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RALF HAND (ed.)

Supplementary notes to the flora of Cyprus V.

Abstract

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Continuing a series of miscellaneous contributions by various authors, the fifth instalment includes information about 179 taxa focussing on the chorology and ecology of the Cyprus flora. Four taxa are new to science *(Onopordum ×makrisii, Quercus alnifolia* var. *argentea, Q. ×campitica* nothosubsp. *hylatis, Solenopsis antiphonitis),* several taxa are new to the island, e.g., *Aethionema arabicum, Bellium minutum, Cynara syriaca, Echium judaeum, Epilobium lamyi, E. tournefortii, Gypsophila linearifolia, Herniaria hemistemon, Lolium rigidum* subsp. *lepturoides, Malcolmia africana* and *Silene argentea*. Chromosome numbers of four taxa have been confirmed *(Lomelosia cyprica, Phlomis cypria* subsp. *occidentalis, Silene fraudatrix, Teucrium kotschyanum),* one case *(Arabis cypria)* is controversial.

Key words: flowering plants, chorology, distribution maps, taxonomy, chromosome numbers.

Introduction

In the last decade, floristic and taxonomic research in Cyprus has made considerable progress. This instalment summarizes some of the results contributed by various, mainly indigenous, botanists but also foreign visitors. Many of the contributions of this fifth instalment again refer to chorological additions, i.e. first records for the eight phytological divisions of Cyprus according to Meikle (1977, 1985). Proceeding completion of data clearly shows which taxa can be classified as pan-Cyprian and which have a more or less restricted distribution pattern – even using this very rough subdivision.

Explanations and criteria for the inclusion of data in this series, nomenclature and sequence of taxa have been published in instalment I (Hand 2000), regarding chromosome counts in instalment II (Hand 2001) and status categories in the last instalment (Hand 2004). It should be stressed that apart from both Meikle's (1977, 1985) detailed standard flora and the floristic treatments on Cyprus published since, all known papers widely scattered in the taxonomic literature have been considered when accepting specimen based records as supplementary. A database containing such records will be completed continuously. The index to the taxa treated in the five instalments of this series is given in an electronic supplement to the present instalment at http://www.bgbm.fu-berlin.de/willdenowia/willd36/cyprus5.htm. Taxonomy und nomenclature of taxa mentioned in the contributions follow Meikle (1977, 1985) or amendments discussed in this series.

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Instalment VI will be published in the near future; contributions are welcome and should be sent to the editor. Contributors to the present instalment (apart from the editor) are Prof. Dr Gabriel Alziar (Nice/France), Christos Charalambous (Ineia/Cyprus), Charalambos S. Christodoulou (Lefkosia/Cyprus), Dr Pinelopi Delipetrou (Athens/Greece), Dr Franz-Georg Dunkel (Karlstadt/Germany), Dr Thomas Gregor (Schlitz/Germany), Georgios Hadjikyriakou (Trachoni/Cyprus), Thomas Hadjikyriakou (Lemesos/Cyprus), Andreas Kyriakou (Lefkosia/Cyprus), Thomas Kyriakou (Lefkosia/Cyprus), Prof. Dr Jacques Lambinon (Liège/Belgium), Christodoulos Makris (Lemesos/Cyprus), Christian Niederbichler (Schondorf/Germany), Giannos Orphanos (Lekosia/Cyprus), Takis Papachristophorou (Lefkosia/Cyprus), Irina P. Privalova (Moscow/Russia), Margarita V. Remizova (Moscow/Russia), Prof. Dr Hildemar Scholz (Berlin/Germany), Alexey P. Seregin (Moscow/Russia), Prof. Dr Dmitry D. Sokoloff (Moscow/Russia), Nicolas Symons (Kritou Terra/Cyprus), Takis Tsintides (Lekosia/Cyprus), and Dr Robert Vogt (Berlin/Germany).

If not stated otherwise, specimens are kept in the private herbaria of the contributors. The collections of the Russian contributors are preserved at MW, those of the editor at B.

Spermatophyta

Ranunculaceae

Ranunculus ficarioides Bory & Chaub.

First record for Cyprus. A native of Greece, Lebanon, Turkey and Transcaucasia (Davis 1965). In Cyprus it was collected once in the Damaskinari area within the National Forest Park of Troodos, where it forms a small colony of less than ten plants under *Quercus alnifolia* shrubs, first located by the second author. Extensive surveys in the wider area of Prodromos village have failed to locate any other colonies. However, considering its occurrence in neighbouring countries and in a natural habitat in Cyprus, the species is characterised as indigenous and very rare. The record of *R. ficarioides* mentioned by Christodoulou (1996) refers to the site published here.

+ Division 2: Prodromos, Damaskinari, igneous mountain slopes, 1350 m, 13.4.1993, *Orphanos 575;* ibid., 18.5.1997, *Christodoulou CYP 3685*.

C. Christodoulou & G. Orphanos

Aizoaceae

Mesembryanthemum nodiflorum L.

Characterized by Meikle (1977) as a plant of seashores. It also grows a few km inland on the marl slopes of the Palaeogenic Lefkara formation in division 3. Deep cracks in the drying upper layer already present in early spring prevent the colonization by plants with the exception of a few taxa such as *Beta vulgaris* subsp. *maritima, Melilotus sulcatus* and *Pteranthus dichotomus.*

Division 3: Pyrgos, c. 1 km SW at the road, open marl slopes, c. 100 m, 4.3.2005, *Hand 4196;* Monagroulli, Ouria, at the road towards SE from the village, c. 1 km ESE Agioi Anargyroi, marl hills, open ground at field margins, c. 60 m, 29.3.2005, *Hand 4458;* Governor's Beach – Pentakomo, at clay slope about 2 km from the coast, c. 50 m, 29.3.2002, *Hadjikyriakou 5326 & Delipetrou*.

P. Delipetrou, G. Hadjikyriakou & R. Hand

Cruciferae

Carrichtera annua (L.) DC.

+ Division 4: Achna, Achna dam, S shore W of the dam, open ground flooded in winter, c. 30 m, 11.5.2005, *Hand 4928;* probably, a casual only at this site. (ed.)

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Calepina irregularis (Asso) Thell.

+ Division 1: Agios Charalampos, near Filousa, field margins, 400 m, 13.3.1994, *Christodoulou CYP 1648;* near Filousa, field margins and roadsides, 450 m, 13.3.1994, *Christodoulou CYP 1649*. C. Christodoulou

Crambe hispanica L.

+ Division 6: Kokkinokremmos between Orga and Livera, crevices of vertical cliff, 50 m, 1.4.2004, *G. Hadjikyriakou 5977 & T. Hadjikyriakou.*
It is mentioned by Viney (1994) from division 6 without cited specimen.
G. Hadjikyriakou & T. Hadjikyriakou

Coronopus squamatus (Forssk.) Asch.

+ Division 8: Galateia, W part of the dry lake SW of the village, open dry mud and reed fragments, 94 m, 24.5.2005, *Hand 5091 & Hadjikyriakou* and *Hadjikyriakou 6439 & Hand*. G. Hadjikyriakou & R. Hand

Aethionema arabicum (L.) DC.

This taxon, not known to occur in Cyprus, was found in late spring 1997 by the third author near Mitsero in the northern foothills of Troodos range, but due to over-mature specimens identification at species level was not possible. In 2005, it was found without knowledge of these earlier collections in the Kalavasos area (southern foothills of the Troodos range). In the latter region, *A. arabicum* shows preference for banks, screes and rocky slopes with rather fine debris of the Lower Pillow Lava formation as well as lavas and volcaniclastic sediments of the Arakapas sequence. *Iberis odorata* and *Gaudiniopsis macra* share its ecological requirements. In the northern foothills the following accompanying taxa were observed: *Alyssum simplex, Astragalus cyprius, Biscutella didyma, Galium setaceum, Iberis odorata, Onobrychis venosa, Petrorhagia kennedyae, P. cretica, Silene macrodonta* and *S. laevigata. A. arabicum* seems to be indigenous to Cyprus as is to the neighbouring countries (see, e.g., Hedge 1965: Bulgaria, Greece, Turkey, Syria, Iraq, Iran, Transcaucasia).

+ Division 3: Kalavasos, rocky slope and small gorge above track at the southernmost point of the reservoir, close to the dam, 180-200 m, 7.3.2005, *Hand 4242;* Kalavasos, SSW Drapeia, half-way to Vasilikos river, open pillow lava slopes around small pool in gorge, c. 100 m, 13.3.2005, *Hand 4302;* Kalavasos, SSW below Drapeia, S of the pool between Drapeia and Vasilikos River, pillow lava hills, open ground, c. 100 m, 30.3.2005, *Hand 4471*.
+ Division 5: 1.7 km E of Lythrodontas, eroded slopes on upper pillow lavas, 500 m, 26.3.1998, *Christodoulou CYP 3795;* 800 m E of Analiontas, dry hillsides on upper pillow lavas, 315 m, 27.4.2004, *Christodoulou CYP 4571;* between Klirou and Politiko, on dry slopes, on pillow lavas, 440 m, 30.4.2006, *Christodoulou* (obs.).
+ Division 6: 1 km NE of Mitsero, on upper pillow lavas, 420 m, 11.3.1998, *Papachristophorou CYP 3778;* ibid., 14.3.1998 & 19.3.1998, *Christodoulou CYP 3787 & 3790*.
C. Christodoulou, R. Hand, A. Kyriakou & T. Papachristophorou

Aethionema carneum (Banks & Sol.) Fedtsch.

New for Cyprus. An annual with a more eastern distribution than *A. arabicum* (Irano-Turanian element), occurring from Syria and Turkey to Central Asia (Hedge 1965). In Cyprus it has hitherto been found at only one location along with *A. arabicum* and it may similarly still be found at other locations. It is undoubtedly indigenous to Cyprus.

+ Division 6: near Mitsero, on upper pillow lavas, 420 m, 14.3.1998 & 19.3.1998, *Christodoulou CYP 3786 & 3789*. C. Christodoulou

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Thlaspi perfoliatum var. ***stylatum*** Post

+ Division 6: Agrokipia, Kreatos, rock slide on NE side, shaded rocks and grassy slope, c. 580 m, 11.3.2005, *Hand 4285*. (ed.)

Clypeola jonthlaspi var. ***glabra*** Boiss.

+ Division 5: Mathiatis, gorge N of the road to Kataliontas, S tributary of Gialias, rocks and phrygana, c. 350 m, 11.3.2005, *Hand 4267*. (ed.)

Erophila praecox (Stev.) DC.

Meikle (1977) treated *E. verna* in a wide sense and mentioned records for all eight divisions of the island. Records of the segregates *E. praecox* and *E. spathulata,* both from division 2, have been published by Alziar (2000) and Kalheber (2003), respectively. See also the latter publication for problems in harmonizing the different taxonomic traditions concerning the genus.

Division 2: Afamis, vineyard, c. 1000 m, 28.2.1989, *Hadjikyriakou 154;* Statos Vouni Panagias, rocky place with shrubs, c. 800 m, 26.2.1997, *Makris in Hadjikyriakou 2262*.

+ Division 5: Athalassa forest, kafkalla rocks with shallow soil, c. 180 m, 29.1.2001, *Hadjikyriakou 5176 & Christodoulou*.

C. Christodoulou, G. Hadjikyriakou & C. Makris

Arabis cypria Holmboe

Chromosome number: $2n = 16$ (three different plants counted). The number is identical to that of the closely related *A. purpurea,* another endemic of Cyprus (Vogt & Aparicio 2000). Recently, Yıldız & Gücel (2006) published counts in plants from two sites in Cyprus. Their results ($2n = 14$) diverge from own counts but the photograph published by these authors is not very clear and could show more than 14 chromosomes. Unfortunately, no photographs of the material counted at B could be produced but three different plants revealed the same number. Further studies on this taxon are required.

Division 1: Buffavento and vicinity, summer 2003 (seeds), *Showler,* cultivated until 10.8. 2004 (leg. *Cubr 42278,* garden herbarium B, accession number 082-03-04-30) and 15.9.2004 at B *(Hand 4178).* (ed.)

Arabis verna R. Br.

+ Division 6: Agrokipia, Kreatos, rock slide on NE side, shaded rocks and grassy slope, c. 580 m, 11.3.2005, *Hand 4284.* (ed.)

Arabis kennedyae Meikle

A very rare Cyprian endemic, previously known only from two locations, Xerokolympos and Kryos Potamos, at the central part of Troodos range (see Meikle 1977). The new location, isolated from the known colonies, extends the distribution area of the plant significantly.

Division 2: Tripylos, cedar valley, igneous road banks in *Cedrus brevifolia* forest, 1380 m, 22.4.1998, *Christodoulou CYP 3821;* ibid., 7.4.2005, *Christodoulou CYP 4716.*

C. Christodoulou

Malcolmia flexuosa (Sm.) Sm.

+ Division 1: Avgas gorge, among rocks in the riverbed, c. 70 m, 21.3.1991, *Hadjikyriakou 1050*. G. Hadjikyriakou

Malcolmia chia (L.) DC. var. ***chia***

+ Division 2: Odou, NNE, summit 1228, rocky screes and open *Quercus alnifolia* shrubs, 1200-1228 m, 9.4.2005, *Hand 4563;* Odou, NNE, W of Moutti tou Charaka, N and NW of summit 1228, banks of roads and tracks, c. 1180 m, 9.4.2005, *Hand 4550a;* Argaki tou Pissokremmou Xeros valley, roadside, c. 450 m, 10.4.1998,

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Hadjikyriakou 311; Statos, rocky place, c. 800 m, 15.4.1999, *Makris in Hadjikyriakou 4383.*

+ Division 3: Kyparissia river, rocky slope with low shrubs, c. 250 m, 13.4.1991, *Hadjikyriakou 1097.* G. Hadjikyriakou, R. Hand & C. Makris

Malcolmia chia var. ***lyrata*** (Sm.) Boiss.

Described from Cyprus but without locality (see Meikle 1977). It has not been found since Sibthorp's collection in 1787.

+ Division 2: Odou, NNE, W of Moutti tou Charaka, N and NW of summit 1228, banks of roads and tracks, c. 1180 m, 9.4.2005, *Hand 4550b,* together with the nomimal variety; between Odou and Lazania, rock crevices, c. 1000 m, 15.4.1998, *Christodoulou CYP 1946* and *Christodoulou in Hadjikyriakou 3168;* Kremos tou Astraka, Platys valley, igneous mountain sides on rocky ground, c. 950 m, 27.4. 2005, *Christodoulou CYP 4807* and *Christodoulou in Hadjikyriakou 6283.* C. Christodoulou & R. Hand

Malcolmia africana (L.) R. Br. [Syn.: *Strigosella africana* (L.) Botsch.]

