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RALF HAND (ed.)[1]

Supplementary notes to the flora of Cyprus VII.

Abstract

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Continuing a series of miscellaneous contributions by various authors, the seventh instalment includes information about 76 taxa focussing on the taxonomy, chorology and ecology of the Cyprus flora. One taxon is new to science, *Papaver paphium,* and the new combinations *Maresia nana* var. *glabra, Papaver cyprium* and *Rosa micrantha* subsp. *chionistrae* are published. Several taxa are reported as new to the island, e.g. *Centaurea calcitrapa* subsp. *calcitrapa, Euphorbia hypericifolia, E. maculata, E. prostrata, E. serpens* subsp. *serpens, Lathyrus clymenum, Lysimachia dubia, Marsilea aegyptiaca* and *Silene noctiflora*. Chromosome numbers of *Bupleurum trichopodum, Papaver cyprium* and *Silene gemmata* have been confirmed; the chromosome number of the new species *Papaver paphium* is also given. A key to the species of *Euphorbia* subg. *Chamaesyce* occurring in Cyprus is provided.

Additional key words: vascular plants, *Euphorbia* sect. *Chamaesyce, Papaver, Rosa,* distribution, taxonomy, chromosome numbers

Introduction

In former instalments the sequence and circumscription of families strictly followed "The Flora of Cyprus" (Meikle 1977, 1985). Starting with this instalment, familial classification is replaced by the system of the Angiosperm Phylogeny Group (Stevens 2001+), while familial classification of pteridophytes follows the list by Smith & al. (2006). The system starts with *Pteridophyta* followed by *Spermatophyta* and within both taxa families are arranged in alphabetical order as are the included taxa. The system is identical to that used in the online Checklist to the Flora of Cyprus (Hand & al. 2011). This new dynamic online checklist provides basic data on endemism, status of occurrence, threat categories according to the Red Data Book (RDB), chromosome numbers, colour photos and many more aspects.

Explanations about nomenclature have been published in instalment I (Hand 2000), regarding chromosome counts in instalment II (Hand 2001) and status categories of alien taxa in instalment IV (Hand 2004); criteria for the inclusion of data have been modified in instalment VI (Hand 2009). It should be stressed that apart from Meikle's (1977, 1985) detailed standard flora and floristic treatments on Cyprus published since, all known papers widely scattered in the taxonomic literature have been considered as supplementary when accepting specimen based records. The online database will soon contain all records (Hand & al. 2011); about 70 % of data are currently available. The index to the taxa treated in this series will be displayed in the same source (see Hand & al. 2011). Taxonomy and nomenclature of species and their infraspecific taxa mentioned in the texts of the contributions follow Meikle (1977, 1985) or amendments discussed in this series. Another feature that soon will be available online is a list of specimens collected in Cyprus plus georeferenced collection sites (georeferences are not published in this series).

Instalment VIII will be published in the near future; contributions are welcome and should be sent to the editor.

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If not stated otherwise, specimens are kept in the private herbaria of the contributors, those of the editor at B.

Pteridophyta

Marsileaceae

Marsilea aegyptiaca Willd.

First record of the species, genus and family for Cyprus. The species is known to occur in several African countries, Egypt being the closest to Cyprus, also in S Russia and India as well as on the Greek island of Elafonisos (Launert 1968; Valentine & Moore 1993; Jagel 2011). Records for Spain, erroneously repeated in Jagel (2011), actually refer to *M. batardae* Launert (Paiva 1986).

+ Div. 4: Potamos Liopetriou, SSW of river mouth, in dry vernal pools, alt. 2 m, 19.4.2011, *Christodoulou,* det. Christodoulou & Hand (B, CYP); ibid., 6.5.2011, *Christodoulou* (B, CYP).
C. S. Christodoulou

Spermatophyta

Apiaceae

Bupleurum trichopodum Boiss. & Spruner

Chromosome number: $2n = 16$. This count confirms earlier results obtained on non-Cypriot material (summarised by Snogerup & Snogerup 2001).

Div. 3: Dierona, c. 2 km SSW Dierona (not on road), brook valley above road to Akrounta, debris on open serpentine slopes, alt. c. 610 m, 23.5.2009 (seeds), *Hand S-124;* cultivated until 7.4.2010 at B, *Cubr 46895* (B). (ed.)

Daucus broteri Ten.

+ Div. 3: Choulou, on road to Statos, c. 1 km before border limestone to igneous rocks, not cultivated field, open ground, alt. 460 m, 20.6. 2011, *Hand 5861*. (ed.)

Daucus glaber (Forssk.) Thell.

+ Div. 6: Livera, Akrotirio Kormakitis, rocks at the tip of the cape, alt. c. 5 m, 9.5.2005, *Hand 4884 & Hadjikyriakou*.
G. N. Hadjikyriakou & R. Hand

Pimpinella peregrina L.

+ Div. 3: Nata, c. 200 m WNW turn-off from Xeros Potamos valley road to Amargeti, on track in cultivated area, alt. 185 m, 9.6.2011, *Hand 5803*. (ed.)

Araceae

Arum concinnatum Schott

+ Div. 2: Platys valley, Komititzi picnic site to Diplopotama, riverbank, alt. 620 m, 22.5.2009, *Christodoulou* (CYP); living material collected on the same day cultivated in B until 27.4.2011, *Cubr 47632* (B). C. S. Christodoulou

Asteraceae

Calendula officinalis L.

Another record of this casual from division 2 (see Hadjikyriakou in Hand 2009).

Div. 2: Malia–Omodos, roadside, alt. c. 600 m, 15.3. 2010, *Hadjikyriakou 7135*.
G. N. Hadjikyriakou

Centaurea calcitrapa L. subsp. ***calcitrapa***

First record for Cyprus. Fieldwork and revision of herbarium material revealed that a second subspecies of *Centaurea calcitrapa* occurs in Cyprus. Several specimens show a combination of characters identical to E Mediterranean proveniences of *C. calcitrapa* subsp. *calcitrapa* with its broadly ovoid involucres (see Table 1). The other taxon known to occur in Cyprus is the endemic subspecies *angusticeps* (H. Lindb.) Meikle with narrowly ovoid heads. Meikle (1985) already discussed an immature specimen (*Davis 3542*) probably referable to the nominal subspecies, which was collected not far from the places mentioned below.

The endemic subspecies *angusticeps* is indeed very near to the S Turkish endemic subsp. *cilicica* (Boiss. & Balansa) Wagenitz (see comment by Meikle 1985). Unfortunately, only one specimen could be studied by us. Whether *angusticeps* and *cilicica* are consubspecific taxa needs to be clarified in the framework of a systematic revision of the widespread *Centaurea calcitrapa* but this is outside the scope of this short note. Our measurements may contribute to such a revision.

Centaurea calcitrapa subsp. *calcitrapa* certainly is an indigenous taxon. Obviously, it is restricted to the western parts of Cyprus. Its habitats are similar to those of subsp. *angusticeps*. Future study should clarify the situation where both taxa meet.

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+ Div. 1: Episkopi, in river Ezousas valley c. 2300 m above village, W side of river, more or less open river bed, alt. 165 m, 17.6.2011, *Hand 5848 & Makris*.
+ Div. 2: Anathematistra Vouni Panagias, roadside, alt. c. 800 m, 22.12.1996, *Hadjikyriakou 2016 & Makris*; Agios Nikolaos, roadside, alt. c. 800 m, 13.8.1989, *Hadjikyriakou 321*.
+ Div. 3: Souskiou, on W side of road in Diarizos valley opposite old quarry area, waste ground, alt. 100 m, 8.6.2011, *Hand 5792 & Christodoulou*.

