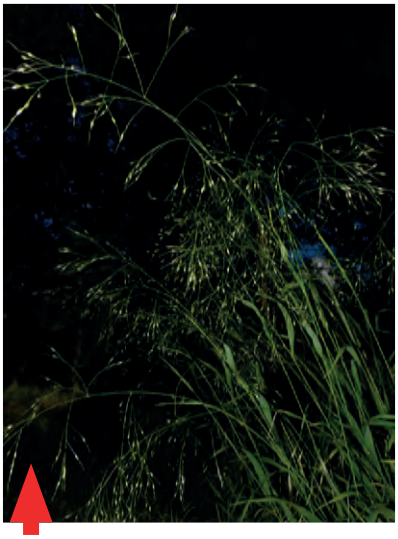
Leymus arenarius (?)err {errCA}.

Lolium rigidum* ssp *lepturoides (+)? {?CA}.

Moorochloa eruciformis (?)nat {+DA} (=*Bracharia eruciformis*). Rare around Tirana and Elbasan.

Panicum repens (+)? {?CA}. Reported by Alston & Sandwith 1940 from coastal sands near Durrës; extinguished? Present on Corfu.

Paspalum dilatatum* (-)nat. Reported by Barina & al 2020. A wspr. weedy grass of moist places. ►Spain, Cataluña, Gerona.



Phleum pratense* ssp *pratense (+)? {?CA}.

Poa angustifolia* (-)+ {+DA} (=*Poa pratensis* ssp *angustifolia*). ≠*Poa pratensis** in ligule shorter (≤1mm), not decurrent on sheath-margins; lvs. narrower, ±folded. ►a = *P. angustifolia* (Stefan Lefnaer via WC), p = *P. pratensis*.

Piptatherum virescens* (-)+ {+DA}. Mt. Pashtrik, xerophytic forest on limestone. ≠*Piptatherum holciforme* in ligule ≤ 0,5 mm (not 6–11mm). ►Rm, Tulcea-prov., Babadag.

Poa badensis (?)+ {+DA}. Scattered in the mountains.

Poa chaixii (+)? {?CA}.

Poa jubata (+)? {?CA}.

Poa molinerii (+)? {?CA}.

Poa trivialis* ssp *trivialis (+)? {?CA}.

Poa versicolor* (?)+ {+DA}. Very rare in the mountains of E-Al, on serpentine and granite. ► Seregin A. P. (Ed.) 2023 (CC-BY 4.0).

Polypogon maritimus (+)? {?CA}. Present on Corfu and along the coast of Cr up to Istria (Rottensteiner 2014). Probably undercollected in Al.

Psilurus incurvus*! Photo P345/6 erroneously shows *Parapholis incurva* and should be substituted by the photo of this update. ► Sergey Svirin via iNaturalist (CC-BY-NC).

Puccinellia distans (?)- {-CA}.

Schedonorus pseudogiganteus (?)?sys. Included in →***Schedonorus giganteus*** (cf. KEW). Note: Some authors include *Schedonorus* into *Lolium* (e.g. KEW, not so E&M).

Sesleria skipetarum (-)?sys {+CA}. Present on Mt. Lura and near Shkodra, always on serpentine. Systematics is still disputed. KEW (6.2.2024) accepts *S. skipetarum* as independent species, while E&M (6.2.2024) puts it into synonymy of *S. insularis*.

Sesleria tenuifolia → ***Sesleria juncifolia*** (=*Sesleria interrupta*). Nomenclatural change (cf. KEW).

Sesleria latifolia* (-)+ {+DA}. Frequent throughout the mountains, absent only from dolomitic areas in SW-Al, 30-2200 m.– BALK.– It is very uncommon, that a species classified as "frequent" has been completely overlooked before, even by Deyl 1946, who was a specialist in that genus. Such oddities use to be the consequence of taxonomic incertainties, and in fact delimitation of *S. latifolia* from similar taxa is critical. It differs from *Sesleria robusta* mainly in stems more leavy, with upermost lf. in the middle of the stem (not in lower 1/3 of stem). Moreover lvs. are less glaucous and growth is less densely caespitose. ►Bu. Stara Planina above Mazalat Hut. 1600 m.