First record for Cyprus. Hitherto collected from a single locality. However, it is known to occur in the neighbouring countries (Greece, Turkey, Syria, Palestine, Israel, Sinai and Egypt, as well as in other countries of the Mediterranean, Crimea and eastwards to Mongolia, China and India; Post 1932, Cullen 1965, Zohary 1966, Täckholm 1974, Townsend 1980, Ball & Akeroyd 1993). This suggests that it is probably native to Cyprus.

+ Division 3: N of Episkopi Lemesou, disturbed place along roadside, c. 150 m, 29.3. 2001, *Hadjikyriakou 5238;* ibid., 18.3.2005, *Hadjikyriakou 6183;* ibid., same date, *Hadjikyriakou* in *Hand 4372*. G. Hadjikyriakou

Frankeniaceae

Frankenia pulverulenta L.

+ Division 3: Akrotiri at Episkopi Bay, gravelly coast, 7.4.1996, *Makris in Hadjikyriakou 1777;* Lady's Mile near Zakaki, dried pools, 28.3.1998, *Makris in Hadjikyriakou 3019*. C. Makris

Frankenia hirsuta var. ***hispida*** (DC.) Boiss.

+ Division 3: Mazotos, at the river mouth below Petountas church, brackish marsh, c. 1 m, 7.4.2005, *Hand 4535.* (ed.)

Caryophyllaceae

Petrorhagia kennedyae (A. K. Jacks. & Turrill) Meikle

Specimen *2955* collected by Meikle (1977) from Kakorakia falls within division 3 and erroneously is placed in division 4. The following gatherings confirm the presence of the endemic in the former division.

Division 3: Prastio, at main track down to Germasogeia river, c. 500 m WNW village, rocky open bank in a gully, c. 450 m, 12.5.2005, *Hand 4949 & Hadjikyriakou* and *Hadjikyriakou 6375 & Hand.* G. Hadjikyriakou & R. Hand

Gypsophila linearifolia (Fisch. & C. A. Mey.) Boiss.

New for Cyprus. A plant of gypsaceous semideserts of W and Central Asia (Zohary 1973). In Cyprus it is only known from one location on dry gypsum slopes among sparse phrygana along with *Allium cupani* subsp. *cyprium, A. lefkarense, Herniaria hemistemon* and *Onobrychis venosa*. It is considered as indigenous.

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+ Division 4: Rizoelia National Park, 1.8 km SW of Aradippou, dry gypsum slopes, among thin phrygana, 60-90 m, 30.4.1999, 10.5.1999, 12.5.1999, *Christodoulou CYP 4048, 4074, 4079.* C. Christodoulou

Saponaria mesogitana Boiss.

The first record for Cyprus from the Troodos range (division 2) has been published by Hadjikyriakou & al. (2004). At the Kataliontas site, the species grows in channels in rocks of the pillow lava formation where water runs only after torrential winter rains. There is no reason to doubt its indigenous status in Cyprus.

+ Division 5: Kataliontas, c. 400 m E of the road to Mathiatis, not far from junction to Lythrodontas, open rocky pillow lava ground, c. 350 m, 16.3.2005, *Hand 4348;* near Analiontas, dry hillsides on pillow lavas, 315 m, 27.4.2004, *Christodoulou CYP 4572;* between Klirou and Politiko, on dry slopes, on pillow lavas, 440 m, 30.4.2006, *Christodoulou CYP 5166*. C. Christodoulou & R. Hand

Silene galataea Boiss.

This endemic was known so far to occur on the igneous rocks of division 2 (Meikle 1977), where it is locally common. However, the specimens cited below extend its range to calcareous rocks, particularly in division 7. Meikle (1977) states that "… lamina [of basal leaves] obovate-elliptical, 2-5 cm long, 1-2 cm wide, acute, thinly pubescent, dull green or purplish, narrowing gradually at base and decurrent along a petiole 2-5 cm long …". This applies well for some specimens collected from division 2, however, on some other the lamina is almost circular, mucronate and subtruncate and then gradually narrowing into a petiole. As regards the specimens from division 7, in some plants the lamina is mostly almost circular, 2-5 × 2-4.8 cm, mucronate and subtruncate at the base, then gradually narrowing into a petiole, whereas in some others the lamina is obovate-elliptical. Further investigation is needed.

Division 2: Kremmos Floudion Vouni Panagias, rocky place on sedimentary rocks, c. 900 m, 22.12.1996, *Hadjikyriakou 1999 & Makris;* Panagia – Vretsia, roadside on pillow lavas, c. 750 m, 22.12.1996, *Hadjikyriakou 2007 & Makris*.

+ Division 7: Mavron Oros SE of Kalograia, rocky place, c. 300 m, 12.2.2004, *G. Hadjikyriakou 5912 & T. Hadjikyriakou;* above Antifonitis Monastery, rocky place, c. 500 m, 12.2.2004, *G. Hadjikyriakou 5913 & T. Hadjikyriakou;* Mavri Skala SE of Akanthou, rocky place, c. 400 m, 14.5.2005, *Hadjikyriakou 6390 & Hand* and *Hand 4973 & Hadjikyriakou;* Mavron Oros E of Kalograia, rocky place, c. 250 m, 4.6.2005, *Hadjikyriakou 6508;* SW of Antifonitis Monastery, rocky place, c. 500 m, 28.6.2005, *Hadjikyriakou 6683 & Christodoulou*.
C. Christodoulou, G. Hadjikyriakou, T. Hadjikyriakou, R. Hand, & C. Makris

Silene argentea Ledeb. [Syn.: *S. cappadocica* Boiss. & Heldr.]

First record for Cyprus. Only a very small group of plants was located so far in the collecting locality, despite the repeated visits in the vicinity. The taxon is known to occur in Anatolia and Georgia (Coode & Cullen 1967) and probably is indigenous to Cyprus.

+ Division 2: Livadi tou Filippou Troodos, roadside, c. 1650 m, 7.7.2005, *Hadjikyriakou 6730*. G. Hadjikyriakou

Silene fraudatrix Meikle

Chromosome number: $2n = 24$ (four different plants counted; see Fig. 1). It is identical to the numbers published recently by Yıldız & Gücel (2006), who counted plants from two sites in the Pentadactylos range including Halevga area. Obviously, there are no additional chromosome number reports of this endemic taxon (see IPCN series, last instalment by Goldblatt & Johnson 2003, and online data base). The counted number is common in *Silene* sect. *Atocion,* see, e.g., the numbers published by Greuter (1997) for the Greek taxa.

Division 7: Halevga, 2003 (seeds), *Showler,* cultivated until 26.5.2005 (leg. *Cubr 43035,* garden herbarium B, accession number 238-02-04-30). Originally, seeds were

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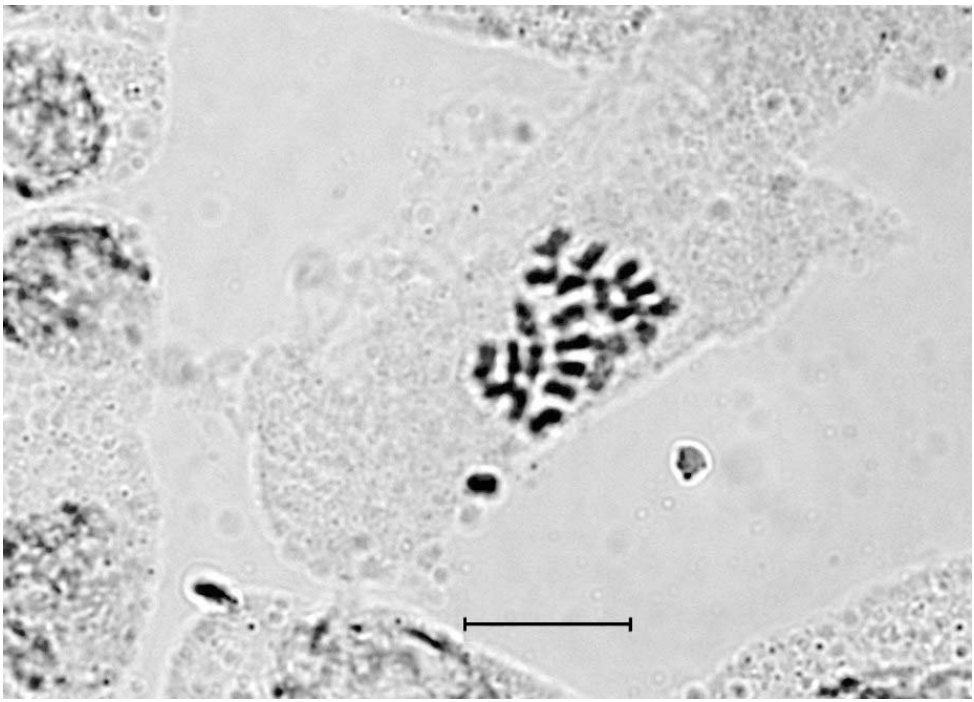

Fig. 1. *Silene fraudatrix* – root tip metaphasis, showing 2*n* = 24 chromosomes. – Scale bar = 10 µm.

collected in 2003, plants raised in the private garden of A. Showler. Seeds of these plants were sent to B. (ed.)

Silene sedoides Poir.

+ Division 6: Kormacit Burnu/Cape Kormakitis, rocks at the lighthouse at the cape, c. 2-5 m, 28.6.2005, *Vogt 16277*. R. Vogt

Silene laevigata Sm.

+ Division 5: Mathiatis, NW, S of the Gialias bridge, pillow lava rocks, c. 350 m, 21.3.2005, *Hand 4387*. (ed.)

Minuartia globulosa (Labill.) Schinz & Thell.

+ Division 7: Agios Panteleimon E of Karmi, disturbed stream bed, c. 350 m, 30.5.2004, *Hadjikyriakou 6087*. G. Hadjikyriakou

Illecebraceae

Paronychia echinulata Chater

A Mediterranean species, very rare in Cyprus. It was first reported from a 1998 collection from division 2 at Kannaviou (Hand 2000).

+ Division 1: Akamas, Argakin ton Kavourotripon, on dry slopes on pillow lavas, 250 m, 7.4. 1995, *Christodoulou CYP 3180.* C. Christodoulou

Herniaria hemistemon J. Gay

New for Cyprus. Saharo-Arabian, xero-halophytic species distributed in N Africa and Arabia (Zohary 1966, Chaudhri 1968, Chamberlain 1996). Found in the dry and semiarid zone of the is-

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land. *H. hemistemon* forms small colonies of 50-200 plants in gypsophilous communities, always on dry, poor soils among sparse phrygana or along dirt roads, usually on gypsum outcrops. Its habitat is similar to that in neighbouring countries indicating that it is indigenous to Cyprus. Apart from the specimens cited below the taxon has been observed in division 6 on gypsum near Kato Moni in 1999.

+ Division 4: Rizoelia National Park, 1.8 km SW of Aradippou, dry, poor, usually compacted soils among thin phrygana and along dirt roads, 21.4.1999, 60-90 m, *Christodoulou CYP 4035;* ibid., 30.4.1999, *CYP 4047.*

+ Division 5: 2.3 km E of Tziaos on the road to Knodara, dry compacted soils along dirt road and very thin phrygana, 90 m, 2.6.2005, *Christodoulou CYP 4932*.

C. Christodoulou

Malvaceae

Althaea hirsuta L.

+ Division 2: Sykopetra, NE Profitis Ilias, along first 500 m of the track towards Farmakas, screes and road banks, c. 1040 m, 23.5.2005, *Hand 5077, Christodoulou & Kyriakou;* Agios Merkourios – Aetofoulia, on igneous mountainside, 800 m, 12.5.1995, *Christodoulou CYP 1829.*

+ Division 4: Agioi Anargyroi Kavo Gkreko, rocky place, c. 15 m, 21.3.1997, *Hadjikyriakou 2413;* S of Xylophagou, rocky place, c. 20 m, 7.4.2000, *Hadjikyriakou 4968 & Alziar*.

Mentioned without cited specimens for division 4 by Coulot (2000).

G. Alziar, C. Christodoulou, G. Hadjikyriakou, R. Hand & T. Kyriakou

Lavatera bryoniifolia Mill.

+ Division 8: Kantara, E below road to Gerani, along road, c. 350 m, 14.5.2005, *Hand 4983 & Hadjikyriakou* and *Hadjikyriakou 6395 & Hand.* G. Hadjikyriakou & R. Hand

Anacardiaceae

Rhus coriaria L.

+ Division 3: Agios Therapon, on slopes NE of the road bridge crossing Kryos, at the track above the cliffs on E side, maquis and phrygana, c. 560 m, 2.5.2005, *Hand 4789.* Mentioned for that division without cited specimens by Alziar (1985). (ed.)

Geraniaceae

Erodium crassifolium L'Her.

+ Division 1: near Kolpos Korallion, on maritime rocks, 10 m, 28.1.2004, *Christodoulou CYP 4463*. C. Christodoulou

Leguminosae

Ononis biflora Desf.

+ Division 5: Agia Varvara, c. 1 km SW of the village, N of the road to Mathiatis, marl slope, grassy phrygana and fields, c. 320 m, 11.3.2005, *Hand 4265.* (ed.)

Ononis reclinata var. ***monophylla*** (Bég.) Pamp.

+ Division 3: Limassol, Potamos Yermasoyias, herbaceous plot with sparse trees, 10 m, 8.3. 2004, *Seregin A-56, Sokoloff & Remizova*.

M. Remizova, A. Seregin & D. Sokoloff

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Ononis pusilla L.

+ Division 3: Lefkara, roadside, c. 500 m, 14.4.1999, *Hadjikyriakou 4374*. G. Hadjikyriakou

Ononis diffusa Ten.

+ Division 7: Pachines Davlos, sand dunes, 9.4.2004, *Hadjikyriakou 6006*. G. Hadjikyriakou

Ononis serrata Forssk.

+ Division 6: Agia Eirini, c. 2 km SSW at main track vertically to the coast, open sands in fixed sand dune area, c. 10 m, 9.5.2005, *Hand 4876 & Hadjikyriakou*. G. Hadjikyriakou & R. Hand

Medicago coronata (L.) Bartal.

+ Division 6: Agrokipia, Kreatos, rock slide on NE side, shaded rocks and grassy slope, c. 580 m, 11.3.2005, *Hand 4287* (ed.)