Further specimens studied:
GREECE (selection): Ahaia, Ep. Patron, SO Kalentzi, alt. 950 m, 24.10.2002, *Willing 107.726 & Willing* (B); Messenia, Neromilo, 2.7.1971, *Shay 122* (B); Nördliche Sporaden, Skopelos, Ostteil der Skopelos-Bucht, 27.8.1983, *Pokorny & Strudl* (B); Kreta, Tombrouk, alt. 10 m, 2.5.1999, *Böhling 9550* (B); Kreta, Anogeia (– Taverna Delina), alt. 900 m, 1.7.1999, *Böhling 10324* (B); Arkadia, Wegrand c. 10 km vor Vytina, alt. c. 900 m, 12.7.1971, *Damboldt 66/71* (B); Kreta, Kidhonia, Omalos plain, around the two small lakes near S border of the plain, alt. 1060–1070 m, 13.7.1994, *Bergmeier & Matthäs 4084* (B); Eparchia Lasithiou, Limnakoros, alt. 1150 m, 21.8.1998, *Böhling 8901* (B); Eparchia Lasithiou, Ag. Haralambas, alt. 820 m, 10.10.1997, *Böhling 6608* (B). — TURKEY: Ankara, oberes Haçikadintal, 22.5.1955, *Walter & Walter 4872* (B).

transitus *angusticeps – calcitrapa*?
Div. 3: Kidhasi–Philousa (Dhiarizos), alt. 300 m, 24.7. 1991, *Christodoulou* (CYP 1199); length of involucre intermediate 11.7–13 × 6.5–7 mm.

subsp. *angusticeps*
Div. 1: Arodhes, alt. 600 m, 7.8.1988, *Tsintides* (CYP 31); ibid., alt. 500 m, 9.6.1989, *Tsintides* (CYP 604); Giolou, roadside, alt. c. 350 m, 22.7.2003, *Hadjikyriakou 5748*; W of Polemi, margins of vineyard, alt. c. 500 m, 22.6.2005, *Hadjikyriakou 6613*.
Div. 3: Fasouri, N of the reedbeds, grazed meadows, alt. 1 m, 24.6.2011, *Hand 5886*; Agia Eirini Palodia, agricultural road, alt. c. 250 m, 20.5. 1990, *Hadjikyriakou 829*.
Div. 6: near Archaggelos, Nicosia, alt. 150 m, 15.6. 1989, *Christodoulou* (CYP 611).
Div. 8: Kastrouli E of Mpogazi, fallow land, alt. c. 2 m, 4.6.2005, *Hadjikyriakou 6503;* Halbinsel Karpasia/Karpas, in den Ruinen von Karpasia/Agios Filon, alt. c. 5 m, 5.7.2005, *Vogt 16321*.

subsp. *cilicica*
TURKEY: Antalya, roadside, alt. 40 m, 26.8.1979, *Kehl* (B).

C. S. Christodoulou,
G. N. Hadjikyriakou & R. Hand

Echinops spinosissimus Turra
Taxonomy of the species in Cyprus is far from clarification. Med-Checklist (Greuter & Raab-Straube 2008) accepts only *E. spinosissimus* subsp. *bithynicus* for Cyprus but this is a simplification. Meikle's (1985) statement is still correct: "The Cyprus material is not at all uniform, and while much of it probably falls within the range of variation of *E. spinosissimus* Turra ssp. *bithynicus* (Boiss.) Kožuharov, the residue falls somewhere between this and typical *spinosissimus*.". The gathering reported below is one such case: it shows a combination of characters typical for the nominal subspecies as defined by, e.g. Jahn & Schönfelder (1995) for Crete with the only exception of the phyllary colouration; it is bluish as in *bithynicus*, not greenish. The plant was collected near the upper limit of the species' altitudinal range in Cyprus. Future investigations should concentrate on detecting possible geographical patterns of the two taxa in Cyprus, but "collectors tend to ignore" the species as already stated by Meikle (1985).

Table 1. *Centaurea calcitrapa,* measurements of E Mediterranean material. – The measurements were taken in distal flower heads, not in the usually untypical basal heads.

Centaurea calcitrapa	**involucre length (mm)**	**involucre width (mm)**	**median bracts, spine length (mm)**	**median bracts, spine width at the base (mm)**	**number of small spines at base of long spine in median bracts**
subsp. ***calcitrapa*** (Greece, Turkey)	14–16(–17.5)	6–8(–9.5)	(11.5–)16–21(–27.5)	(1.6–)1.8–3(–3.7)	(2–)4–6(–10)
subsp. ***calcitrapa*** (Cyprus)	(10–)14–17	6–7(–8)	(15–)16.5–20(–25)	(1.3–)1.5–2.5(–3)	2–6
subsp. ***cilicica*** (Turkey)	10.5–12	4.5–5	10–16.5(–19)	1.1–1.3	4–6(–8)
subsp. ***angusticeps*** (Cyprus)	(7–)10–13.5(–14)	3.5–5(–5.5)	(11–)13–17(–25)	(1–)1.3–2(–2.2)	(0–)2–4(–6)

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Div. 2: Agios Theodoros, by road turning-off pass road NW of Papoutsa, c. 150 from turn-off, rocky bank, alt. 1250 m, 28.9.2010, *Hand 5755*. (ed.)

Filago aegaea subsp. ***aristata*** Wagenitz
Third record for Cyprus. There are previous records from division 7 (Meikle 1985) and division 1 close to the new site (Hand 2004).
Div. 1: Akamas, between Fontana Amorosa and Cape Akamas (= Arnaouti), rocky ground near the sea, alt. 5 m, 25.3.2011, *Kefalas* (B). K. Kefalas

Jurinea cypria Boiss.
The following gathering was made at a locality much below the minimal altitude known so far for this typical species of the Troodos mountains. Meikle (1985) gives the following range: "3000–5700 ft."
Div. 3: Agia Marina, c. 1300 m SSW village by track turning-off road E of a stream, abandoned vineyards, alt. 435 m, 9.6.2011, *Hand 5802*. (ed.)

Mantisalca salmantica (L.) Briq. & Cavill. – RDB: CR
Recently, known to occur only in division 8 (Tsintides & al. 2007).
+ Div. 6: Angolemi, towards Zodeia, alt. c. 100 m, 20.5.2011, *Tamson* (B). S. Tamson

Brassicaceae

Aethionema arabicum (L.) DC. – RDB: VU
The following collection predates all other records in Cyprus (see Christodoulou & al. in Hand 2006, Christodoulou in Hand 2009, Tsintides & al. 2007).
+ Div. 2: Zw. Kannaviou und Stavros tis Psokas, *Pinus brutia*-Wald, 10.4.1995, *Meierott 95/Cyp-178*. L. Meierott

Draba minima (C. A. Mey.) Steud. [Syn.: *Erophila minima* C. A. Mey.]
+ Div. 6: Kokkinotrimithia–Mammari, phrygana, alt. 200 m, 13.2.2010, *Kefalas* (CYP); Deneia, vernal pools on rocky ground with phrygana, alt. 200 m, 13.2.2010, *Kefalas* (CYP); Mammari, towards Deneia, moist red soil, usually in vernal pools, alt. 200 m, 17.2.2010, *Christodoulou* (B). C. S. Christodoulou & K. Kefalas

Lepidium didymum L. [Syn.: *Coronopus didymus* (L.) Sm.]
First recorded by Georgiadis (in Yannitsaros & Georgiadis 2006) from Lefkosia (division 6). To be classified as naturalised non-invasive.
+ Div. 1: Poli, hotel garden and roadside, alt. c. 20 m, 19.5.2010, *Georgiadis in Hadjikyriakou 7172;* ibid, 19.5.2011, *Georgiadis in Hadjikyriakou 7191*. C. Georgiadis

Malcolmia flexuosa (Sm.) Sm.
+ Div. 8: Giouti Eptakomi, rocky place, alt. c. 10 m, 1.4.2010, *Hadjikyriakou 7142*. G. N. Hadjikyriakou

Maresia nana var. ***glabra*** (Meikle) Christodoulou & Hand, **comb. nov**. ≡ *Malcolmia nana* var. *glabra* Meikle, Fl. Cyprus 1: 806. 1977. – RDB: CR.
Segregation of *Maresia* from *Malcolmia* is widely followed now, e.g. by Marhold (2011a) in the Euro+Med Plantbase. The rare variety is endemic to Cyprus and treated in the Red Data Book (Tsintides & al. 2007). C. S. Christodoulou & R. Hand

Matthiola incana (L.) R. Br.
It is a garden escape and a well established naturalised non-invasive on stone walls and by roadsides in Moutoullas and Kalopanagiotis villages.
+ Div. 2: Moutoullas, on stone walls by the side of the road, within the village, alt. c. 700 m, 15.3.2010, *Hadjikyriakou 7136*. G. N. Hadjikyriakou

Campanulaceae

Campanula podocarpa Boiss. – RDB: RE
Second record for Cyprus. Previously, it was only recorded by Haradjian in 1912 (see Meikle 1985). Based on that single collection Rechinger (1950) described an endemic taxon *C. cypria*. Currently, its taxonomy is under reconsideration. The species was thought to be extinct in Cyprus and classified as "Regionally Extinct" by Tsintides & al. (2007).
Div. 2: Troodos village, S of settlement, dry valley W of horse stables, on fine debris on old terraces in very open pine forest, alt. 1720 m, 12.6.2011, *Hand 5822*; ibid., 22.6.2011, *Hand 5866 & Christodoulou*. (ed.)