Sesleria vaginalis* (-)+ {+DA}. S-Al, Mt. Nemërçka.– Hitherto regarded as endemic to Gr and merging there into other taxa, e.g. *Sesleria gigantea*, *S. robusta* (cf. MFG). ≠*S. robusta* in zone of contact (N-Gr and supposedly S-Al) in inflorescence much denser (MFG). ►Gr, Sterea Ellas, Mt. Parnassos, 2060 m.

Spartina versicolor* (-)nat. Reported by Z. Barina (in Csiky & al. 2017) from Vlora dstr., 4 km SW of village Dëllinjë, on maritime sand dunes.– N-Am., already wspr. in the Mediterranean. ► Brian Kingzett via WC, cc-by-2.0.

Stenotaphrum secundatum (?)? {?CA}.

Stipa tirsa ssp tirsa (+)? {?CA}.

Vulpia bromoides (+)? {?CA}.

Potamogetonaceae

(incl. former Zannichelliaceae)

Althenia filiformis* (-)+ {+DA}. A single record from Laguna e Nartës (Narta Lake) near Vlora. ► GUILLAUME_PAPUGA via iNaturalist (CC-BY-NC).

Potamogeton acutifolius (+)? {?CA}.

Potamogeton praelongus (+)err {errCA}.

Potamogeton pusillus (?)+. Often confused with *Potamogeton berchtoldii*, but confirmed by A. MESTERHÁZY (in A. MESTERHÁZY & al 2017) from 2 locations in Shkodër prov.

Potamogeton trichoides (+)? {?CA}.

Typhaceae

Sparganium emersum (+)? {?CA}.

Typha angustifolia (?)+ {+CA}.

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T

A) Signs & abbreviations concerning status of taxon

( )	in parentheses = status of taxon in Illustrated Flora of Albania; Example: (?) = species is listed as ? in IFA
+	present
-	absent
?	occurrence not proven (e.g. due to absence of confirmed voucher)
?sys	systematic position of taxon unclear
{ }	source of status change
add.	addendum
cas	casual
cult	cultivated
err	erroneous (e.g. vouchers not correctly identified)
ext	extinct
nat	naturalized
!	error
*	new/additional photo
	new dichotomous key/interconnected paragraphs

Example for use of abbreviations:
Achillea setacea (+)err {errCA}
Explication: Status + in book IFA has changed to status err in this update. Main source for this change was status err in CA.

B) Signs & abbreviations used in text (see also explications in IFA)

≠	differs (in)
►	origin of photo
cf.	confer (relying on)
BALK	Limited to the Balkan Peninsula, but excluding Rm and Crete (+Rm = including Rm)
LOC	Restricted to a single mountain-massif or a very limited area of distribution not exceeding a distance of 100 km
RR	Range restricted: occupying a limited area of distribution not exceeding a distance of 500 km.
WSPR	widespread

C) Abbreviations for frequently cited sources

CA	Checklist of Vascular plants of Albania (Barina & al 2018)
CG	Checklist Greece (DIMOPOULOS & al 2013)
DA	Distribution Atlas (Barina & al 2017)
E&M	E+M in Book (Euro+Med Databank); https://europlusmed.org
FCD	Flora Croatica Database. https://hirc.botanic.hr/fcd/
FH	Flora Hellenica, 2 vols. (STRID & TAN 1997, 2002)
FJ	Flora Jonica. https://floraionica.univie.ac.at/index.php?site=1
IFA	Illustrated Flora of Albania
KEW	Plants of the World online; https://powo.science.kew.org
MFG	Mountain Flora of Greece (STRID 1986, STRID & TAN 1991)
WC	Wikimedia Commons (see Literature)

D) Country codes

Al	Albania	Cr	Crete	Ju	former Yugoslavia	Sr	Serbia with Kosovo
BH	Bosnia and Herzegovina	Ct	Croatia	Ks	Kosovo	Sl	Slovenia
Bu	Bulgaria	Gr	Greece	Mk	Makedonia	Tu-E	Turkey-Europe
Cg	Montenegro	It	Italy	Rm	Romania	Tu	Turkey