Trifolium pamphylicum var. ***dolichodontium*** Hossain

+ Division 6: Agia Eirini, c. 2 km SSW at main track vertically to the coast, open sands in fixed sand dune area, c. 10 m, 9.5.2005, *Hand 4875 & Hadjikyriakou.* G. Hadjikyriakou & R. Hand

Trifolium campestre subsp. ***paphium*** Meikle

Described as a micro-endemic from the vicinity of Stavros tis Psokas in the Pafos Forest (Meikle 1977) but the taxon is found also at scattered localities in W and central Troodos range. At the site near Mylikouri, the plant grows together with the nominal subspecies. No intergrades could be found. Further studies of the group are required (see already Kalheber in Hand 2001).

Division 2: Mylikouri, along track from road to Kykko – Pedoulas down to Platys valley, at the first turn-off to the river, banks of the track, c. 800 m, 22.4.2005, *Hand 4664, Bach & Niederbichler;* Mavres Sykies Limnitis valley, roadside, c. 600 m, 27.4.1998, *Hadjikyriakou 3199;* above Agia Eirini Pitsilias, mountainsides with *Cistus* spp., c. 1010 m, 8.4.2005, *Christodoulou in Hadjikyriakou 6240* C. Christodoulou, G. Hadjikyriakou, R. Hand & C. Niederbichler

Lotus edulis L.

Biennial plants of *L. edulis* were collected for the first time ever (see collections cited below). The plant is always described as an annual. Tsutsupa (2003) showed, that *L. edulis* could be a biennial in conditions of cultivation in Orel Province (Middle Russia). It is confirmed that it is possible in nature also.

Division 3: 10 km to W from Limassol, vicinity of Kolossi Castle, highway margin, 30 m, 10.3.2004, *Seregin A-178, Sokoloff & Remizova;* ibid., 13.3.2004, *Seregin A-280 & Sokoloff;* Akrotiri Sovereign Base Area, 13 km to W from Limassol, 2 km to S from Episkopi, highway margin, 20 m, 10.3.2004, *A. Seregin A-195, Sokoloff & Remizova*. M. Remizova, A. Seregin & D. Sokoloff

Astragalus macrocarpus subsp. ***lefkarensis*** Kirchhoff & Meikle

A narrowly distributed endemic, known from the vicinity of Lefkara (locus classicus) and Asgata in divisions 2 and 3 (Meikle 1977, Della & Iatrou 1995). The new locations, particularly the sites in division 1 and 6 respectively, expand its distribution significantly. As an exception, the Koloni site is mentioned without cited specimen. The population there consists of four individuals only and for conservation reasons no specimens were collected.

+ Division 1: Koloni, 2.2 km W of Kato Arodes, on grazed slope with phrygana, 390 m, 13.4. 2004, *Charalambous & Christodoulou* (obs.).

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Division 3: 0.8 km SW of Alaminos, low maquis with *Olea europaea* and *Pistacia lentiscus,* 100 m, 5.4.1997, *Christodoulou CYP 3585;* ibid., 13.4.2004, *Christodoulou CYP 4535*.

+ Division 6: Tremithos, between Kormakitis and Myrtou, 2.2 km SE of Kormakitis, in open pine forest and low maquis vegetation, c. 180 m, 28.3.2006, *Tsintides & Christodoulou CYP 5128*. C. Charalambous, C. Christodoulou & T. Tsintides

Glycyrrhiza glabra L.

+ Division 7: Lapithos, at the NW edge of the village centre, by the roadside, c. 50 m, 9.5. 2005, *Hand 4895 & Hadjikyriakou* and *Hadjikyriakou 6362 & Hand*. G. Hadjikyriakou & R. Hand

Lathyrus cassius Boiss.

Mentioned for two sites only by Meikle (1977), both in Troodos range.

Division 2: Sykopetra, NE Profitis Ilias, along first 500 m of the track towards Farmakas, screes and road banks, c. 1040 m, 23.5.2005, *Hand 5076, Christodoulou & Kyriakou;* ibid., same date, *Christodoulou CYP 4870* C. Christodoulou, R. Hand & T. Kyriakou

Lathyrus saxatilis (Vent.) Vis.

+ Division 2: Agioi Vavatsinias, at the main track SSW of dam near Makrya Laona, open rocky ground, c. 600 m, 26.4.2005, *Hand 4691;* Roudias river below Vretsia, along forest road, c. 400 m, 28.4.1997, *Makris in Hadjikyriakou 2619;* Lefkara dam W of the road to Lythrodontas, pine forest, c. 400 m, 12.4.2001, *Hadjikyriakou 5250*.

+ Division 4: Fourni Avdelleron – Troulloi, along agricultural road, c. 130 m, 15.3.1997, *Hadjikyriakou 2351*. G. Hadjikyriakou, R. Hand & C. Makris

Pisum sativum subsp. ***elatius*** var. ***brevipedunculatum*** P. H. Davis & Meikle

Collected only twice in Cyprus (see Meikle 1977).

Division 2: Kaminaria, at the ford SW of Katsari, shaded open ground by the track, c. 700 m, 5.5.2005, *Hand 4808 & Hadjikyriakou.* G. Hadjikyriakou & R. Hand

Rosaceae

Geum urbanum L.

New for Cyprus. Found at only one location, in shady, humid places, along stream sides, extending to neighbouring hazel groves. Considering its distribution (widespread in Eurasia, next sites in Turkey and W Syria; cf. Pemen & Chamberlain 1973) and isolated occurrences of several taxa such as *Epipactis microphylla, Potentilla recta* and *Ranunculus rumelicus* known from the hazel groves of Pitsilia region, it may be indigenous to Cyprus.

+ Division 2: 400 m N of Alona, moist ground along the stream below the village, 900 m, 29.9.1995, *Christodoulou CYP 3219,* det. Alziar; ibid., 7.10.1995, *Papachristophorou CYP 3223*. G. Alziar & C. Christodoulou

Saxifragaceae

Saxifraga tridactylites L.

+ Division 6: Agrokipia, Kreatos, rock slide on NE side, shaded rocks and grassy slope, c. 580 m, 11.3.2005, *Hand 4283.* (ed.)

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Crassulaceae

Umbilicus horizontalis (Guss.) DC.

+ Division 8: Kantara castle, rocky place, c. 600 m, 6.4.2004, *Hadjikyriakou 5988*.
G. Hadjikyriakou

Rosularia globulariifolia (Fenzl) A. Berger [Syn. *R. cypria* (Holmboe) Meikle]

In a recently published monograph the endemic *R. cypria* has been sunk into synonymy of the more widespread Levantine *R. globulariifolia* ('t Hart 2003) but details for that decision are not mentioned.

+ Division 8: Kantara castle, rocky place, c. 600 m, 6.4.2004, *Hadjikyriakou 5990;* ibid., 9.7.2005, *Hadjikyriakou 6739*.
Mentioned without cited specimens from division 8 by Perring (1999).
G. Hadjikyriakou

Sedum lampusae (Kotschy) Boiss.

+ Division 8: Kantara castle, vertical calcareous cliff, c. 600 m, 9.7.2005, *Hadjikyriakou 6738*. G. Hadjikyriakou

Sedum microcarpum (Sm.) Schönland [Syn.: *Telmissa microcarpa* (Sm.) Boiss.]

According to Eggli (2003), the monotypic genus *Telmissa* differs from *Sedum* by 1-seeded carpels mainly. This character is not regarded as sufficient to keep the former taxon distinct.

+ Division 3: Episkopi, c. 500 m S of Apollo sanctuary, vernal pools near the cliffs, at beginning of the track to Quarry beach, c. 110 m, 12.3.2005, *Hand 4290;* Pareklissia, c. 1.5 km SSW, small valley between road and brook, hollow on serpentine rock, c. 90 m, 15.3.2005, *Hand 4322*. (ed.)

Lythraceae

Lythrum tribracteatum Spreng.

+ Division 8: Galateia, W part of the dry lake SW of the village, open dry mud and reed fragments, 94 m, 24.5.2005, *Hand 5090 & Hadjikyriakou* and *Hadjikyriakou 6438 & Hand*. G. Hadjikyriakou & R. Hand

Onagraceae

Epilobium hirsutum L.

+ Division 3: Trimiklini, moist place in the village, c. 580 m, 15.10.1988, *Hadjikyriakou 102;* Polemidia, moist place in riverbed, c. 100 m, 5.10.2000, *T. Hadjikyriakou in G. Hadjikyriakou 5138*. G. Hadjikyriakou & T. Hadjikyriakou

Epilobium tournefortii Michalet

New for Cyprus. It is often ranked as subspecies of *E. tetragonum,* e.g., by Nieto Feliner (2000), following the Flora Europaea treatment. Both taxa are largely sympatric in the Mediterranean area. Furthermore, *E. tournefortii* is said to be normally cross-pollinated (self-pollination in the other taxa). The existence of intergrades with the other segregates of *E. tetragonum* s.l. (i.e. also *E. lamyi*) seems to be no convincing argument because the genus is so rich in hybrids. Current opinion is very much divided on the ranking of the segregates. Until a complete modern revision has been undertaken the treatment of Haussknecht (1884) is followed here, classifying the segregates as species. *E. tournefortii* as well as *E. lamyi* are known to occur in several adjacent countries (Haussknecht 1884, Nieto Feliner 2000). Their status in Cyprus is still uncertain. They may be indigenous but a colonization aided by the construction of dams could be an alternative scenario.

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+ Division 2: Agioi Vavatsinias, W side of the dam SW, wet ground near the water, c. 550 m, 19.5.2005, *Hand 5028.*
+ Division 3: Kryos Potamos between Alassa and Agios Therapon, river bed, c. 350 m, 14.6. 2005, *Hadjikyriakou 6557*. G. Hadjikyriakou & R. Hand

Epilobium lamyi F. W. Schultz

New for Cyprus. See preceding contribution.
+ Division 2: Melini – Agioi Vavatsinias, dam, c. 570 m, 20.7.2005, *Hadjikyriakou 6779*.
+ Division 6: N of the Bridge of Kalo Chorio Klirou, river bed, c. 300 m, 26.6.2004, *Hadjikyriakou 6118 & Delipetrou*. P. Delipetrou & G. Hadjikyriakou

Haloragaceae

Myriophyllum spicatum L.

Viney (1994) mentions the species for the Kanli Dam in division 6 but no details on specimens have been published so far. The species may have colonized the island supported by water birds but it is restricted to anthropogenous waters and should be classified as a naturalized non-invasive alien.
+ Division 2: Agioi Vavatsinias, W side of the dam near Makrya Laona, shallow water, c. 550 m, 26.4.2005, *Hand 4694;* ibid., 23.5.2005, *Hand 5078, Christodoulou & T. Kyriakou;* ibid., 20.7.2005, *Hadjikyriakou 6780;* Xyliatos dam, margins of the dam, c. 600 m, 28.10.1999, *A. Kyriakou in Hadjikyriakou 6288*.
G. Hadjikyriakou, R. Hand & A. Kyriakou

Umbelliferae

Scandix stellata Banks & Sol.

Meikle (1977) cites one specimen only from the Troodos range. Alziar & Guittonneau (2004) mention the species without information about specimens. It seems to be not so rare in the E parts of division 2.
Division 2: Madari, on screes, c. 1600 m, 15.5.1991, *Hadjikyriakou 1206*; ibid., 25.5.2002, *Hadjikyriakou 5424;* ibid., along descending path below Adelfoi summit, first 200 m from end of track, screes with scattered shrubs, 1579 m, 20.5.2005, *Hand 5042 & Hadjikyriakou* and *Hadjikyriakou 6403 & Hand;* Odou, NNE, W of Moutti tou Charaka, N and NW of summit 1228, banks of roads and tracks, c. 1180 m, 9.4.2005, *Hand 4551;* Odou, NNE, summit 1228, rocky screes and open *Quercus alnifolia* shrubs, 1200-1228 m, 9.4.2005, *Hand 4559*.
G. Hadjikyriakou & R. Hand

Torilis nodosa (L.) Gaertn. s.str. [Syn.: *T. nodosa* f. *homoeocarpa* Thell.]

Taxonomy following Jury (2003), thus totally differing from Meikle (1977). Additional records published since, e.g., by Chrtek & Slavik (1981), cannot be attributed to the two taxa of the group known to occur in Cyprus.
+ Division 1: Farkonia gorge Akamas, streambed, c. 300 m, 27.5.2000, *Hadjikyriakou 5076*.
+ Division 4: Larnaka, S and E of small pool SSE Tekke mosque, brackish marsh and sandy soils nearby, c. 3 m, 18.4.2005, *Hand 4633*. G. Hadjikyriakou & R. Hand

Torilis webbii Jury [Syn.: *T. nodosa* (L.) Gaertn. f. *nodosa*]

See also the preceding taxon.
+ Division 4: Hala Sultan Tekke Larnaka, lake margins, c. 5 m, 20.4.1998, *Makris in Hadjikyriakou 3249*. C. Makris & G. Hadjikyriakou

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Bupleurum sintenisii Huter

+ Division 3: Kalavasos, rocky slope and small gorge above track at the southernmost point of the reservoir, close to the dam, 180-200 m, 16.5.2005, *Hand 4993;* N of Agia Phylaxis, waste land, c. 150 m, 31.5.1996, *Makris in Hadjikyriakou 1863;* Avdimou bay, sandy place near the sea, 23.5.1998, *Makris in Hadjikyriakou 3425*.
R. Hand & C. Makris

Ferula cypria Post

A very rare species in Cyprus previously reported by Meikle (1977) and Hadjikyriakou (in Hand 2004) from division 7. The specimens cited below were collected from locations close to the type locality, about 14 km W (Kornos) and about 22 km E of it (Chalevga) respectively.

Division 7: N slopes of Kornos peak, fissures of N facing limestone cliffs, 860 m, 19.5.2005, *Christodoulou CYP 4857;* E of Karmi towards Agios Ilarion, limestone cliffs on N facing slopes, 465 m, 18.7.2005, *Christodoulou CYP 5056;* Kremmos tis Keryneias NW of Chalevga, rock crevices, c. 700 m, 24.10.2004, *Hadjikyriakou 6169;* ibid., 9.5.2005, *Hadjikyriakou 6363 & Hand* and *Hand 4900 & Hadjikyriakou;* ibid., 20.6.2005, *Hadjikyriakou 6600;* ibid., 13.8.2005, *Hadjikyriakou 6802*.
C. Christodoulou, G. Hadjikyriakou & R. Hand

Caprifoliaceae

Viburnum tinus L. subsp. ***tinus***

+ Division 7: Kantara Forest on the road between Olympos peak and Loumata old forest station, pine forest, c. 650 m, 12.4.2006, *Hadjikyriakou 6878 & Christodoulou*. Mentioned without cited specimens for the same area by Viney (1994) as first record for Cyprus. C. Christodoulou & G. Hadjikyriakou

Rubiaceae

Valantia hispida L.