Caryophyllaceae

Minuartia montana L. subsp. ***montana***
See Christodoulou & al. (in Hand 2009) regarding previous records in Cyprus.
+ Div. 3: Parekklisia, Lemesos forest, Diosmis area, fine pillow lavas, alt. 420 m, 4.5.2011, *Christodoulou* (B). C. S. Christodoulou

Silene gemmata Meikle – RDB: VU
Chromosome number: $2n = 24$. This is a confirmation of the only other known count of the species by Vogt & Aparicio (2000; $n = 12$).
Div. 2: Pano Platres, at new road to Foini connecting

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P. P. and the Foini–Kato P. road, near small chapel, debris by the road, alt. c. 1050 m, 20.5.2009 (specimen and seeds), *Hand 5534 & Christofides*. (ed.)

Silene kotschyi var. ***maritima*** Boiss. – RDB: EN

+ Div. 3: Ladies Mile Akrotiri, phrygana vegetation, alt. c. 3 m, 23.5.2011, *Makris in Hadjikyriakou 7192;* ibid., 30.5.2011, *Hadjikyriakou 7193;* same place, but different label text: Lemesos–Zakaki, between salt lake and Lady's Mile, SW of Zakaki stadion, sandy patches in open coastal phrygana, alt. 0 m, 9.6.2011, *Hand 5806 & Hadjikyriakou.* C. Makris

Silene noctiflora L.

First record for Cyprus. The species is native to Turkey, Greece and westwards to Portugal but absent from the Near East countries and Egypt (see Marhold 2011b). In Cyprus it is to be classified as casual.

+ Div. 2: Treis Elies, fruit garden, alt. c. 800 m, 26.6.2010, *Makris in Hadjikyriakou 7181*. C. Makris

Chenopodiaceae

Chenopodium giganteum D. Don

The occurrence of this alien species, which is known since 1989 from Cyprus, has been dealt with in detail by Georgiadis (1994). Presently, the widespread species has to be classified in Cyprus as naturalised invasive.

+ Div. 1: Poli, irrigated garden crops, alt. c. 3 m, 19.5.2011, *Georgiadis in Hadjikyriakou 7190*. C. Georgiadis

Chenopodium striatiforme Murr

Second record for Cyprus. See Buttler (in Hand 2004) for the first record.

+ Div. 2: Agios Theodoros, by road turning-off pass road NW of Papoutsa, c. 150 from turn-off, road bank, alt. 1250 m, *Hand 5758*. (ed.)

Crassulaceae

Sedum aetnense Tineo

See Makris (in Hand 2009) regarding previous records for Cyprus.

+ Div. 2: Gerakies–Selladi Xeromoutta, stony mountain ridge with *Sedum caespitosum* and *S. rubens*, alt. 970, 21.4.2009, *Christodoulou & Kefalas* (CYP). C. S. Christodoulou & K. Kefalas

Cyperaceae

Isolepis cernua (Vahl) Roem. & Schult. – RDB: EN

This is the second record from division 3 (see Meikle 1985).

Div. 3: Nata–Choletria, moist place by river margin and roadside, alt. c. 200 m, 10.6.2011, *Hadjikyriakou 7196 & Hand*. G. N. Hadjikyriakou & R. Hand

Euphorbiaceae

Euphorbia hypericifolia L.

First record for Cyprus. Alien species, native to America, occasionally occurring in other parts of the world as ephemeral weed (Hügin 1998a). It has been recently found on Crete (Greece; *Riina 1556,* duplicates in MICH, MA, BCN; Riina, pers. comm.). In habit as well as in morphology, it resembles *E. nutans,* which is listed for the flora of Cyprus (Radcliffe-Smith in Meikle 1985). Both species are ascending to erect annuals, up to 0.6 m high, with leaves mostly longer than 15 mm and with 3 conspicuous veins, glabrous fruits and seeds irregularly transversely rugulose. However, *E. hypericifolia* has connate, clearly visible membranaceous stipules (inconspicuous in *E. nutans*), fruits shorter than 1.4 mm (1.5–2 mm long in *E. nutans*), seeds shorter than 1 mm (longer in *E. nutans*), and the plant is completely glabrous (at least some parts are usually pubescent in *E. nutans*; see also Hügin 1998a and Pahlevani & Riina 2011). The species is treated as ephemerophyte in Europe (Hügin 1998a). Its occurrence on Cyprus might be the result of former cultivation as an ornamental. Based on the current state of knowledge it is to be classified as naturalised non-invasive.

+ Div. 1: Park SE of Pegeia, flower beds, alt. 78 m, 28.4.2010, *Frajman & Schönswetter 12737* (IB). B. Frajman

***Euphorbia maculata* L.**

First record for Cyprus. Alien species, native to North America, naturalised throughout the world, common in the Mediterranean area (Benedí & Orell 1992; Hügin 1999). The species has also been recorded in Turkey (sub *E. supina* Rafin.; Radcliffe-Smith 1982) and Iran (Pahlevani & Riina 2011). Of the three previously known species of *Euphorbia* subg. *Chamaesyce* Raf. on Cyprus (Radcliffe-Smith in Meikle 1985), *E. maculata* comes closest to *E. chamaesyce,* but it has appressed-pubescent capsules (patently pubescent or glabrous in *E. chamaesyce*) and transversely furrowed seeds (irregularly tuberculate-rugulose in *E. chamaesyce*; see also Hügin 1998a). Characteristic, but not always present, is also a purple spot on the upper surface of the leaves (can be present also on the leaves of *E. nutans*!). *E. maculata* grows in gardens, lawns, roadsides, paving cracks etc. Based on the current state of knowledge it is to be classified as naturalised non-invasive.

+ Div. 3: Coastal promenade of Lemesos, among the paving tiles (together with *E. prostrata*), 5 m, 24.4.2010, *Frajman & Schönswetter 12709* (IB). B. Frajman

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Euphorbia petiolata Banks & Sol.

+ Div. 7: Northern outskirts of Agios Amvrosios Keryneias, cultivated field, alt. c. 150 m, 8.10. 2010, *Hadjikyriakou 7178.*

G. N. Hadjikyriakou

Euphorbia prostrata Aiton

First record for Cyprus. Alien species, native to America and naturalised throughout the world, common also in the Mediterranean area (Benedí & Orell 1992; Hügin 1999). The species has also been reported from Israel (Zohary 1972) and Turkey (Radcliffe-Smith 1982) and recently from Iran (Pahlevani & Riina 2011). Of the three previously known species of *Euphorbia* subg. *Chamaesyce* on Cyprus (Radcliffe-Smith in Meikle 1985), *E. prostrata* is most similar to *E. chamaesyce,* but its capsules are pilose only along the keels (while in *E. chamaesyce* the indumentum, if present, evenly covers the capsules) and its seeds deeply transversely furrowed (irregularly tuberculate-rugulose in *E. chamaesyce;* see also Hügin 1998a). It grows in gardens, lawns, roadsides, paving cracks etc. Based on the current state of knowledge it is to be classified as naturalised non-invasive.

+ Div. 3: Coastal promenade of Lemesos, among the paving tiles, alt. 5 m, 24.4.2010, *Frajman & Schönswetter 12710* (IB); Pissouri Beach SE of the village Pissouri, flower beds (along with *E. serpens*), alt. 10 m, 25.4.2010, *Frajman & Schönswetter 13428* (IB). B. Frajman

Euphorbia serpens Kunth subsp. ***serpens***

First record for Cyprus. Alien species, native to (sub) tropical America, naturalised in the temperate regions of the Old and New World, also in the Mediterranean area (Benedí & Orell 1992; Hügin 1999; Pahlevani & Riina 2011) where it is less common than *E. prostrata*. *E. serpens* has also been recorded in Iran (Pahlevani & Riina 2011) and Turkey (Radcliffe-Smith 1982). It resembles in habit *E. prostrata* and *E. chamaesyce,* but is glabrous, has ovate to suborbicular, rounded or emarginate leaves, conspicuous, white, usually united triangular stipules and smooth seeds (see also Hügin 1998a; differences between the subspecies of *E. serpens* are discussed by Hügin 1998b). It grows as weed in gardens and lawns as well as on roadsides (Pahlevani & Riina 2011). Based on the current state of knowledge it is to be classified as naturalised non-invasive.