The following gathering refers to the transitional populations of plants intermediate in characters of the varieties *hispida* and *eburnea* (cf. Hand 2001).

Division 8: Moni Apostolou Andrea, coast c. 1 km WSW Kastros, sandy open ground, c. 5 m, 29.4.2005, *Hand 4740 & Hadjikyriakou*. G. Hadjikyriakou & R. Hand

Galium humifusum var. ***lasiocarpum*** (Boiss.) Meikle

Previously known from divisions 4 and 8 (Meikle 1977).

+ Division 1: Mavroi Kremmoi, Dasos Pafou, mountainsides on diabase rocks, 900 m, 18.6. 1992, *Papachristophorou CYP 1395*. T. Papachristophorou

Galium tenuissimum M. Bieb.

+ Division 3: Prastio, at the Germasogeia river ford W below village, rocky ground, c. 260 m, 12.5.2005, *Hand 4944 & Hadjikyriakou.* G. Hadjikyriakou & R. Hand

Crucianella macrostachya Boiss.

+ Division 2: Omodos, roadside, c. 700 m, 27.6.2001, *Hadjikyriakou 5302;* ibid., 18.6.2005, *Hadjikyriakou 6580;* Agios Amvrosios Lemesou, N of the road to Malia, margins of vineyards, c. 550 m, 2.7.2005, *Hadjikyriakou 6715*. G. Hadjikyriakou

Crucianella aegyptiaca L.

+ Division 6: 2 km S of Agia Eirini, fixed sand dunes, c. 30 m, 9.5.2005, *Hadjikyriakou 6348 & Hand*.

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Division 7: Pachines Davlos, sand-dunes, c. 2 m, 8.5.2004, *G. Hadjikyriakou 6059 & T. Hadjikyriakou*. G. Hadjikyriakou, T. Hadjikyriakou & R. Hand

Dipsacaceae

Lomelosia cyprica (Post) Greuter & Burdet [Syn.: *Scabiosa cyprica* Post]

Chromosome number: 2*n* = 18 (three different plants counted; see Fig. 2). The results confirm the only previous report by Verlaque (1986).

Division 2: Koilani, Afamis, at the track S below summit, phrygana, c. 1140 m, 18.10.2003 (seeds and specimen), *Hand 3965,* no further specimens available so far, because the plants cultivated at B did not flower until now (accession number 265-02-03-10).

Chorology and ecology. – This endemic of SW Cyprus has been described as occurring on chalk only (Meikle 1985). Indeed, most populations grow on marls and chalks of the Pachna and Lefkara formations (Neogene and Palaeogene, respectively), rarely on Quaternary marls near the coast. But some of the specimens cited in the Flora of Cyprus came from diabase areas and the gathering *Hand 4589* is from gabbros surrounding the central Troodos summits. The small area of the species is shown in Fig. 3.

Division 2: Pera Pedi, ascent at W side of mountain Moutti tou Afami, phrygana, c. 1000-1100 m, 30.4.1999, *Hand 3012;* Moniatis, at the track above Mesapotamos picnic site, open *Pinus brutia* forest, c. 1020 m, 11.4.2005, *Hand 4589.*

Division 3: Laneia, slope with low shrubs, c. 550 m, 30.6.1988, *Hadjikyriakou 39;* Laneia – Trimiklini, rocky place with low shrubs, c. 540 m, 9.6.2005, *Hadjikyriakou 6523;* Trimiklini, roadside at S edge of village, rocky bank, c. 580 m, 30.4.1999,

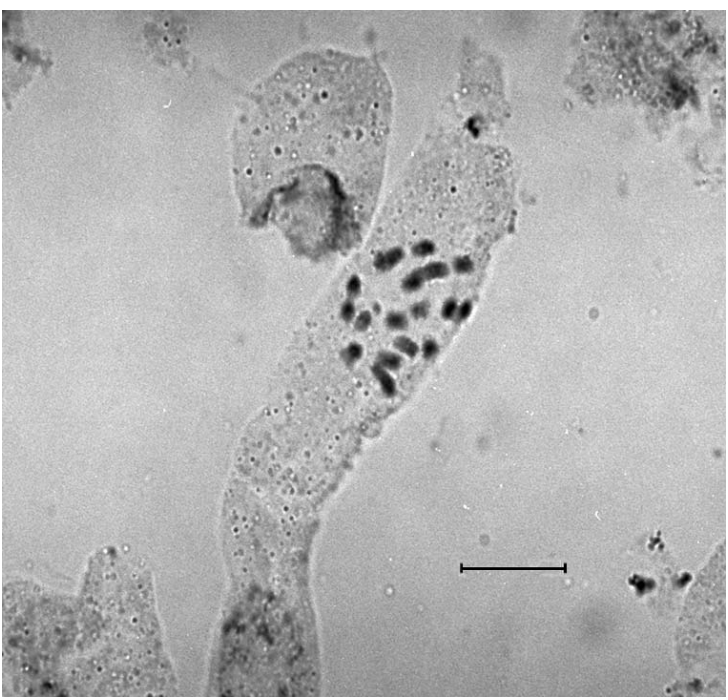

Fig. 2. *Lomelosia cyprica* – root tip metaphasis, showing 2*n* = 18 chromosomes. – Scale bar = 10 µm.

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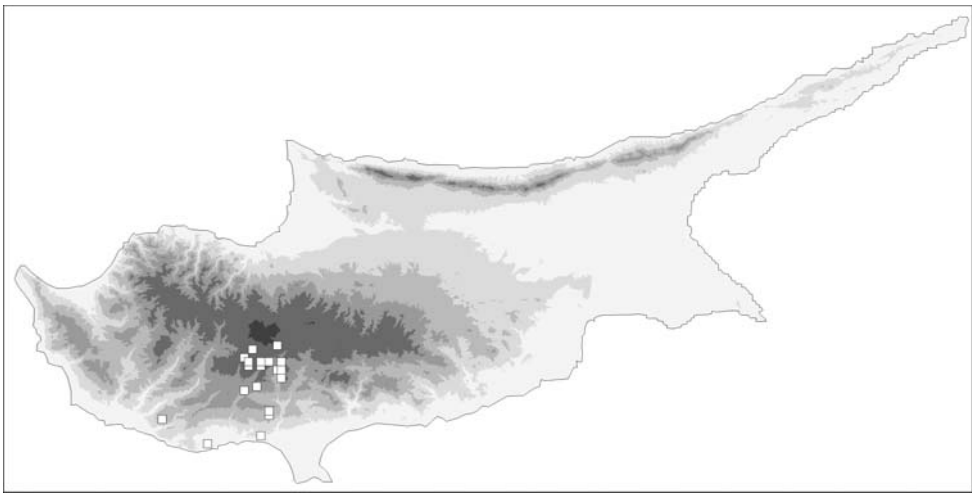

Fig. 3. Distribution of *Lomelosia cyprica,* based on own data and specimens/observations mentioned by Meikle (1985), Alziar (2000) and Alziar & Guittonneau (2004).

Hand 3014; Trimiklini, NE, at the road to Agios Mamas, building land, waste ground, c. 650 m, 14.5.1999, *Hand 3249;* Agios Therapon, on slopes NE of the road bridge crossing Kryos, at the track above the cliffs on E side, maquis and phrygana, c. 560 m, 2.5.2005, *Hand 4791;* 1 km E of Agios Therapon, slope with low shrubs, c. 630 m, 18.6.2005, *Hadjikyriakou 6593;* Episkopi forest by the SBA police station, roadside, c. 40 m, 20.12.1996, *Hadjikyriakou 1981*.

G. Hadjikyriakou & R. Hand

Pterocephalus multiflorus Poech subsp. ***multiflorus***

+ Division 5: Kampia, rocky slopes above N of the road to Analiontas opposite Moni Agiou Theodokou, open rocky phrygana, c. 400 m, 23.5.2005, *Hand 5069, Christodoulou & Kyriakou.* C. Christodoulou, R. Hand & T. Kyriakou

Compositae

Bellium minutum L.

First record for Cyprus. An E Mediterranean element known from Sicily and Greece (Aegean islands; see, e.g., Grierson 1975). In Cyprus a small population of about 200 plants has been found at one location only in the Akamas peninsula (the westernmost end of the island). It is considered as a very rare indigenous species in Cyprus.

+ Division 1: Akamas peninsula, Piaoulla, coastal rock crevices and hollows among pioneer communities of seasonally wet places, sea level, 22.3.2001, *Christodoulou & Delipetrou CYP 4347,* duplicate at B, conf. Hand.

C. Christodoulou & P. Delipetrou

Filago pygmaea L. [Syn.: *Evax pygmaea* (L.) Brot.]

+ Division 2: Pano Lefkara, above road to the village, c. 600 m, 22.4.2000, *Dunkel 10730-1*.
+ Division 3: Anogyra – Plataniskia, among low shrubs, c. 400 m, 12.4.1999, *Hadjikyriakou 4349;* Skarinou – Agios Theodoros Larnakas, along path, c. 250 m, 14.4.1999, *Hadjikyriakou 4377*.
+ Division 8: Kastros at Cape Apostolos Andreas, place with herbaceous vegetation, c. 10 m, 31.3.2004, *G. Hadjikyriakou 5964 & T. Hadjikyriakou*.

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Mentioned without cited specimens for division 2 by Alziar & Guittonneau (2004), for division 3 by Alziar (1985).

F.-G. Dunkel, G. Hadjikyriakou & T. Hadjikyriakou

Pulicaria arabica (L.) Cass.

+ Division 1: 10 km to N from Pafos, right bank of Mavrokolympos Dam, shady escarpment, 100 m, 17.5.2005, *Seregin A-426 & Privalova*.

+ Division 6: Magglis Dam at Archangelos Lefkosia, margins of the dam, c. 200 m, 9.6.1999, *Hadjikyriakou 4631*.

Mentioned without cited specimens for division 6 by Alziar (1985).

G. Hadjikyriakou, I. Privalova & A. Seregin

Flaveria trinervia (Spreng.) C. Mohr

New for Cyprus (casual). Indigenous to tropical and subtropical parts of the Americas but now widespread as an alien in the Old World, too. Classified as naturalized alien, e.g., in the Arabian peninsula (Chaudhary 2000).

+Division 4: Dasaki Achnas towards Achna dam, irrigated ground near cultivations, 50 m, 10.6.1998, *Papachristophorou CYP 3885.* T. Papachristophorou

Galinsoga parviflora Cav.

First record for Cyprus. Only few plants were observed in the collecting locality. For the time being it can be characterized as casual alien for the island. Known from South America, naturalized in Europe.

+ Division 3: Lemesos, basins of trees along streets in the town, c. 30 m, 15.11.2000, *Makris in Hadjikyriakou 5157;* ibid., 18.11.2000, *Makris in Hadjikyriakou 5158*.

C. Makris

Galinsoga ciliata (Raf.) S. F. Blake

Similar situation as in *G. parviflora*.

+ Division 2: Moutoullas, in cherry orchards, 700 m, 7.5.2006, *Papachristophorou CYP 5197*

T. Papachristophorou

Senecio leucanthemifolius subsp. ***vernalis*** (Waldst. & Kit.) Greuter
[Syn.: *S. leucanthemifolius* var. *vernalis* (Waldst. & Kit.) C. Alexander]

+ Division 3: 8 km to N from Limassol, south-faced slope of Kyparissia range, arid light olive forest, sunny limestone glade, footpath margin, 360 m, 11.3.2004, *Seregin A-243 & Sokoloff,* det. Hand. R. Hand, A. Seregin & D. Sokoloff

Onopordum ×makrisii Hadjik. & Hand, **nothosp. nov.**
(= *Onopordum bracteatum* Boiss. & Heldr. × *O. cyprium* Eig)

Holotype: Cyprus, division 2, Mandria – Omodos, 1 km SW of Mandria by the old road to Omodos, margins of abandoned fields among vineyards, c. 750 m, 26.6.2004, *Hadjikyriakou 6117* (B; isotypes: CYP, JE, herb. Hadjikyriakou).

Planta inter *Onopordum bracteatum* et *O. cyprium* intermedia et verisimiliter ex hybridatione harum specierum orta. Differt a *O. bracteato* praesertim foliis profunde pinnatisectis. Differt a *O. cyprio* praesertim indumento albo-tomentoso et cauli perlate alati.

In Cyprus, the genus *Onopordum* is known to be represented by two species only, *O. bracteatum* and *O. cyprium.* Both taxa are described in detail by Meikle (1985) and recent investigations confirm that no other taxa occur (cf. the outdated accounts by Holmboe 1914 and Eig 1942). *O. cyprium,* an endemic, is common in the lowlands, ascending up to approximately 1300 m altitude and represented in all phytogeographical divisions sensu Meikle (1977, 1985; see also Alziar 2000, Hand 2004 for chorological additions). *O. bracteatum* has a much more restricted distribution,

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Fig. 4. *Onopordum* ×*makrisii* – holotype.

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concentrating on the foothills of the main Troodos range in divisions 2 and 3 (Meikle 1985). An isolated population between Drouseia and Prodromi (division 1) has not been documented by collections so far. Its altitudinal range stretches from 200 to 1350 m but the plant favours submontane conditions above 800 m. Hybrids have not been reported so far from Cyprus, although habitats and areas of both taxa overlap in some landscapes. Generally, *Onopordum* hybrids are rare but occur here and there where two taxa meet (see for example González Sierra & al. 1992).

At the beginning of May 2004, one of the authors (GH) was informed by Christodoulos Makris that he found NW of Ypsonas village (division 3) an *Onopordum* plant that shares characters of both species mentioned. A visit at the locality confirmed that. A single plant growing among a dense population of *O. cyprium,* whereas, at a distance of about 50 m away a single plant of *O. bracteatum* was located. Unfortunately, no specimens were collected because there were no mature capitulae. On the 20.5.2004, a plant of the same characters was found by GH near Agios Filippos church above Omodos (division 2) and a second one between Mandria and Omodos (division 2). Both were growing among mixed populations of both parental taxa. Again, no specimens were collected, waiting for the flowering time. During the flowering period 2004, GH collected herbarium material from the last mentioned plant. No plants could be re-located in the season 2005.

Onopordum ×*makrisii* is closer to *O. bracteatum* (1) in the white-tomentose stems which are conspicuously winged, the wings being white-tomentose, lobulate, densely armed with numerous rigid yellow-brown spines and (2) the densely white-tomentose leaves on both surfaces. It is closer to *O. cyprium* (1) in the less robust stems and branches, (2) the deeply pinnatisect leaves,

Table 1. Selected diagnostic characters of *Onopordum* ×*makrisii* and its parents; stem measurements were taken in the field.