+ Div. 3: Pissouri Beach SE of the village Pissouri, flower beds (along with *E. prostrata*), alt. 10 m, 25.4.2010, *Frajman & Schönswetter 12714* (IB). B. Frajman

Key to the species of *Euphorbia* subg. *Chamaesyce* from Cyprus

1. Plant ascending to erect, up to 0.6 m high; largest leaves usually longer than 15 mm, with 3 conspicuous palmate veins; cyathia grouped together in terminal pseudocorymbiform cymes; fruits glabrous, seeds irregularly transversely rugulose 2
– Plant mostly prostrate, rarely ascending; the largest leaves usually up to 12(–15) mm long, with 1, sometimes inconspicuous vein; cyathia solitary, axillary in dichasial bifurcations, sometimes several together at the end of the branches, never in pseudocorymbiform cymes; fruits glabrous or pubescent, seeds smooth, tuberculate-rugulose or transversely furrowed 3
2. Plant glabrous; stipules membranaceous, clearly visible, connate; terminal pseudocorymbiform cymes very dense; fruits shorter than 1.4 mm, seeds shorter than 1 mm . . . . . *E. hypericifolia*
– Plant at least in some parts pubescent; stipules inconspicuous, connate or free; terminal pseudocorymbiform cymes lax; fruits 1.5–2.5 mm long, seeds 1.1–1.3 mm long . . . . . *E. nutans*
3. Plant usually glabrous (*E. humifusa* rarely sparingly hairy); seeds smooth 4
– Plant usually pubescent (*E. chamaesyce* can be glabrous); seeds tuberculate-rugulose or transversely furrowed 6
4. Plant fleshy; leaves falcate-oblong, conspicuously asymmetrical at the base (half of the limb with basal auricle); fruits 3–4 × 4–5 mm, seeds 2.5–3 mm long; plants of sandy coastal areas . . . . . *E. peplis*
– Plant not fleshy; leaves not conspicuously asymmetrical at the base; fruits 1.2–1.8 mm long and wide, seeds up to 1.3 mm long; plants of ruderal places 5
5. Stems never rooting at nodes; leaves oblong-ovate to oblong-obovate, serrulate at least in upper part, apex rounded; stipules filiform; seeds ovoid . . . . . *E. humifusa*
– Stems often rooting at nodes; leaves ovate to suborbicular, margin entire, apex retuse to emarginate; stipules united into a triangular, laciniate or fimbriate white scale; seeds tetrahedral . . . . . *E. serpens*
6. Plant somewhat glaucous; leaves ovate-suborbicular; fruit with patent hairs or glabrous, 1.5–1.9 × 1.6–2 mm; seeds irregularly tuberculate-rugulose, 1–1.4 × (0.6–)0.7–0.9 mm . . . . . *E. chamaesyce*
– Plant not glaucous; leaves oblong to elliptical or obovate-oblong; fruit appressed-pubescent or hairy only on the keels, 1–1.5(–1.6) × 1–1.5 mm; seeds regularly transversely furrowed, 0.8–1.1 × 0.4–0.6 (–0.7) mm 7
7. Leaves on the upper surface mostly with prominent purple spot; stipules linear-lanceolate to filiform, 0.8–1.3 mm long; fruit (all surface) appressed-pubescent . . . . . *E. maculata*
– Leaves on the upper surface mostly without prominent purple spot; stipules mostly connate at base, triangular-subulate, 0.5–1 mm long; fruit pilose only along the keels . . . . . *E. prostrata*

B. Frajman

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Fabaceae

Astragalus boeticus L.

+ Div. 3: Livadi Akrotiriou, margins of marshy place, 5.3.2001, *Hadjikyriakou 5214*.
G. Hadjikyriakou

Astragalus hamosus L.

+ Div. 5: Athalassa forest, roadside, alt. c. 170 m, 31.3.1999, *Hadjikyriakou 4226*.
D. Drousiotis, G. Hadjikyriakou & C. Makris

Astragalus suberosus Banks & Sol. var. ***suberosus*** – RDB: EN

+ Div. 5: Latsia–Geri, among phrygana, alt. c. 150 m, 24.2.1997, *Hadjikyriakou 2237 & Christodoulou*. C. S. Christodoulou & G. N. Hadjikyriakou

Cassia artemisioides DC.

Commonly planted in Cyprus (see Tsintides & al. 2002) and rarely escaping from cultivation. To be classified as casual.

+ Div. 2: Vavla, at turn-off to Kato Drys, on rocky road bank, alt. c. 420 m, 15.5.2009, *Hand 5509*.
(ed.)

Lathyrus clymenum L.

First record for Cyprus. Surprisingly, this conspicuous legume was found in several places but always only single individuals. It seems to be a recent introduction and no overlooked indigenous element of the Cyprus flora. For the time being, it should be classified as casual. *L. clymenum* is widespread in the Mediterranean but absent from most countries of the Levante (ILDIS 2011).

+ Div. 2: Stavros Agiasmati, diabase slope with open pine forest, alt. 880 m, 27.6.2005, *Kyriakou* (seeds); cultivated until 25.2.2010 at B, *Cubr 46844*, conf. Hand (B); before Platanistasa, igneous roadbanks, alt. 800 m, 18.5.2011, *Kyriakou & Papachristophorou* (CYP); additional observations by Kyriakou: Gefiri Panagias Forest Station to Platanistasa, 2 km after the Forest Station, 1998; about 1 km SE of Stavros tou Agiasmati, 1999; above Gouri village, road to Machairas monastery, 2003.
+ Div. 3: Moni, outside Moni Power station on the beach between station and St. Rafael resort, alt. 0 m, 4.4.2011, *Christofides* (B); Kouka, on the road to Agios Georgios, alt. 770 m, 26.3.2010, *Christofides* (B).
Y. Christofides, A. Kyriakou & T. Papachristophorou

Lathyrus latifolius L.

First record for Cyprus. Certainly a garden escape and to be classified as casual alien.

+ Div. 2: Platres, by the road below the Forest Park Hotel, alt. 1150 m, June 2011, *Christofides* (B). Y. Christofides

Lathyrus setifolius L. – RDB: EN

Third record for Cyprus. The previous records are from divisions 2 and 4 (Meikle 1977; Hand 2001).

+ Div. 8: ENE of Agios Symeon, rocky slope, alt. 110 m, 3.4.2011, *Kefalas* (B). K. Kefalas

Lotus angustissimus L. – RDB: CR

Mentioned in the Red Data Book of the flora of Cyprus without cited specimen for Vrodisia (Tsintides & al. 2007); details are as follows:

Div. 2: Vrodisia, Flegeia valley, moist place by roadside, alt. c. 600 m, 29.5.1999, *Hadjikyriakou 4587*. G. N. Hadjikyriakou

Lotus halophilus Boiss. & Spruner

+ Div. 3: Asprokremmos dam, river bed on gravel, alt. c. 30 m, 3.2.1996, *Makris in Hadjikyriakou 1720;* Mandria, Pafos district, sandy seashore, 15.3.1996, *Makris in Hadjikyriakou 1768;* Tunnel Beach, Episkopi base, sandy seashore, 3.4.1997, *Hadjikyriakou 2504*.
G. N. Hadjikyriakou & C. Makris

Lotus ornithopodioides L.

+ Div. 3: Asprokremmos dam, river bed on gravel, alt. c. 30 m, 3.2.1996, *Makris in Hadjikyriakou 1718;* already mentioned for that division by Alziar & Guittonneau (2004) but without specimen data. C. Makris

Lotus tenuis Willd. [Syn.: *Lotus corniculatus* var. *tenuifolius* L.]

+ Div. 5: Athalassa forest, dam margins, alt. c. 180 m, 5.9.2000, *Hadjikyriakou 5132*.
G. Hadjikyriakou

Ononis variegata L.

+ Div. 1: Ineia, Lara Bay, sandy seashore, alt. 1 m, 30.4.2010, *Christodoulou* (B, CYP).
C. S. Christodoulou

Securigera cretica (L.) Lassen [Syn.: *Coronilla cretica* L.] – RDB: EN

In the first locality given below already found in 1999 (see Hadjikyriakou & al. 2004, Tsintides & al. 2007) but erroneously mentioned to be in division 1. Both the previously known and the new site (first found in 1996 by C. Makris) are on the eastern side of river Ezousas, consequently belonging to division 3.

+ Div. 3: Episkopi, by small road to main road Agia Varvara–Nata, c. 1200 m NW junction, grassy bank, alt. 250 m, 17.6.2011, *Hand S-332 & Makris* (seed collection); ibid., in river Ezousas valley, by track on E side of river near a ford

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c. 1600 m above village, grassy bank, alt. 170 m, 17.6.2011, *Hand 5845 & Makris*.
R. Hand & C. Makris

Vicia hirsuta (L.) Gray
Obviously rare in Cyprus and not collected since the last record in 1955 (see Meikle 1977).
Div. 2: Platres 150 m before Roxani spring, on road bank, May 2011, *Christofides* (B).
Y. Christofides

Hydrocharitaceae

Najas marina subsp. ***armata*** (H. Lindb.) Horn [Syn.: *N. delilei* Rouy] – RDB: VU
Slowly spreading to the reservoirs of Cyprus (for previous records see Christodoulou & al. in Hand 2006, Tsintides & al. 2007).
+ Div. 3: Kalavasos, S end of Kalavasos dam, shallow bays, alt. 140 m, 18.9.2010, *Hand 5704*. (ed.)

Lamiaceae

Micromeria microphylla (d'Urv.) Benth.
+ Div. 1: Near Androlikou, crevices of hard limestone rocks, alt. 275 m, 3.1.2009, *Christodoulou* (CYP); ibid, 14.2.2009, *Christodoulou* (CYP); ibid., 7.6.2009, *Christodoulou* (B); same area but differing label text: Androlikou, between village and road to Polis, on scattered flat rocks in grazed area, alt. c. 300 m, 16.5. 2009, *Hand 5518 & Christodoulou* (B); ibid., in bend NE village, below quarry on rocks, alt. c. 280 m, 16.5.2009, *Hand 5519 & Christodoulou* (B); Androlikou gorge, crevices of limestone rocks, alt. 215 m, 7.6.2009, *Christodoulou* (B, CYP). C. S. Christodoulou

Salvia hierosolymitana Boiss. – RDB: EN
Four records from division 8 are cited by Meikle (1985). This record is from a new locality.
Div. 8: Giouti Eptakomi, rocky slope with *Pistacia lentiscus*, alt. c. 100 m, 1.4.2010, *Hadjikyriakou 7140*. G. N. Hadjikyriakou

Salvia pinnata L. – RDB: DD
The following collection was already mentioned in the Red Data Book (Tsintides & al. 2007) but this first documented gathering since 1955 needs to be published in detail.
Div. 7: Klepini, on the retaining wall of the first reservoir below K., alt. 90 m, 27.3.2007, *Christofides* (B). Y. Christofides

Liliaceae

Tulipa agenensis DC. – RDB: EN
Most probably, a recent introduction from the well known vineyard populations in the Polemi area (division 1).
+ Div. 2: Kyrerounta – Karvounas, margins of vineyards, alt. 1265 m, 3.5.2011, *Constantinou* (CYP).
F. & G. Constantinou

Linaceae

Linum grandiflorum Desf.
+ Div. 5: Agia Paidia near Syngrasis, at the edge of a slope and road, alt. c. 50 m, 3.4.2010, *Hadjikyriakou 7146*. G. N. Hadjikyriakou

Neuradaceae

Neurada procumbens L. – RDB: EN
Only two populations were confirmed during preparation of the Red Data Book (Tsintides & al. 2007). At the following new site a third population was found.
Div. 3: Moni, on the beach between Moni Power station and St. Rafael resort, alt. 0 m, 4.4.2011, *Christofides* (B). Y. Christofides

Onagraceae

Epilobium tournefortii Michalet
Third record for Cyprus; for previous records see Hadjikyriakou & Hand (in Hand 2006).
Div. 2+3: Koilineia, c. 350 NE village on road to Vretsia, vineyards and roadbanks, alt. 725 m, 11.6.2011, *Hand 5814 & Hadjikyriakou* and *Hadjikyriakou 7196 & Hand*.
G. N. Hadjikyriakou & R. Hand

Papaveraceae

Intensive field studies, results of cultivation and preliminary results of molecular phylogenetic analyses (Aghababyan & Borsch, in prep.) revealed that the taxonomy of three *Papaver* taxa occurring in Cyprus requires reassessment.

Papaver cyprium (Chrtek & Slavík) M. V. Agab., Christodoulou & Hand, **comb. & stat. nov.** ≡ *Papaver rhoeas* subsp. *cyprium* Chrtek & Slavík in Preslia 53: 48. 1981. – Holotype: "Cyprus, in arenosis maritimis 2 km situ mer.-orient. ab opp. Paphos", 9.4.1978, *Chrtek & Slavík N 153* (PR).
– *Papaver rhoeas* subsp. *humile* sensu Holmboe p.p., quoad pl. Cypri, non *P. rhoeas* subsp. *humile* (Fedde) Holmboe s.str.
This taxon has long been known. It has been accepted by Holmboe (1914: 83) at subspecies rank under *Papaver rhoeas* L. and designated as *P. rhoeas* subsp. *humile* (Fedde) Holmboe. Holmboe already mentioned that his own plants, from sandy beaches of Cyprus (Xylophago & Hagia Napa *J. H[olmboe] 15*), deviate from genuine *P. humile* Fedde of Egypt (type collected by W. Barbey) by the less incised leaves. In fact the Egyptian and Cypriot

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plants differ not only in leaf dissection but also in habit, colour of petals and shape of buds and capsules. Therefore Chrtek & Slavík (1981) treated them as distinct and described the Cypriot material as a new taxon, *P. rhoeas* subsp. *cyprium,* analysing in detail its differences from other related taxa. Kadereit (1989: 274) eventually, applying an excessively broad species concept, sank it into the synonymy of *P. rhoeas* subsp. *rhoeas.* In fact, the Cypriot taxon is much more closely related to *P. humile* than to *P. rhoeas.* We accept it therefore as a distinct species, differing from *P. humile* in several constant morphological features. It is a dwarf annual 5–18 cm high with all parts tinged red, with 1 to 3 spreading or ascending, scapiform stems distally covered by irregularly scattered, appressed setae; leaves all basal or rarely 1–2 cauline, entire, pinnatifid or lobed, with obtuse overlapping lobes; sepals with purple margin often tinged red and covered by purple stripes and spots; petals deep orange red, spotless or rarely with small black marks; capsules obovoid gradually narrowed to the base, with but few stigmatic lobes (mostly 7, rarely 6 or 8). Most characters were maintained in plants cultivated under standardised conditions at B (*Hand 5462;* see selected specimens); cultivated plants differ only in their taller size (20–35(–40) cm). Normally developed *P. rhoeas* is, to name some differences, about 30–50 cm high, green in its vegetative parts and has broadly ellipsoidal capsules.

Molecular data also demonstrate the isolation of *Papaver cyprium* from the *P. rhoeas* complex. No signs of any intergradation between *P. cyprium* and *P. rhoeas* s.str. have been observed in Cyprus.

Chromosome number: $2n = 14$; counted in plants cultivated at B (*Hand 5462;* see selected specimens). This confirms an earlier report by Slavík & al. (1993).

Selected specimens seen (see also Fig. 2 for distribution in Cyprus):

Div. 1: Pegeia, coast 2–3 km NNE Agios Georgios, sandy beach Toxeftra, alt. c. 3 m, 5.4.1999, *Hand 2736*.

Div. 4: Liopetri, beach c. 200 m S of Potamos Liopetriou, sandy beach, alt. 0 m, 7.5.2009, *Hand 5462 & Christodoulou;* cultivated at B until 25.2.2010, *Cubr 46845* (B).

M. V. Aghababyan,
C. S. Christodoulou & R. Hand

Papaver meiklei (Kadereit) M. V. Agab. in Takhtajania 1: 57. 2011 ≡ *Papaver argemone* subsp. *meiklei* [*'meiklii'*] Kadereit in Notes Roy. Bot. Gard. Edinburgh 44: 38. 1986. – Holotype: "Flora of Cyprus: Mandria, 4000 ft. alt., in cultivated plot by roadside," erect or decumbent; leaves mid-green; petals deep rich scarlet with violet basal blotch; stigmas blue, 3.5.1962, *Meikle 2836* (K 000653129!; isotype C).

Local endemic occurring only in division 2 (see Fig. 2). Meikle (1957, 1977) included it in *Papaver minus* (Bél.) Meikle. Kadereit (1986) separated the Cypriot taxon from *P. minus* but regarded both as subspecies of *P. argemone* L. Morphologically they are well distinct from each other and from *P. argemone* by several constant features (see Table 2; Aghababyan 2011), and they also have different chromosome numbers. Preliminary molecular studies also support their acceptance as three distinct species.