	O.* ×*makrisii	***O. bracteatum***	***O. cyprium***
Stem diameter (mm)			
– near the base, without spines	16	14-47	8-24
– 10 cm above the ground, incl. spines*	32	26-66	26-45
Stem indumentum	white-tomentose		thinly arachnoid or glabrescent
Stem wings	conspicuous, white-tomentose, lobulate, densely armed with numerous rigid yellow-brown spines		narrow, spinose-lobed
Leaf indumentum	basal leaves densely white-tomentose on both surfaces, glandular on the lower surface, the glandulosity visible if the dense indumentum is removed	basal leaves densely white-tomentose on both surfaces	basal leaves green and subglabrous above, glandular and arachnoid-tomentose below
Leaf form	deeply pinnatisect, the divisions reaching almost to the midrib	irregularly and not very deeply lobed, incisions much less than 50 % in the middle of the leaf	deeply pinnatisect, the divisions reaching almost to midrib
Inflorescence structure	lax, sparingly branched	terminal and subterminal, shortly branched	lax, sparingly branched
Relative floret length	not exceeding involucre	slightly exceeding involucre	generally exceeding involucre

* Note: The spines at this point are longer than those of the very base resulting in larger diameters.

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the divisions reaching almost to the midrib and (3) the lax, sparingly branched inflorescence. Together, the characters provide sufficient evidence for it to be a hybrid and no new species.

Erect biennial up to 1 m high. Stems branched, as in *Onopordum cyprium,* but more robust, densely white-tomentose more or less as in *O. bracteatum,* conspicuously winged with white-tomentose, lobulate wings densely armed with numerous rigid yellow-brown spines. Basal leaves lanceolate in outline, resembling those of *O. cyprium* but densely white-tomentose on both surfaces, 30-36 × 12-15 cm, glandular on the undersurface, the glandulosity visible when the dense indumentum is removed, deeply pinnatisect, the divisions reaching almost to the midrib; cauline leaves few, much reduced, densely tomentose above and below. Inflorescence lax sparingly branched; involucre 2.5-4.5 cm in diameter, thinly to densely arachnoid; florets purple, not exceeding involucre, tube 15-18 mm long, corolla tube about 6 mm long, lobes about 8 mm long; anthers linear, about 10 mm long, with a rostrate apical appendage; style about 30 mm long, branches about 5 mm long. Achenes 4-5 mm long, about 2.5 mm wide at the top; pappus hairs unequal up to 15 mm long.

Illustrations. – See Fig. 4 and colour photographs of habit and habitat in the electronic supplement.

Eponymy. – The new hybrid is dedicated to Christodoulos Makris (Lemesos/Cyprus), investigator of the flora and the insect fauna of Cyprus, who first located the plant above Ypsonas village.

Distribution and ecology. – The rare hybrid occurs very sporadically where both parents meet. Open, stony pastures, more or less intensively grazed by goats, very open carob plantations with semi-open, disturbed ground, margins of agricultural roads, margins of fields among vineyards. Three plants have been located so far, the lowest at about 200 m (above Ypsonas) and the highest at 950 m (above Omodos), on chalks and marls of the Pachna formation (Neogene period) and the Lefkara formation (Palaeogene period). Flowering period: beginning of June to mid July.

Specimens seen of Onopordum bracteatum

Division 2: Kremmoi Vloudion Vouni Panagias, base of cliff, c. 800 m, 22.12.1996, *Hadjikyriakou 2006 & Makris;* Kyperounta hospital, roadside, 1200 m, 3.5.2005, *Hadjikyriakou 6327;* Kyperounta, S slope Madhari c. 1 km N/NE, open banks in macchia, c. 1350 m, 10.5.1999, *Hand 3159;* Bridge on Kryos Potamos above Alassa dam, disturbed place with *O. cyprium* and *O. bracteatum*, c. 250 m, 9.6. 2005, *Hadjikyriakou 6520;* Papoutsa – Alona, abandoned vineyard, 1300 m, 9.8.2005, *Hadjikyriakou 6794* (duplicate at B).

Division 3: Pano Archimandrita, c. 3 km SSW, Chapotami gorge, waste ground, c. 250 m, 1.4.1999, *Hand 3364*.

Specimens seen of Onopordum cyprium

Division 1: Pegeia, NE, at the old track to Kathikas, beginning of the upper third, grassy slope, c. 400 m, 3.3.1998, *Hand 1842*.

Division 3: Maronin, fallow land, c. 50 m, 28.4.1989, *Hadjikyriakou 258;* Pernera Paralimni, roadside c. 25 m, 29.4.1989, *Hadjikyriakou 271;* Deryneia, fallow land c. 60 m, 29.4.1989, *Hadjikyriakou 272;* Selladin tou Mantiliou – Frodisia, roadside, c. 650 m, 18.5.1998, *Hadjikyriakou 3408;* Kandou dam, margins of cliff, c. 150 m, 3.5.2005, *Hadjikyriakou 6328* (duplicate at B).

G. Hadjikyriakou & R. Hand

Cynara syriaca Boiss.

First record for Cyprus. The population seen so far and the occurrences in Turkey, Syria, Lebanon, Palestine and Iraq (see, e.g., Kupicha 1975, Feinbrun-Dothan 1978) suggest that it is native to Cyprus.

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+ Division 2/3: Potamos ton Vretsion, slope with low shrubs, c. 400 m, 16.6.1997, *Makris in Hadjikyriakou 2743;* ibid., 31.5.2004, *Makris & Hadjikyriakou 6092*.
C. Makris & G. Hadjikyriakou

Klasea cerinthifolia (Sm.) Greuter & Wagenitz [Syn.: *Serratula cerinthifolia* (Sm.) Boiss.]
See Greuter (2003) and Martins & Hellwig (2005) for the taxonomy of *Serratula* and related genera.
+ Division 8: Kantara Castle, cliffs and by the tracks, 600 m, 10.7.2005, *Vogt 16350*.
Mentioned without cited specimens for this division by Kefalas (2006).
R. Vogt

Serratula tinctoria L.

New for Cyprus. Widespread in Europe but in Turkey restricted to the NW (Davis & Kupicha 1975, Cannon & Marshall 1976). First found in 1997 in a terraced cherry tree orchard at Prodromos village, then in 1999 at disturbed roadsides at Troodos square and in 2005 at the peat grassland of Pashia Livadi. Most probably, it is an introduction to Cyprus at the process of naturalization and spreading around the central Troodos.
+ Division 2: Prodromos, in cherry tree orchard, 1350 m, 17.8.1997, *Christodoulou CYP 3747;* ibid., 22.8.1997, *CYP 3759;* ibid.; 29.8.1997, *CYP 3875;* Troodos square, on igneous roadsides, 1680 m, 20.6.1999, *Christodoulou CYP 4130;* Pashia Livadi, along water courses in peat grassland, 1615 m, 27.7.2005, *Christodoulou CYP 5068*.
C. Christodoulou

Centaurea calcitrapa subsp. ***angusticeps*** (H. Lindb.) Meikle
+ Division 1: Giolou, roadside, c. 350 m, 22.7.2003, *Christodoulou in Hadjikyriakou 5748;* W of Polemi, vineyard, c. 500 m, 22.6.2004, *Hadjikyriakou 6613*.
+ Division 2: Agios Nicolaos Pafou, roadside, c. 800 m, 13.8.1989, *Hadjikyriakou 321;* Anathematistra Vouni Panagias, roadside, c. 800 m, 22.12.1996, *Hadjikyriakou 2016 & Makris*.
+ Division 3: Agia Eirini Palodia, roadside, c. 250 m, 20.5.1990, *Hadjikyriakou 829*.
+ Division 8: Kastroulli E of Bogazi, fallow field, c. 2 m, 4.6.2005, *Hadjikyriakou 6503;* among the ruins of Karpasia/Agios Filon, c. 5 m, 5.7.2005, *Vogt 16321*.
Mentioned without cited specimens for division 1 by Tsintides (1998).
C. Christodoulou, G. Hadjikyriakou, C. Makris & R. Vogt

Centaurea nigra L. subsp. ***nigra***

New species for Cyprus. Widespread in W Europe but not known to occur in countries of the Levante (see, e.g., Dostál 1976). Most probably a casual alien on the island.
+ Division 2: Troodos – Prodromos, near Chionistra junction, igneous roadside, 1800 m, 21.7. 2005, *Christodoulou CYP 5063*. C. Christodoulou

Carthamus tenuis subsp. ***foliosus*** Hanelt
+ Division 3: Ranti forest, roadside, c. 30 m, 25.5.1990, *Hadjikyriakou 851;* Kourio Episkopi Lemesou, sand dunes, c. 10 m, 15.7.1998, *Hadjikyriakou 3606*.
G. Hadjikyriakou

Carthamus lanatus subsp. ***baeticus*** (Boiss. & Reut.) Nyman
+ Division 8: among the ruins of Karpasia/Agios Filon, c. 5 m, 5.7.2005, *Vogt 16318*.
R. Vogt

Carduncellus caeruleus (L.) C. Presl

Collected only once in 1880 near Keryneia (division 7; Meikle 1985).
+Division 3: 1.7 km E of Pitargou, between Amargeti – Lemona, field margins and roadside, 250 m, 17.6.2004, *Papachristophorou CYP 4632*. T. Papachristophorou

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Crepis foetida subsp. ***commutata*** (Spreng.) Babc.

+ Division 3: Pyrga, NE edge of the village, near road to Psevdas crossing brook, pillow lava slopes with scattered *Pinus* stands, c. 220 m, 24.3.2005, *Hand 4409 & 4410*. (ed.)

Crepis pusilla (Sommier) Merxm.

It was first found in Cyprus at Polemidia and Episkopi (division 3) in temporary wet depressions (Hadjikyriakou & al. 2004).

+ Division 4: Sotira, yard of Agios Minas church, compacted soil with *Matricaria aurea* and *Trifolium suffocatum,* 70 m, 20.4.2005, *Christodoulou CYP 4791*. C. Christodoulou

Crepis zacintha (L.) Babc.

+ Division 2: Dasos Pafou, Stavros ton Kratimatou, open *Pinus brutia* forest, 600 m, 24.4. 1998, *Christodoulou CYP 3828;* Chantara, above Kampos village, 725 m, 22.4. 2004, *Christodoulou CYP 4566;* Kolokos, Agia – Panagia road, junction to Panagia – Kannaviou, 480 m, 21.4.2005, *Christodoulou CYP 4792;* ibid., 18.5. 2005, *Hand 5018, Christodoulou & Kyriakou*. C. Christodoulou

Podospermum laciniatum (L.) DC. [Syn.: *Scorzonera laciniata* L.]

On new molecular data necessitating separation of *Podospermum* from *Scorzonera* see Greuter & Raab-Straube (2006, this issue).

+ Division 2/5 [on the border!]; Politiko c. 2 km SW of the village, at road to Filani, igneous rocky ground and banks of road, c. 420 m, 11.3.2005, *Hand 4277*.

+ Division 5: Gypsou – Agios Iakovos, waste land, c. 120 m, 6.4.2004, *G. Hadjikyriakou 5984 & T. Hadjikyriakou*.

There are no records from division 2 and observations only from division 5 (Viney 1994, Perring 1999). G. Hadjikyriakou, T. Hadjikyriakou & R. Hand

Campanulaceae

Solenopsis antiphonitis Hadjik. & Hand, **sp. nov.**

Holotype: Cyprus, division 7 (sensu Meikle 1977, 1985), Argaki tous Maronites about 6 km east of Antifonitis Monastery in Melounda Forest, Pentadaktylos mountain range, wet streambed, c. 250 m, 28.6.2005, *Hadjikyriakou 6677* (B; isotypes: CYP, JE, herb. Hadjikyriakou).

Planta annua, a speciebus cognitis generis *Solenopsidis* combinatione caulidum aphyllorum, foliorum glabrorum, corollarum parvorum (5-6.5 mm), seminum parvorum (0.33-0.38 × 0.20-0.25 mm) distinguenda.

The genus *Solenopsis* is treated by Crespo & al. (1998) as consisting of six microspecies, namely: *S. bicolor, S. bivonae* [= *S. minuta* subsp. *nobilis*], *S. corsica, S. laurentia, S. minima* and *S. minuta,* which is divided into subsp. *minuta* and subsp. *annua*. The mentioned authors demonstrate the characters and discuss the taxonomic history of the genus and the distribution in great detail. However, new populations found on Cyprus differ considerably from the above-named taxa by a unique combination of characters, some of them discontinuous, and in our opinion this variation merits the recognition of a new taxon at species rank (see also discussion under 'Taxonomic relationship').

Acaulescent, slender annual. *Leaves* rosulate, 6-18 mm in total length; lamina glabrous, broadly ovate or suborbicular, 2-8 × 1.5-7 mm, margins entire or occasionally inconspicuously undulate-sinuate, base truncate, subtruncate or rounded, abruptly narrowed into a petiole, apex rounded, nervation obscure; petiole 4-11 mm long, longer than the lamina. *Floral pedicels* 14-40 mm

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Fig. 5. *Solenopsis antiphonitis* at the type locality. – Photograph by G. Hadjikyriakou, July 2005.

long, 1.5-2.5 times longer than the leaves, lengthening in fruit to 5.5 cm, green, usually becoming purplish with age; bracteoles lanceolate, (1-)2, near the middle of the floral pedicels, glabrous or bearded at the tip with 1-3 small setae, or with 1-4 lateral cilia, 1.8-2.5 mm long, with (1-)2-4 small lobes near the base, usually in pairs, sometimes 3. Calyx 2-2.5 mm long, lobes linear-lanceolate, acute, 1.3-1.7 mm long. *Corolla* 5-6.5 mm long, tube 3-3.5 mm long, dorsally lilac in bud, turning white tinged lilac with age, lobes white internally, tinged lilac at least towards the margins, the upper 2 oblong-lanceolate, acute, the lower 3 oblong or obovate, cuspitate or truncate, throat yellow, papillae at the throat 0.13-0.25(-0.38) mm long. *Stamens* shortly exerted from the tube, filaments 2.5-3 mm long, anthers 0.8-1 mm, lilac, the lower papillate at the base and bearded at apex, the tube shortly scabrid. *Fruit* a bilocular capsule, 2-3 × 2-2.5 mm, ellipsoid, laterally compressed, slightly furrowed longitudinally along the line of the septum, crowned at maturity by the persistent calyx lobes. Seeds numerous, ellipsoid, (0.33-)0.36-0.38 × (0.20-)0.23-0.25 mm, shining brown, (mature seeds examined with a stereoscope 40 × showed no longitudinal striations).