Selected specimens seen (see also Fig. 2 for distribution in Cyprus):

Div. 2: Prodromos, W of Prodromos, igneous roadbank, alt. 1350 m, 12.4.2010, *Christodoulou* (B); Agridia, c. 1 km SE, towards Agros, irrigated gardens in a deep valley, alt. c. 1070 m, 20.5. 2005, *Hand 5035 & Hadjikyriakou;* Nikitari, Asinou church, at the trail to Agios Theodoros, c. 500 m from church, margin of a field, alt. c. 500 m, 27.4.2007, *Hand 5259*. [record published for Div. 6 (Hand 2009) but the location is just S of the border in Div. 2.]

M. V. Aghababyan,
C. S. Christodoulou & R. Hand

Papaver paphium M. V. Agab., Christodoulou & Hand, **sp. nova**

Holotype: "Cyprus (Division 2 sensu Meikle 1977/1985) Kykko. Vrysi tou Klamenon, road towards Kykko mon-

Table 2. Selected discriminating characters of *Papaver meiklei* and its relatives.

	Papaver argemone	*Papaver meiklei*	*Papaver minus*
Indumentum	very scarce	of appressed white hairs	dense, of long whitish bristles
Petals	not contiguous; brick or rusty red, distally rounded, with a small diffuse dark spot near the base	contiguous, bright red or scarlet, elliptic, distally narrowed, with a distinct black, obovoid mark	contiguous; deep red, rhomboidal, distally narrowed, with a distinct black, rhomboidal mark
Capsules	clavate, attenuate ata thebase, with scarce bristles	elongate, subcylindrical, with but few bristles below the stigmatic disk	cylindrical, with dense bristles
Anthers	greyish	light bluish green	bright yellow
Chromosome numbers	$2n = 40, 42$ (Kadereit 1986)	$2n = 28$ (Kadereit 1986)	$2n = 14, 28$ (Kadereit 1986)

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astery, screes, alt 900 m". 12.4.2010, *Christodoulou* (B; isotypes: B, CYP, ERE, PAL-Gr).

– *Papaver postii* sensu Meikle, non Fedde in Bull. Herb. Boissier, ser. 2, 5: 447. 1905

– *Papaver purpureomarginatum* Kadereit in Notes Roy. Bot. Gard. Edinburgh 45: 235. 1989 p.p. excl. typo

Planta annua, adscendens, 5.5–26 cm alta, glauca, purpureo-suffusa, caule simplici. Folia rosulata plus minusve hispida, petiolata, pinnatilobata, segmentis lanceolatis apice subobtusis. Pedicelli tenuissimi elongati, pilis raris adpressis obsiti. Alabastrum obovato-rotundum vel piriforme apice obtusum non tuberculatum, setis raris albescentibus ornatum. Petala dilute coccinea immaculata. Staminum filamenta rubra capsulis longioribus. Capsula obovato-conica, basin versus longe attenuata. Capsulae discus subconicus, angulatus.

This taxon was treated under several different names. Burtt & Davis (1949: 98), followed by Meikle (1977), included it in *Papaver postii* Fedde, described from Syria (Nusairy Mts), extending the range of that species to include Turkey and Cyprus and completing Fedde's original description with flower characters observed on Cyprus material. Kadereit (1989) associated it with a newly established species, *P. purpureomarginatum* Kadereit of Greece, Crete and Turkey, while noting that the Cyprus population deviates in several characters of the leaves, sepals and capsules. The same features that led Kadereit to include the Cyprus plants in *P. purpureomarginatum* (purplish margin of sepals, yellow anthers, dark spots on the stigmatic disc) can also be observed in other Cypriot taxa, such as *P. cyprium* and *P. rhoeas.*

Undoubtedly, both *Papaver postii* and *P. purpureomarginatum* are closely related to *P. paphium,* but still the three are well differentiated morphologically.

Papaver postii is a perennial or at least biennial with numerous stems (up to more than 30; as opposed to 1 or rarely 3 in *P. paphium*) and dense pinnatisect rosette leaves. *P. purpureomarginatum* can be distinguished by its elongate, pointed buds with two small apical horns and its elongate capsules. *P. paphium* has globose to pear-shaped, obtuse buds with a broadly rounded apex lacking protuberances, the stamens are shorter than the ovary, with black (not red) filaments and mostly light yellow or brownish (not bright yellow) anthers. The characters proved to be constant in cultivated plants at B (*Hand S-61*; see selected specimens).

The leaf shape of *Papaver paphium* is distinctive. The lower leaves have long, winged petioles covered with up to 2 mm long patent white hairs; the lamina is entire, lyrate or deeply three-lobed, rarely with two additional short obtuse lobes, usually glabrous or covered with sparse white hairs along the veins. The single (rarely two) cauline leaf near the stem base is sessile. The petals are contiguous, delicate pale orange, lacking dark marks. The stigmatic disc has 5–7 crenate, rounded lobes with a hyaline margin, the radiating stigmas do not reach the tip of the lobes.



Fig. 1. *Papaver paphium,* metaphase of root tip mitose, $2n = 14$.

A further argument in support of the specific rank of the new taxon endemic to Cyprus is a different chromosome number: *Papaver paphium* is diploid ($2n = 14$), whereas *P. purpureomarginatum* is tetraploid ($2n = 28$).

Chromosome number: $2n = 14$ (see Fig. 1); counted in plants cultivated at B (*Hand S-61*; see selected specimens).

Selected specimens seen (see also Fig. 2 for distribution in Cyprus):

Div. 2: Mylikouri, ENE of Mavrogenis by the main road, debris on rocky road bank, alt. c. 1000 m, 14.5.2009, *Hand S-61 & Christodoulou* (seeds), cultivated at B until 11.3.2010, *Hand* (B) & 18.3.2010*, Cubr 46873* (B); Stavros tis Psokkas, Tripylos area, along way W and SW of the summit, open *Pinus brutia* forest and banks of the way, alt. c. 1100 m, 12.5.1999, *Hand 3208;* Kampos, Prasinoudin,

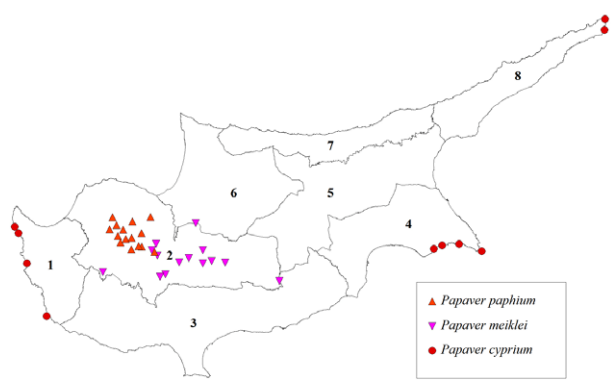


Fig. 2. *Papaver cyprium, P. meiklei, P. paphium* – distribution in Cyprus and the phytogeographical divisions sensu Meikle (1977, 1985); for data sources see Christodoulou in Hand 2009: 319.

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Limnitis valley area, c. 2 km WNW of the village, mineral rich rocky banks of the track, alt. c. 700 m, 28.3.2005, *Hand 4451 & Hadjikyriakou;* Kykko, Vrysi tou Klamenon, road towards Kykko monastery, screes, alt. 900 m, 12.4.2010, *Christodoulou* (B, CYP, ERE, PAL-Gr). M. V. Aghababyan, C. S. Christodoulou & R. Hand

Plantaginaceae

Kickxia commutata subsp. ***graeca*** (Bory & Chaub.) R. Fern.

+ Div. 4: Potamos Liopetriou, SSE of chapel, dry vernal pools in maquis with *Acacia,* alt. 2 m, 24.6.2011, *Hand 5888*. (ed.)

Poaceae

Aristida adscensionis subsp. ***coerulescens*** (Desf.) Auquier & J. Duvign. [Syn.: *A. coerulescens* Desf.]

+ Div. 3: Stavrovouni–Kakoratzia, igneous roadbanks, alt. 220 m, 27.4.2010, *Christodoulou* (CYP); mentioned for division 3 by Alziar & Guittonneau (2004) without cited specimen. C. S. Christodoulou

Brachypodium glaucovirens (Murb.) Sagorski [Syn.: *B. firmifolium* H. Lindb.]