Illustrations. – See Fig. 5 and colour photographs of habit and habitat in the electronic supplement.

Geographical distribution, habitat and ecology. – *Solenopsis antiphonitis* was first located at Argaki tous Maronites, Melounda Forest on Pentadaktylos mountain range, about 6 km E of Antifonitis Monastery. The population at this location is restricted to a strip along about 350 m of the stream bed and 1-3 m wide, at an altitude of 200-255 m. A considerably smaller population occurs at Argaki tou Gerospiliou, about 2 km at the E of the first location (W of Akanthou and above Agia Marina), at an altitude of about 280 m. Repeated investigations carried out at wet places with similar geological substratum, as well as on neighbouring sediments or formations on

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Table 2. Selected characters of *Solenopsis antiphonitis,* related taxa and the only other species occurring in Cyprus, *S. bivonae*. – Measurements referring to *S. antiphonitis* were taken from the cited specimens, those of the other taxa from Crespo & al. (1998) and checked on the specimens at the Berlin herbarium (*S. bivonae* [5 from Cyprus] and *S. minuta* subsp. *annua* [15 from Crete incl. holotype]), and the private herbarium of the first author. Characters and measurements deviating from the data of Crespo & al. (1998) are marked with an asterisk. The most discriminatory characters compared to *S. antiphonitis* are given in bold.

Character	***S. antiphonitis***	***S. minuta*** subsp. ***annua***	***S. minuta*** subsp. ***minuta***	***S. laurentia***	***S. bivonae***
Life-form	annual, acaulescent		**perennial acaulescent**		
Leaf length [mm]	6-18	7-38	12-45	5.5-30*	**(20-)35-85**
Lamina length/width [mm]	2-8 × 1.5-7	(2.5-)4-12(-19) × 1.5-7(-9.5)	6-15(-25) × 3-7(-10)	**10-20 × 5-10**	**(8-)15-45 × (4-)6-14**
Lamina shape	broadly ovate or suborbicular	**oblong-lanceolate**			**spathulate**
Lamina margin	entire or occasionally inconspicuously undulate-sinuate	entire, sometimes weakly crenate		entire, sometimes the uppermost crenate	
Petiole length [mm]	4-11	2-15(-23)	4-15(-20)	5-15	**12-40(-50)**
Lamina length / Petiole length	1.5-2	(0.4-)0.8-2.3	0.7-2	1-2	(0.5-)0.7-2
Leaf indumentum	glabrous	**hispidulous, but often some glabrous leaves***	**hispidulous**		glabrous
Inflorescence length [mm]	14-40(-55) [in fruit]	10-72*	35-100(-150)	**55-100**	(30-)50-140
Inflorescence length / leaf length	1.5-2.5	1.2-3	1.2-3.7	2.2-4	1.2-2.9
Lobes on the flower bracteoles	(1-)2-4	1-3	1-3	0-2	0-2
Bracteoles length [mm]	1.8-2.5	1.5-3.5	2-3.5(-6)	2-3	2-3
Calyx length [mm]	2-2.5	2-4(-5)	**2.5-5**	2-4	**2.5-6**
Calyx lobe length [mm]	1.3-1.7	(1-)1.5-2.7	1.5-3	1-2.5	1-4
Corolla length [mm]	5-6.5	5-9*	6-8	3.5-6	**7.5-12**
Corolla colour	lilac dorsally in bud, turning white tinged lilac with age, lobes white internally, tinged lilac at least towards the margins, throat yellow	**blue to violet-blue with a white almost 3-lobed white patch at the throat and the lower 3 lobes**		not described	bluish on the margins, whitish on the throat
Length of papillae at corolla throat [mm]	0.13-0.25(-38)	0.18-0.26	0.2-0.3	0.2-0.25	0.25-0.45
capsule length [mm]	2-3	1.75-2.5*	**1.75-2**	2-3	2-3
seed size [mm]	(0.33-)0.36-0.38 × (0.2-)0.23-0.25	**0.41-0.47× 0.21-0.25***	**0.3-0.35 × 0.15-0.18**	0.35-0.45 × 0.2-0.25	**0.4-0.55 × 0.25**

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Pentadaktylos mountain range from Panagra to Kantara, hitherto failed to locate other populations. The two populations grow on wet stream beds with very shallow soil and temporary flow of water, on north facing mountain sides. The substratum is composed of hard chalks, cherts and massive recrystalized white limestone, which belong to Lapithos geological formation of the Palaeogene period. The vegetation along the stream is open and the dominant species are: *Nerium oleander, Ptilostemon chamaepeuce* var. *cyprius, Olea europaea, Cupressus sempervirens, Myrtus communis, Pistacia terebinthus, Andropogon distachyos,* as well as small groups of *Samolus valerandi, Lythrum hyssopifolia, Centaurium tenuiflorum, Blackstonia acuminata, Adiantum capillus-veneris, Typha domingensis* and *Polypogon monspeliensis,* which grow in similar situations. The sides of the stream are characterized by steep or vertical cliffs with open *Cupressus sempervirens* and *Pinus brutia* forest.

It is noted that *Solenopsis bivonae* is hitherto known to occur on the ophiolite rocks of Troodos mountain range, whereas *S. antiphonitis* grows on calcareous sedimentary rocks of the Pentadaktylos mountain range.

Flowering period. – End of May to mid July.

Taxonomic relationship. – The microspecies concept of Crespo & al. (1998) is followed here. The studies of these authors have shown that at least two or three taxa are known to co-exist on the islands of Mallorca, Sardinia, Sicily and Crete, though obviously more or less separated geographically, but showing no signs of transitional populations. Most taxa are distinguishable by a combination of characters speaking in favour of species rank with the exception of *S. minuta*. The latter has been split into two subspecies, a therophyte and a perennial (see already Greuter & al. 1984).

The only taxon known so far from Cyprus is the perennial *Solenopsis bivonae,* a species with glabrous leaves and relatively large flowers. Among the annual species of the genus the closest relative of *S. antiphonitis* seem to be *S. minuta* subsp. *annua*, endemic to Crete. Selected characters of the most similar and probably most closely related taxa, and the only other Cypriot taxon, compared to *S. antiphonitis* are shown in Table 2. The other members of the genus show a quite different assemblage of characters (see Crespo & al. 1998) and need here not to be dealt with.

Two hypotheses concerning the taxonomic relationship of the new species seem relevant: (1) an annual descendant of *S. bivonae* or (2) a close relationship to the annual Cretan endemic *S. minuta* subsp. *annua*. The former scenarios may have been the result of an ecological adaptation to the lack or rareness of constant springs and flowing water in the Pentadactylos range, whereas the higher mountains of the Troodos provide much better ecological conditions suitable for a perennial. Vicarious, closely related taxa (endemics or not) replacing each other in the two ranges of Cyprus are a well known phenomenon. To name but a few examples (Troodos – Pentadaktylos): *Micromeria chionistrae – M. microphylla, Onosma troodi – O. caespitosum, Phlomis cypria* subsp. *occidentalis* – subsp. *cypria*, *Scutellaria cypria – S. sibthorpii, Teucrium cyprium* subsp. *cyprium* – subsp. *kyreniae*. Probably, *S. bivonae* is not very closely related to the new Cypriot taxon (see Crespo & al. 1998). The other scenario, the existence of a common ancestor in the past, i.e. *S. minuta* or its predecessor, may be possible, too. Both islands, Crete and Cyprus, share some endemic species indicating them to be relicts of more extensive areas in former times, e.g. *Allium rubrovittatum* and *Carex troodi*.

Morphologically, most taxa of the small Mediterranean genus *Solenopsis* are rather weekly defined. The hypotheses discussed as well as other possible scenario, e.g. a close relationship with W Mediterranean taxa, should be verified by further phylogenetic research using molecular markers. By ranking the new taxon as subspecies of *S. minuta* an uncertain relationship would be implied. Consequently, we refrain from this premature solution by accepting the new allopatric taxon at microspecies level.

Threat and conservation. – *Solenopsis antiphonitis* seems to be one of the rarest endemics of Cyprus and according to the IUCN Red List Categories and Criteria it is categorized as CR (Critically Endangered): B1ac(ii-iv) + 2ac(ii-iv). This means that the extent of occurrence and the area

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of occupancy are severely fragmented and there are extreme fluctuations in the area of occupancy, the number of locations or subpopulations and the number of mature individuals. Potential threats are: forest fires, prolonged drought, forestry operations and road construction.

Etymology. –The specific epithet is after Αντιφωνητης Monastery (Latinized: Antiphonites) of the 12th century with the famous Byzantine wall paintings, which is dedicated to Archangel Michael. It is situated between the villages Kalograia and Agios Amvrosios on Pentadaktylos mountain range. Antiphonites is based on the verb antiphonó – αντιφωνω (anti = counter + phonó = give voice), which in the medieval times meant to guarantee the debts of somebody. According to the local tradition Archangel Michael was the guarantee.

Additional specimens seen:

+ Division 7: Argaki tous Maronites, wet streambed, c. 200 m, 4.6.2005, *Hadjikyriakou 6515*; ibid., c. 230 m, 11.6.2005, *Hadjikyriakou 6535;* Argaki tou Gerospiliou W of Akanthou and above Agia Marina, wet vertical cliff, c. 280 m, 28.6.2005, *Hadjikyriakou 6676*. G. Hadjikyriakou & R. Hand

Primulaceae

Anagallis foemina Mill. [Syn.: *A. arvensis* subsp. *foemina* (Mill.) Schinz & Thell.]

+ Division 1: Pafos, tourist area of Kato Pafos, the Limnarka River mouth, muddy river bank, 0-5 m, 16.5.2005, *Seregin A-354 & Privalova.*
Mentioned without cited specimens for division 1 by Coulot (2000).
I. Privalova & A. Seregin

Anagallis arvensis L. s. str.

+ Division 1: Polis, between town and the seashore, the Satvios tis Psokas River mouth, sandy semi-dry river bed, 0–5 m, 20.5.2005, *Seregin A-531 & Privalova.*
Mentioned without cited specimens for division 1 by Alziar & Guittonneau (2004). I. Privalova & A. Seregin

Rhamnaceae

Phillyrea latifolia L.

It was previously known only from Pentadaktylos range in maquis on limestone mountainsides (Meikle 1985). It is a frequent element of laurel maquis and openings of the pine forest understorey. In the new location (340-560 m) it participates in maquis in pine forest openings on diabase dykes with pillow lavas.

+ Division 1: between Lysos – Abdoullina, Argaki tis Mersineris, 450 m, 26.11.1993, *Christodoulou CYP 1637;* ibid., 10.3.1996, *Christodoulou CYP 3254;* ibid., 4.4.1999, *Christodoulou CYP 4003,* det. Alziar. G. Alziar & C. Christodoulou

Hydrophyllaceae

Phacelia tanacetifolia Benth.

Meikle (1985) mentions first collections of the species, presumably a casual only at that time. The further spread of the alien has been documented by Georgiades (1994) who mentions several collected specimens and observations from several divisions. The taxon is also mentioned by Alziar (2000). Currently, the alien occurs in many places in the Troodos range in rich populations. It is certainly no casual as in many countries of Central Europe but a naturalized invasive growing often on screes and banks along roads.

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Division 2: Zoopigi, at the road to Agios Theodoros, SE of Listis, rocky bank of the road, c. 1020 m, 7.5.2005, *Hand 4838;* Gourri, at road between Gourri und turn-off to Farmakas, rocky bank, 720 m, 3.4.2005, *Hand 4497;* Kato Platres, waste land by the road, c. 800 m, 24.4.1998, *Hadjikyriakou 3171*.

G. Hadjikyriakou & R. Hand

Boraginaceae

Neatostema apulum (L.) I. M. Johnst.

+ Division 2: Farmakas, valley above road, NW Moutti tou Agiou Georgiou, open rocky ground with almond trees and vineyards, c. 1050 m, 9.4.2005, *Hand 4573;* Atratsa Xeros valley, roadside, c. 650 m, 2.4.1998, *Hadjikyriakou 3070*.

G. Hadjikyriakou & R. Hand

Echium judaeum Lacaita

New for Cyprus. *E. judaeum* grows on chalk rock ledges of the Pachna formation (Miocene), probably as an indigenous element of the island's flora. Its pattern of distribution shows an isolated occurrence at the S coast of Cyprus and a main area comprising more or less extensive parts of Syria, Lebanon and Israel has a certain similarity to that of *Lactuca triquetra* (see Kilian & Hand in Hand 2004). Disjunctions between these countries and Cyprus in general are not uncommon and documented for taxa such as *Acer obtusifolium*, *Salvia hierosolymitana* and *Tordylium carmeli* to name but a few examples. *E. judaeum* is more or less common in the Flora Palaestina area and S parts of Lebanon and Syria (see Feinbrun-Dothan 1978, Danin 2005).

+ Division 3: 3 km S of Agios Theodoros, on dry, rocky calcareous slope amongst phrygana, 75 m, *Christodoulou CYP 3597;* ibid., 13.4.1997, *CYP 3636;* ibid., 28.4.1997, *CYP 3655;* ibid., 4.3.2004, *CYP 4534;* ibid., c. 3 km SSE, beginning of the Pentaschoinos gorge, rocks at the road, c. 75 m, 23.3.2005, *Hand 4404*.

C. Christodoulou & R. Hand

Odontites linkii subsp. ***cyprius*** (Boiss.) Bolliger [Syn.: *O. cyprius* Boiss.]

Taxonomy following Bolliger (1996). This publication includes a record which can not clearly assigned to division 6 or a neighbouring unit.

+ Division 6: Kormakitis forest, among low shrubs, c. 20 m, 17.4.2004, *G. Hadjikyriakou 6025 & T. Hadjikyriakou*. G. Hadjikyriakou & T. Hadjikyriakou

Convolvulaceae

Convolvulus dorycnium L.

+ Division 7: N of Lefkonikon pass below Mersinnikki, pine forest, c. 150 m, 20.6.2005, *Hadjikyriakou 6611*. G. Hadjikyriakou

Solanaceae

Hyoscyamus aureus L.

+ Division 8: Cape Apostolos Andreas, rocks and stony slopes, 5-50 m, 7.7.2005, *Vogt 16326*.

R. Vogt

Scrophulariaceae

Kickxia spuria (L.) Dumort.

It was first recorded in 1840 and previously only known from two locations in division 2, from similar habitats (Meikle 1985).

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+ Division 1: 2 km NE. of Lysos, uncultivated vineyard, 450 m, 2.10.1998, *Christodoulou CYP 3883;* Lysos, uncultivated fields, 450 m, 17.7.1999, *Christodoulou CYP 4166;* near Giolou, field borders, 400 m, 22.7.2003, *Christodoulou CYP 4425.* C. Christodoulou

Chaenorhinum rubrifolium (DC.) Fourr.