+ Div. 3: Episkopi, in river Ezousas valley, E side of river c. 1600 m above village, in riverine forest, alt. 170 m, 17.6.2011, *Hand 5847 & Makris,* det. Scholz. R. Hand, C. Makris & H. Scholz

Echinaria capitata (L.) Desf. – RDB: DD

Classified as "Data deficient" in the Red Data Book because no populations could be confirmed in previously known sites (Tsintides & al. 2007). At the new location less than 20 plants could be counted but there is plenty of similar habitat in the vicinity.

Div. 2: Omodos, c. 600 m N Agios Filippos chapel, on ascending track, at level of a conspicuous pine tree on rocky track, alt. 945 m, 10.6.2011, *Hand 5812,* conf. Scholz. R. Hand & H. Scholz

Hordeum vulgare L. subsp. ***vulgare***

Sometimes escaping cultivation and to be classified as casual.

+ Div. 3: Pissouri, near E end of beach, small sand dunes, alt. 1 m, 13.6.2011, *Hand 5829,* det. Scholz. R. Hand & H. Scholz

Lolium multiflorum Lam.

+ Div. 3: W of Amargeti, cultivated field, alt. c. 400 m, 10.6.2011, *Hadjikyriakou 7194 & Hand.* G. N. Hadjikyriakou & R. Hand

Phleum subulatum Desf. – RDB: EN

This is the third record from division 1 (for previous records see Hand 2001, 2009).

Div. 1: Minthi Tsada [= Stavros tis Mynthis], among phrygana vegetation, alt. c. 400 m, 15.7.2010, *Makris in Hadjikyriakou 7180.* C. Makris

Sclerochloa dura (L. P. Beauv.) – RDB: VU

New maximum altitude for Cyprus, apart from Kotschy's unconfirmed record from Prodromos (see Meikle 1985).

Div. 2: Kyperounta–Karvounas, roadside on compacted ground, alt. 1265 m, 3.5.2011, *Papachristophorou* (CYP). T. Papachristophorou

Stipa arabica Trin. & Rupr. [Syn.: *S. barbata* Desf.]

+ Div. 7: Ypsarovounos Mandres Ammochostou, pine forest on gypsum, alt. c. 260 m, 10.4.2010, *Hadjikyriakou 7153*. G. N. Hadjikyriakou

Polygonaceae

Rumex conglomeratus Murray

+ Div. 3: Episkopi, in river Ezousas valley, by track on E side of river near a ford c. 1600 m above village, grassy bank, alt. 170 m, 17.6.2011, *Hand 5846 & Makris*. R. Hand & C. Makris

Potamogetonaceae

Potamogeton pectinatus L.

+ Div. 8: Rizokarpaso, Ronnas river, stream banks, alt. 50 m, 29.5.2011, *Kefalas* (B). K. Kefalas

Zannichellia palustris L. subsp. ***palustris*** [incl. subsp. *polycarpa* (Nolte) K. Richt.]

Meikle (1985) does not accept infraspecific units. Most European floras published in recent years accept at least two, sometimes three subspecies. The former alternative advocated by, e.g. Stace (2010) seems to be the more convincing solution. The following specimen belongs to the nominal subspecies (style c. 1 mm long, achene stalks < 0.5 mm long).

Div. 1+3: Episkopi, in Ezousas river a few m above barrier with metal bridge, c. 1400 m above village, slow flowing stream, alt. 160 m, 17.6.2011, *Hand 5844 & Makris*. R. Hand & C. Makris

Primulaceae

Lysimachia dubia Sol.

First record for Cyprus. The species is known to occur in most neighbouring countries, e.g. Turkey and Israel (see Marhold 2011c). The species is classified as indigenous that escaped the attention until now. Division 8, where it was found, is still the least investigated part of the island.

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+ Div. 8: Rizokarpaso, Ronnas river, shady stream banks, accompanying species *Calystegia sepium, Juncus fontanesii, Lythrum junceum, Nasturtium officinale, Polypogon viridis,* alt. 50 m, 29.5.2011, *Kefalas* (B, CYP).

K. Kefalas

Ranunculaceae

Delphinium staphisagria L. – RDB: DD

Collected from the same place in 1962 by Meikle (1977). Investigations in the vicinity of Giouti area showed that it is found in an area of about five hectares, at an altitude between 10 and 80 m.

Div. 8: Giouti Eptakomi, rocky slope with tall shrubs, alt. c. 15 m, 1.4.2010, *Hadjikyriakou 7143;* ibid, 4.5.2010, *Hadjikyriakou 7168;* ibid, 23.5.2010, *Hadjikyriakou 7173*.

G. N. Hadjikyriakou

Rosaceae

Rosa chionistrae H. Lindb.

In 1939, the Finnish botanist Harald Lindberg (1871–1963) collected on the top of Chionistra, the highest mountain of Cyprus (altitude 1952 m, today often called Olympos), a rose, which he considered to be an endemic species. He described it as *Rosa chionistrae* (Lindberg 1942).

Numerous sweetly fragrant glands of a golden or brownish tinge on the lower surface of the leaflets prove that the rose belongs to the subsection *Rubigineae* H. Christ of section *Caninae* (DC.) Ser. While all authors agree on this assignment, there are different opinions about the closer relationships to certain species of this group. Meikle (1977) judges it as closely allied to *R. iberica* Steven (not named after the Iberian Peninsula but after an ancient state in the Caucasian region), "perhaps better regarded as a subspecies of this rose … It resembles even more closely *Rosa arabica* Crépin [nom. nud., correct: *R. arabica* (Crép. ex Boiss.) Déségl.] from Sinai, which Boulenger … considers synonymous with *R. iberica* …". According to Kerguélen (1999) and to Kurtto & al. (2004), *R. chionistrae* is synonymous to *R. agrestis* Savi. The similar species *R. arabica* has been associated with *R. rubiginosa* L. (Boissier 1872; Crépin 1869) and with *R. agrestis* (Christ 1888). *R. iberica* has been considered by Crépin (1869) to be closely related to *R. rubiginosa*.

The following remarks are based on field studies (supported by C. S. Christodoulou) and the material cited below. Some characters not present in herbarium specimens were noted in the field. The first author analysed the characters of these samples and compared it with the detailed description of *Rosa chionistrae* by Meikle (1977), the protologue of Lindberg (1942) and with high resolution photos of the syntypes in the herbarium of the University of Helsinki (H). We supplement in the following, in square brackets, Meikle's description with our different or complementary findings, based on fresh and dried material [*M*], the protologue [*P*] and the photos of the types [*T*]:



Fig. 3. *Rosa micrantha* subsp. *chionistrae* – lower part of the hypanthium with a rather long, glandular-setose pedicel; at the left side the lower surface of a leaflet with glands *(Hand 5070)*.

An erect or arching shrub, 1.5–3 m high [*M:* growth mostly slender, only at very dry places lower than 1.5 m and more dense], branches strongly armed with uniform, curved, rather stout prickles; leaves [*M:* rather rigid, 130–160 µm thick] sweetly fragrant, 5–7-foliolate; petiole 1–3 cm long, glandular, channelled above, sometimes bearing a few slender prickles; stipules narrowly oblong, 0.7–1.5 cm long, 0.1–0.3 mm wide, adnate to the petiole for the greater part of their length, glabrous above, thinly glandular below [*M:* lower surface smooth or sometimes with few glands on the auricles (apices)], margins fringed with conspicuous glands, apices acute, erect or slightly curved outwards; rhachis slender, rather densely glandular [*M:* with up to 40 glands and 0–1 acicles per rhachis segment]; leaflets ovate or broadly elliptical [*M:* rarely narrowly elliptical], 1–3 cm long, 0.6–2.3 cm wide; [*M:* rather wrinkled,] glabrous or very thinly hairy along the midrib above, conspicuously glandular below, margins rather coarsely glandular-biserrate, apex acute or sometimes obtuse, base [*M, T:* rounded or] broadly cuneate [*M:* rarely narrowly cuneate]; flowers solitary or sometimes in clusters of 2 or 3; bracts conspicuous, ovate-acuminate, about 1.5 cm long, 0.6 cm wide, thinly glandular or subglabrous with glandular margins; pedicels short [*M:* medium, 0.6–1.3 as long as the hip, on average almost as long as the hip] seldom