Previously known from Lefkosia and Panagra, divisions 6 and 7, respectively (Meikle 1985). An observation for division 8 is mentioned by Perring (1999).

+ Division 2: Madari, along the nature trail, crevices of diabase rocks, 1500 m, 14.5.1996, *Christodoulou CYP 3403*.
+ Division 4: Between Kelia – Troulloi, crevices of limestone rocks, 85 m, 7.5.2004, *Christodoulou CYP 4594*.
+ Division 5: Agios Sozomenos, crevices of limestone rocks, 200 m, 14.3.1999, *Christodoulou CYP 3941*. C. Christodoulou

Veronica arvensis L.

+ Division 7: Agios Ilarion, in the central part of the castle area, rocks and rocky slopes, c. 700 m, 4.4.2005, *Hand 4502.* (ed.)

Lentibulariaceae

Pinguicula crystallina Sm.

Previously the taxon was only known from few springs and rivulets of the National Park of Troodos in the central Troodos range (Meikle 1985). The new location extends its distribution and altitudinal range in Cyprus significantly.

+ Division 3: Potamos Kyparissias, along Germasogeia river, on wet rock faces, on igneous formations, 250 m, 14.5.1991, *Christodoulou CYP 1136*. C. Christodoulou

Verbenaceae

Phyla nodiflora L.

+ Division 4: 3 km W of Ammochostos, near Gaidouras, moist ground by a pond, 25 m, 2.6.2005, *Christodoulou CYP 4931*. C. Christodoulou

Verbena supina f. ***petiolulata*** H. Lindb.

+ Division 5: Dam N of Gypsou, margins of the dam, c. 50 m, 20.8.2005, *Hadjikyriakou 6805*. G. Hadjikyriakou

Labiatae

Micromeria cristata (Hampe) Griseb. subsp. ***cristata***

New for Cyprus. The taxon is known to occur in the N and central Balkan peninsula as well as in Central Anatolia (Davis 1982). All collections come from a small area in W Cyprus. Plants have been identified by the first author.

+ Division 1: Near Akoursos village, crevices of limestone cliffs and rocks, 400 m, 17.2.1994, *Christodoulou CYP 1644;* ibid., 2.4.1994, *CYP 194;* ibid., 26.3.1994, *Christodoulou & Hadjikyriakou CYP 1881, 1894* and *Hadjikyriakou 1470 & Christodoulou;* ibid., 29.4.1994, *Hadjikyriakou 1483 & Christodoulou* and *Hadjikyriakou 1485 & Christodoulou;* ibid., 11.5.2002, *Hadjikyriakou 5360;* Mavrokolympos gorge, 2 km N of Koili, crevices of limestone rocks, 300 m, 23.1.1994, *Hadjikyri-*

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akou 1456; ibid., 26.3.1994, *Hadjikyriakou 1469 & Christodoulou* and *Christodoulou & Hadjikyriakou CYP 1882;* ibid., 29.3.1994, *Hadjikyriakou 1472* and *Christodoulou & Hadjikyriakou CYP 1883;* ibid., 18.4.1994, *Christodoulou & Hadjikyriakou CYP 1888;* ibid., 29.4.1994, *Hadjikyriakou 1478, 1484* and *Christodoulou & Hadjikyriakou CYP 1895;* ibid., 11.5.2002, *Hadjikyriakou 5359;* NW of Koili, crevices of limestone rocks, 300 m, 6.4.1994, *Christodoulou CYP 1942;* Tremithousa, on hard limestone rocks (kafkalla), 320 m, 29.4.1994, *Christodoulou & Hadjikyriakou CYP 1896* and *Hadjikyriakou 1492 & Christodoulou;* Tremithousa – Agios Neofytos, field boarders on rocky ground, 250 m, 6.4.1994, *Christodoulou CYP 1943;* ibid., crevices of limestone rocks, 320 m, 23.11.1995, *Christodoulou CYP 1948*.

G. Alziar, C. Christodoulou & G. Hadjikyriakou

Salvia dominica L.

Rare in Cyprus and known to occur at two sites only (Meikle 1985). At one of these places, the archaeological site of Curium, it has been confirmed regularly (e.g. *Hadjikyriakou 425, Hand 2428*), the most recent collection is cited below. Currently, the species is spreading along the nearby motorway Lemesos – Pafos. According to information by the first author, in 1996 about 250 rooted cuttings of *S. dominica* were planted by the Department of Forests in the central green zone of this motorway, N of Erimi, in order to promote indigenous taxa. Although the width of the asphalted lanes on each side of the green zone is twelve metres, three years after the plantation, the species started colonizing the nearby ditches and road banks. In 1998 rooted cuttings were planted in the central green zone of the same motorway, NE of Pissouri. Again, about three years later it was observed that it colonizes the nearby ditches and road banks.

Division 3: Erimi, at the motorway, before turn-off Erimi, S side, rocky bank, c. 90 m, 18.3.2005, *Hand 4349;* on the motorway N of Erimi, roadside, c. 150 m, 19.4. 2005, *Hadjikyriakou 6247;* 16 km to W from Limassol, below Curium, road margin, 30 m, 10.3.2004, *Seregin A-211, Sokoloff & Remizova*, det. Hand.

G. Hadjikyriakou, R. Hand, M. Remizova, A. Seregin & D. Sokoloff

Nepeta troodi Holmboe

The distribution of the endemic of the Troodos range has never been illustrated. Its area is stretching much more to the east than the few records published so far indicate (Fig. 6).

Division 2: 3 km N of Mylikouri on the road to Vasiliki of Kykkos, among tall shrubs by the road, c. 950 m, 2.7.1997, *Hadjikyriakou 2752;* Prodromos dam, roadside, c. 1550 m, 1.7.1998, *Hadjikyriakou 3561;* Pano Platres, at the road towards Moni Panagias Trooditissas, c. 1300 m, 22.8.2003, *Charalambous in Hand 3922;* Chionistra, rocky slope, c. 1950 m, 9.7.1988, *Hadjikyriakou 49;* Troodos, Mount Olympus, W/NW flank, along Artemis trail, rocky slope with a few bushes, c. 1850 m, 14.5.1999, *Hand 3266;* Madari, rocky slope, c. 1550 m, 2.7.1994, *Hadjikyriakou 1564;* Fterikoudi, at the road NNE Moni summit, rocks and screes at the road, c. 1120 m, 7.5.2005, *Hand 4857;* Farmakas, valley above road, NW Moutti tou Agiou Georgiou, open rocky ground with almond trees and vineyards, c. 1050 m, 9.4.2005, *Hand 4572;* Selladi tis Papoutsas, screes with low shrubs, c. 1210 m, 16.6.2005, *Hadjikyriakou 6571;* Agios Theodoros, ascent to Papoutsa, middle part of flank above Palaichori junction, rocky slope, c. 1350 m, 2.11.2002, *Hand 3680;* Agios Theodoros, rivulet above road 4.4 km before the turn-off to Askas, N of Papoutsa, rivulet, rocky slope, c. 1100 m, 10.5.1999, *Hand 3189;* Sykopetra, Profitis Ilias, NW, a few m from turn-off to Farmakas, rocky road bank, c. 1100 m, 13.5.2005, *Hand 4963*.

G. Hadjikyriakou & R. Hand

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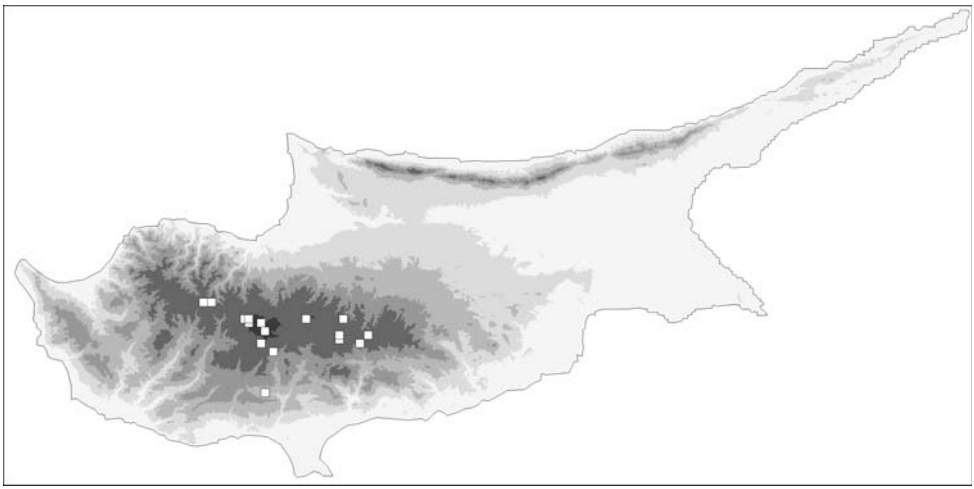

Fig. 6. Distribution of *Nepeta troodi*, based on own data and specimens/observations mentioned by Meikle (1985), Chrtek & Slavík (2001) and Alziar & Guittonneau (2004).

Phlomis cypria subsp. ***occidentalis*** (Meikle) Hand

Chromosome number: 2*n* = 20 (two different plants counted; see Fig. 7). The results confirm the only previous chromosome number report for that endemic taxon by Vogt & Aparicio (2000; n = 10). Studies in the allopatric nominal taxon revealed the same number (Yıldız & Gücel 2006). For taxonomy and chorology of *P. cypria* see Hand (2003).

Division 2: Lysos, road 4.8 km ENE, towards Stavros, 2.3 km W of the turn-off to A. Merkourios, open *Pinus* forest, 520 m, 7.10.1998 (seeds), *Buttler & Diguet,* no specimen available so far, because the plants cultivated at B did not flower until now (accession number 265-13-03-10). (ed.)

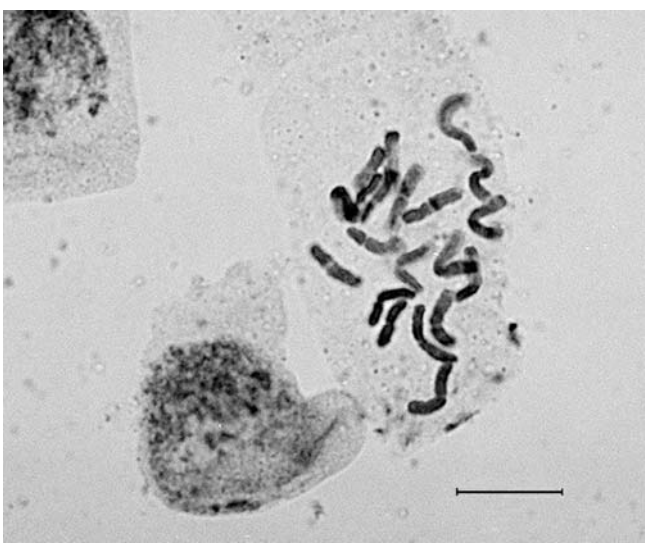

Fig. 7. *Phlomis cypria* subsp. *occidentalis* – root tip metaphasis, showing 2*n* = 20 chromosomes. – Scale bar = 10 µm.

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Phlomis brevibracteata Turrill

The endemic taxon is known to occur in two separated areas (1) on the southern foothills of the Troodos range and (2) in the Pentadactylos range (see Fig. 8). Recent studies show that the populations in the former region concentrate on the sedimentary rocks of Lefkara formation (chalks, marls, marly chalks, chalky marls with cherts in places as bands or nodules) of the Palaeogene period. Exceptionally, plants are to be found on the sedimentary rocks of Pachna formation, which belongs to Neogene period (Table 3). On the other hand, the populations on Pentadaktylos range occur on the sedimentary rocks of Lapithos formation (chalks, red and pink marls and cherts, massive recrystalized white limestone), which belongs to the Cretaceous and Palaeogene period and the sedimentary rocks of Ardana-Kalograia formation (grits, greywacke, chalky marls, breccias mainly with chalky matrix), the older rocks of which belong to Palaeogene period. Only once, the taxon has been found on Kythrea formation (Middle Miocene) which is younger than Ardana-Kalograia.

The sediments of Lefkara formation are older than those of Pachna, whereas those of Lapithos formation are older than those of Kalograia-Ardana. Kalograia-Ardana formation is partly the respective of Lefkara, whereas Lapithos formation falls partly within Palaeogene period as that of Lefkara (Geological Survey Department 1995, Xenophontos 1997).

Summarizing the results, it is obvious that the species prefers rocks of approximately the same age (26-65 million years) in both ranges. Indeed, there seems to be no taxonomic differentiation correlating with geology as in *Plomis cypria* which has a similarly disjunct distribution (Hand 2003). A rare occurrence on igneous rocks (see Meikle 1985) could not be confirmed so far.

+ Division 2: Pano Lefkara, steep limestone slopes E/SE below summit 727,2 SE of the village, rocks and phrygana (LE), c. 680 m, 10.4.2005, *Hand 4578*.

Division 3: Trimiklini, c. 1.7 km from the church towards Laneia, rocky bank of the road (LE), c. 575 m, 14.5.1999, *Hand 3251;* Laneia – Trimiklini, rocky place with low shrubs (LE), c. 540 m, 9.6.2005, *Hadjikyriakou 6522;* Laneia, valley with low shrubs (LE), c. 550 m, 22.6.1990, *Hadjikyriakou 918;* 2 km S of Kato Archimandrita in Chapotami river, rocky slope (LE), c. 250 m, 5.2.2000, *Christodoulou in Hadjikyriakou 4931;* Oreites, slope with shrubs (PA), c. 300 m, 30.8.2000, *Makris in Hadjikyriakou 5130;* road W of Alassa dam, low shrubs with *Genista fasselata* (PA), c. 280 m, 14.6.2005, *Hadjikyriakou 6550 & Christodoulou*.