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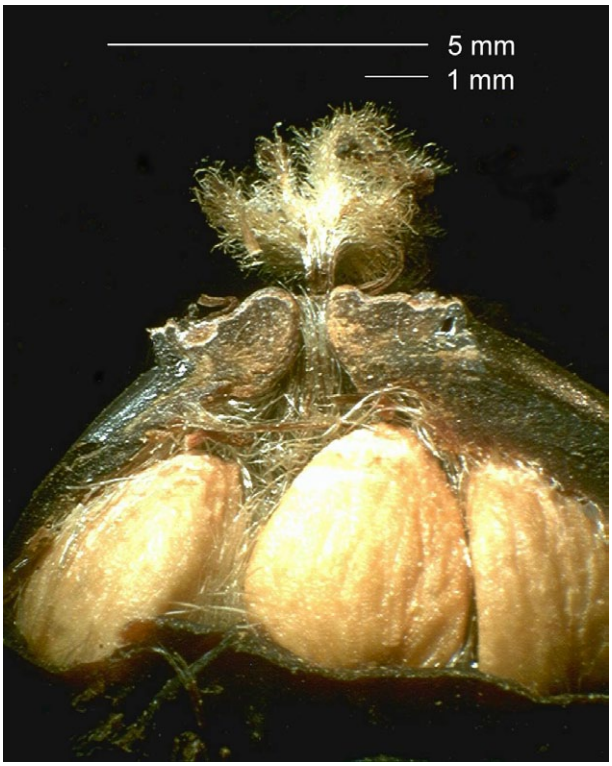


Fig. 4. *Rosa micrantha* subsp. *chionistrae* – cross section through the upper part of a hip collected in November, sepals dropped off; disc broad, orifice narrow, styles villose *(Hand 3684)*.

exceeding 1 cm in length, glandular-setose with a few scattered hairs [*T:* in the photos most pedicels are hidden by bracts; the three visible pedicels are smooth or sparsely glandular-setose / *P:* "pedunculis nudis vel raro glandulis stipitatis nonnullis instructis" / *M:* more or less densely glandular-setose (Fig. 3)]; receptacle narrowly ovoid or ellipsoid at anthesis, about 1 cm long, 0.4–0.5 cm wide, glabrous or thinly glandular-setose at the extreme base; sepals foliaceous with 4–6 narrowly [*M:* about 1 mm wide] lanceolate lateral lobes, about 1.5 cm long, 0.4 cm wide at base, conspicuously glandular at the abaxial surface, spreading or reflexed [*M:* reflexed] after anthesis, deciduous in fruit; petals white, broadly obcordate, 2–2.3 cm long, about 2 cm wide, apex shallowly emarginate; stamens numerous, filaments glabrous, 2.5–3 mm long; anthers oblong, about 2 mm long, 1.5 mm wide; disk [*M:* with a diameter of about 4.5 mm] prominent, conical [*M:* low conical (Fig. 4)], glabrous, with an aperture about 0.7 mm diam.; styles free, pilose [*M:* densely pilose, nearly lanate (Fig. 4)], forming a low dome about 3.5 mm diam. [*M:* a little exserting above the orifice], stigmas capitate. Fruit broadly ovoid or subglobose [*M:* ovoid, 1.2–1.5 as long as wide], about 1.5 cm long and 1.2–1.5 cm wide, scarlet; achenes bluntly angular, pale brown, about 5 mm long, 3 mm wide.

The observations of R. Hand and C. S. Christodoulou at the locus typi and other locations in Cyprus proved, that most shrubs have more or less glandular-setose pedicels. A minority of shrubs has partially smooth pedicels. It seems that Lindberg has accidentally collected twigs whose pedicel characters represented the edge of variation pattern.

The description includes three characters which can occur each on its own as rare exceptions in *Rosa agrestis*. But their combination has obviously never been found: broad leaflets with rounded or broadly cuneate bases; glandular-setose pedicels; abaxially glandular sepals. This combination of characters demonstrates, that *R. chionistrae* is closely related to *R. micrantha* Borrer ex Sm. At least 75 % of Meikle's description of *R. chionistrae* applies equally to this species. We are therefore convinced that *R. chionistrae* must be included into *R. micrantha*. Its differentiating characters do not justify species rank if compared to generally accepted species of subsection *Rubigineae*.

On the other hand, there are some remarkable differences, which require in our view more than the taxonomic rank of variety. The most important is the rare combination of the narrow orifice cylinder and densely villous styles (*Rosa micrantha* s.str.: styles generally glabrous, rarely more or less hairy). Keller (1931) cites a taxon which resembles *R. chionistrae* in this respect and has also white petals: *R. micrantha* var. *hungarica* (A. Kern.) Heinr. Braun found in Hungary. But this taxon differs by its always sparsely glandular pedicels, oblong hips and small petals. Furthermore, leaflets of *R. chionistrae* are rather thick and rigid (*R. micrantha* s.str.: thin and soft) and stipules mostly lack glands at the abaxial side.

It seems very likely that *Rosa chionistrae* is an insular endemic, which evolved on Cyprus by isolation from the main distribution area of *R. micrantha*, which extends actually southeast to Turkey (Henker 2000; Kurtto & al. 2004). There are still no sharp morphological discontinuities. Thus, we propose the rank of subspecies for this geographical vicariant:

Rosa micrantha subsp. ***chionistrae*** H. Reichert & Hand, **comb. & stat. nov.** ≡ *Rosa chionistrae* H. Lindb. in Årsbok-Vuosik. Soc. Sci. Fenn. 20B(7): 5. 1942. – Syntypes: "Cyprus: m. Troodos, in pineto (*P. Pallasiana*) juxta 'Military Camp', in marg. viæ", 22.6.1939, *Lindberg* (H 1500454); "Cyprus: m. Troodos, in glareosis in cacumine Chionistra, 1950 m", 17.6.1939, *Lindberg* (H 1500452, 1500453) [photos of all types!; typification: H. Väre, in prep.]

Div. 2: Prodromos, at the road c. 800 m SE Prodromos reservoir, rocky road bank, alt. 1555 m, 22.9.2010, *Hand S-183 & Christodoulou* (B-seedbank); ibid., along track SE of Prodromos reservoir, banks, alt. 1570 m, 22.9.2010, *Hand S-184 & Christodoulou* (B-seedbank); Agios Theodoros, summit of and saddle W of Papoutsa, open rocky ground, alt. 1500–1550 m, 2.11.2002, *Hand*

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3684; Chandria, Madari, along descending path below Adelfoi summit, first 200 m from end of track, screens with scattered shrubs, alt. 1579 m, 20.5.2005, *Hand 5040 & Hadjikyriakou;* Palaichori, at the road to Palaichori, westernmost part of road, in bends, alt. c. 1000 m, 23.5.2005, *Hand 5070, Christodoulou & Kyriakou*.

H. Reichert & R. Hand

Rubiaceae

Galium divaricatum Lam. – RDB: VU

Only three collections are known so far, from divisions 1, 4 and 6 (Meikle 1977; Alziar 2000; Chrtek & Slavík 2001).

+ Div. 5: Between Trikomo and Sygkrasi, dry field, alt. 30 m, 8.5.2011, *Kefalas* (B). K. Kefalas

Sapindaceae

Dodonaea viscosa (L.) Jacq.

The widely planted shrub from Australia (see Tsintides & al. 2002) started to establish in Cyprus during the last decades. Now, it must be classified as naturalised invasive (see Hadjikyriakou & Hadjisterkotis 2002, Hadjikyriakou 2009, Hadjikyriakou in Hand 2009 for previous records of naturalisation).

Div. 5: Four kilometers N of Lefkonoiko, a group of plants of about 200 m², on rocky place, surrounded by phrygana vegetation, alt. c. 100 m, 2.3.2010, *Hadjikyriakou 7134*.

G. N. Hadjikyriakou

Scrophulariaceae

Verbascum geminiflorum Hochst.

First record for Cyprus. Most probably a casual that appeared in 1998 but has not been refound in the area. The next occurrences are in Turkey (Marhold 2011d).

+ Div. 2: Pano Amiantos, roadbank, alt.1320 m, 16.6. 1998, *Christodoulou* (CYP 3857).

C. S. Christodoulou

Verbascum orientale (L.) All. – RDB: CR

+ Div. 3: NE of Lefkara towards Pentaschoinos valley, dry, rocky hillsides on pillow lavas, alt. 340 m, 16.4.2011, *Kefalas* (CYP, herb. Hadjikyriakou); Louvaras, Lemesos forest, Kakomalis area, Moutti tis Portas peak, rocky, igneous slopes, alt. 920 m, 12.5.2011, *Christodoulou* (B, CYP).

C. S. Christodoulou & K. Kefalas

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