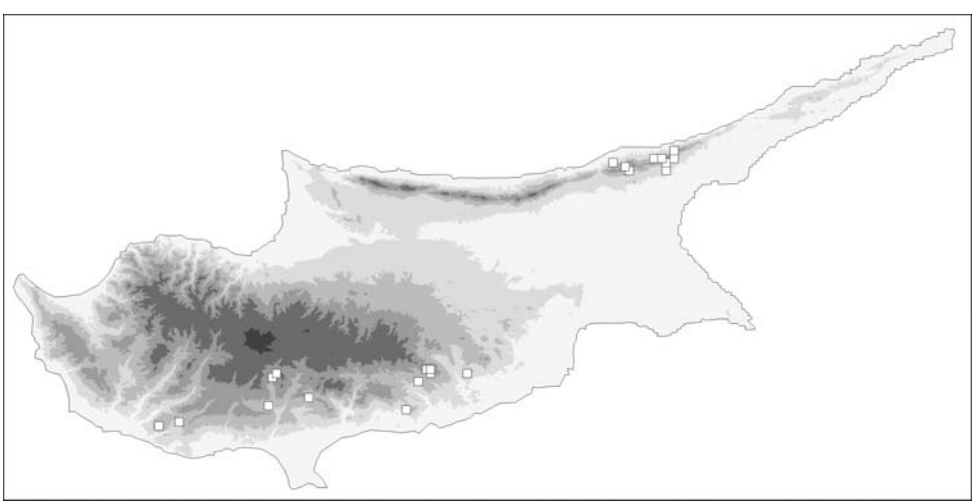

Fig. 8. Distribution of *Phlomis brevibracteata,* based on own results and specimens/observations mentioned by Meikle (1985), Tsintides (1998) and Alziar (2000).

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Table 3. Geological formations relevant to the distribution of *Phlomis brevibracteata.*

Epoch		Period	Keryneia	Circum Troodos Sedimentary Succession
Upper	Miocene	Neogene		Pachna (PA)
Middle			Kythrea (KY)	
Lower			Kalograia-Ardana (KA)	
Oligocene		Palaeogene		Lefkara (LE)
Eocene			Lapithos (LA)	
Palaeocene				
Upper		Cretaceous		

Division 7: Akanthou, ESE, cliffs above/W of waterworks c. 2 km SE Agios Merkourios, rocks and rocky slopes (LA), c. 300 m, 14.5.2005, *Hand 4970 & Hadjikyriakou;* Plakin above Ardana, low shrubs (KA), c. 400 m, 12.5.2003, *Hadjikyriakou 5650*; Limnes 3 km W of Kantara, pine forest with low shrubs (KA), c. 600 m, 11.6. 2005, *Hadjikyriakou 6540;* N of Flamoudi, slope with low shrubs, c. 50 m, 14.5. 2006, *Hadjikyriakou 6892*.

+ Division 8: E of the road Kantara – Gerani, low shrubs (KA), c. 350 m, 22.5.2004, *Hadjikyriakou 6086*(KY).

Additional observations (all by Hadjikyriakou and Makris within the last ten years)

Division 2: Sotira peak W of Lefkara (LE).

Division 3: Above Pentakomon (LE); between Trimiklini and Agios Mamas (LE); below Agios Theodoros Larnakas (PA).

Division 7: Panagra gorge (LA); Mana tou Nerou above Akanthou (LA); Mavri Skala SE of Akanthou (LA); above Mandres Ammochostou (LA); Fonias Kantara – Olympos road (LA); Kyparissia SW of Flamoudi (KA); above Ardana, two sites (KA); Kantara – Davlos, two sites (KA, LA). G. Hadjikyriakou & R. Hand

Teucrium kotschyanum Poech

Chromosome number: $2n = 32$ (two different plants counted). The results corroborate earlier counts by Vogt & Aparicio (2000).

Division 2: Lysos, road 8.1 km ENE, towards Stavros, 1 km E of the turn-off to A. Merkourios, rocky slope by the road, 530 m, 7.10.1998 (seeds and specimen), *Buttler 32388 & Diguet*. (ed.)

Chenopodiaceae

Chenopodium vulvaria L.

+ Division 1: Pafos, tourist area of Kato Pafos, Leoforos Danaïs, highway margin, under a poplar tree, 20 m, 18.5.2005, *Seregin A-447 & Privalova.*

A. Seregin & I. Privalova

Atriplex semibaccata R. Br.

+ Division 5: Agios Sozomenos, at the rock church, base of cliffs, phrygana, c. 200 m, 23.5. 2005, *Hand 5065, Christodoulou & Kyriakou;* Athalassa forest, roadside, c. 180 m, 7.5.1999, *Hadjikyriakou 4510*.

C. Christodoulou, G. Hadjikyriakou, R. Hand & T. Kyriakou

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Salsola soda L.

Known from a single record of 1905 (Holmboe 1914, Meikle 1985) from Lemesos, where it has not been found recently although searched for.

+ Division 8: 1 km W of Apostolos Andreas, sandy coast, near the sea level, 24.11.2005, *Christodoulou CYP 5101*.

Mentioned without cited specimens for division 7 by Viney (1994).

C. Christodoulou

Polygonaceae

Rumex vesicarius L.

First records for Cyprus have been published by Della & Iatrou (1995). They mention two sites at road banks near Asgata, a village close to the new site. The status of the species in Cyprus has not been discussed in detail. Browicz & al. (2001) summarize the situation in Greece. *Rumex vesicarius* seems to be an alien in mainland Greece and a recent introduction in the Aegean islands. The Greek sites are not that isolated as depicted in the authors' distribution map because they neglected the records from Cyprus. Cyprus lies much closer to the main area in the Near East and N Africa than Greece. The conspicuous plant may have been overlooked in the past. At the new site it is accompanied by *Aethionema arabicum* and *Gaudiniopsis macra,* two other surely indigenous taxa that were found in Cyprus only recently.

Division 3: Kalavasos, rocky slope and small gorge above track at the southernmost point of the reservoir, close to the dam, 180-200 m, 16.5.2005, *Hand 4989*. (ed.)

Rumex dentatus subsp. ***mesopotamicus*** Rech. f.

Not so rare as described by Meikle (1985) but it may be spreading and colonizing dams constructed in the second half of the 20th century. The specimens collected: (a) by *Lindberg f.* from near Famagusta, (b) *Merton 2261* from Pediaios mouth; and (c) *Meikle 2617* from Kouklia reservoir, are attributed by Meikle (1985) to division 5. However, judging from the collecting locality and the specified divisional boundaries (Meikle 1977) they all fall in division 4. This view is supported by the citations of other species, e.g., *Damasonium alisma, Crypsis facktorovskii* and *C. schoenoides, Suaeda vera* (the specimen of Merton from Kouklia reservoir). In this respect all recent collections are cited in order to clarify the situation.

+ Division 3: Foinikaria, Germasogeia dam, bank of the dam SE of peninsula with nature trail, open wet ground, 10.5.2005, *Hand 4918;* Kalavasos, at the southernmost point of the reservoir, close to the water, c. 180 m, 16.5.2005, *Hand 4995.*

Division 4: Achna dam, margins of the dam, c. 50 m, 1.8.1999, *Hadjikyriakou 4787;* ibid., S shore W of the dam, open ground flooded in winter, c. 50 m, 11.5.2005, *Hand 4927*.

+ Division 5: Athalassa dam, stream bed, c. 170 m, 6.5.1999, *Hadjikyriakou 4502;* ibid., 21.7.2005, *Hadjikyriakou 6781*. G. Hadjikyriakou & R. Hand

Euphorbiaceae

Euphorbia hirta L.

First record for Cyprus. It has been observed in several orange groves and nurseries between Trachoni and Ypsonas. It is most probably a recent introduction; due to the absence of previous records, for the time being it can be characterized as casual alien on the island. It is known to occur in Africa, Arabia and eastwards to China (see Zohary 1972, Chaudhary & Akram 1987, Boulos 2000).

+ Division 3: Trachoni – Ypsonas, cultivated land in a nursery of ornamentals, c. 40 m, 4.10.2005, *Hadjikyriakou 6818*. G. Hadjikyriakou

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Fagaceae

Quercus

In Cyprus, three indigenous taxa of *Quercus* occur: *Q. coccifera* subsp. *calliprinos, Q. infectoria* subsp. *veneris*, both to be found also in the neighbouring countries, and the remarkable endemic *Q. alnifolia*, the Golden oak. They have been characterized in detail by, e.g., Meikle (1985) and Menitsky (1984), the Golden oak by Knopf (2000), also regarding ecological and forestry aspects. Taxonomy of *Q. coccifera* is still controversial and several authors do not accept subspecies (see, e.g., Christensen 1997). But as long as no modern revision exists it seems to be wise to err on the side of moderate splitting by accepting subsp. *calliprinos*. Generally, hybridization within the genus has not yet been documented for Cyprus.

Quercus alnifolia grows on the igneous formations of Troodos mountain range at an altitude between 500 and 1800 m. *Q. coccifera* subsp. *calliprinos* grows from sea level to 1400 m. At several places around Troodos mountain range the two taxa form mixed populations. The people of Kampos, a village in the NW part of the range, had observed long ago that some plants within these populations bear characters of both taxa and they adopted for them the vernacular name lakopernia (lakopernies pl.). On 27 July 1997, Ioannis Papadopoulos from Kampos brought a specimen to the first author pointing out that it was collected from a such a lakopernia. This vernacular name is a compound word (lakia or latzia + pernia = prinos). The former being the vernacular name of *Q. alnifolia*, and the latter being the vernacular name of *Q. coccifera* subsp. *calliprinos*. In other words the vernacular name lakopernia means that the plant bears characters of both parents, thus being a hybrid. In the meantime, Petros Anastasiou (Kampos), Anastasios Anastasiou (Tsakkistra) and Andreas Charalambous (Tsakkistra) repeated from time to time the same information. On 22 January 1999, the first author and P. Anastasiou collected specimens from a single individual growing at Agia Anastasia locality SW of Kampos. Repeated visits to the area corroborated the hypothesis that the plants called lakopernies are indeed hybrids.

Quercus* ×*campitica nothosubsp. ***hylatis*** Hadjik. & Hand, **hybr. nat. nov.**
(= *Quercus alnifolia* Poech × *Q. coccifera* subsp. *calliprinos* (Webb) Holmboe)

Holotype: Cyprus, division 2 (sensu Meikle 1977, 1985), Kampos, Agia Anastasia SW above village, semi-open slope with scattered trees at the water tank, 767 m, 28.3.2005, *Hand 4449 & Hadjikyriakou* (B; isotypes: CYP, herb. Hadjikyriakou).

Planta inter *Quercum alnifoliam* et *Q. cocciferam* subsp. *calliprinos* intermedia et verisimiliter ex hybridatione harum specierum orta, ad illud foliis nitidis atroviridis supra et stellato-pilosis infra, ad hoc foliis acuto-spinosis et plerumque cordatis basi accedens.

Shrub up to 5 m high. *Lamina* 2-5.5(-6.5) × 1.2-3(-4) cm, ovate, ovate-oblong or oblong, thick, rigid, leathery, dark shining green above, rather densely silvery to pale golden yellow-tomentose below in young leaves and densely silvery-tomentose in mature leaves, except for the region of the rather prominent midrib and lateral nerves, where it is partly or sparsely tomentose in mature leaves: apex acute, spinose, base shallowly or distinctly cordate, margins spinose dentate with usually upwards-directed pungent teeth, nervation somewhat obscure above, the midrib and lateral nerves rather prominent below. *Petiole* 4-10 mm long, stellate-tomentose. *Male inflorescences* extra-axillary, restricted at the lower part of the current year's shoots. *Female flowers* in the leaf axils, solitary, sessile or shortly stipitate or in solitary spikes of 2-4, rachis up to 15 mm long; styles 3-4(5), recurved. *Cupule* about 10 mm in diameter, with strongly recurved, hooked scales. *Acorn* narrowly obovate or subcylindric, 2-3 cm long, rounded or attenuate at apex, conspicuously apiculate, apiculus distinct, dome-shaped, occasionally with the recurved styles.

The hybrid is closer to *Quercus alnifolia* in its dark shining-green leaves above and the rather dense indumentum below, whereas, closer to *Q. coccifera* subsp. *calliprinos* in the acute, spinose apex, the distinctly or shallowly cordate base and the spinose dentate margins of the leaves usually with upwards-directed pungent teeth. Longtime experience in the field and forestry nurseries

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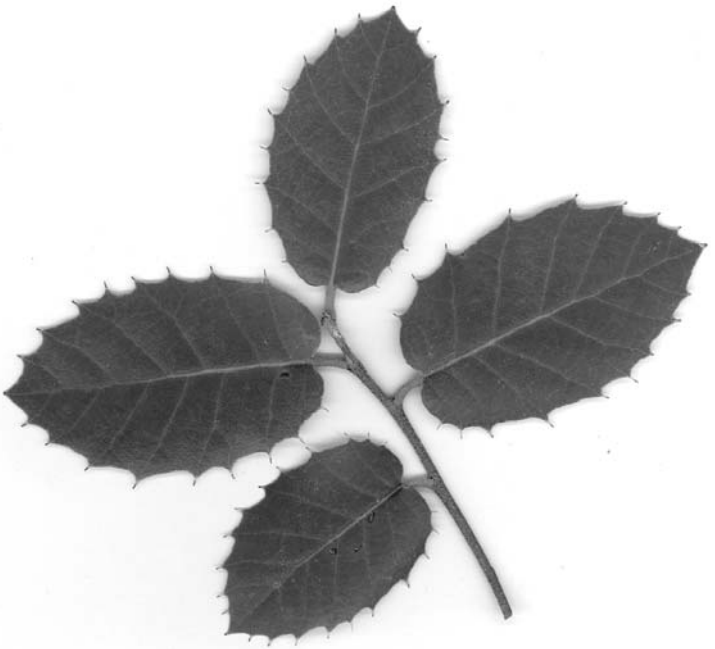

Fig. 9. *Quercus* ×*campitica* nothosubsp. *hylatis* – scan of a twig from the type shrub, spring 2005.

by the first author show that in *Q. alnifolia* juvenile plants do not differ from adults in leaf shape; spinose margins never could be observed.

Illustrations. – See Fig. 9, 10C and colour photos of habit and habitat in the electronic supplement.

Flowering period. – About mid May to the end of May.

During the visit on 5 May 2005, only *Quercus coccifera* subsp. *calliprinos* was in full flower. On 20 May 2005, the flowering of *Q. alnifolia* was at its end and the presumed hybrid had fresh flowers. In this respect we can assume that the flowers of *Q. alnifolia* appear about ten days later than those *Q. coccifera* subsp. *calliprinos* and the flowers of the hybrid appear about ten days later than those of *Q. alnifolia*. Also, it has been observed that the hybrid grows together with or very close to *Q. coccifera* subsp. *calliprinos,* while *Q. alnifolia* occurs at some distance from the hybrids (30-50 m away). On 28 May 2005, Charalambos Christodoulou informed the first author about the occurrence of some lakopernies at Stavros tou Kratimatou. Indeed, during an on spot visit, it was confirmed that several plants (of this hybrid) grow in the locality, possessing the same characters as those at Kampos, and there too, the distribution of hybrids and parental taxa is very similar. These observations strongly suggest that the flowers of *Q. coccifera* subsp. *calliprinos* are pollinated with pollen of the Golden oak and that the hybrids grow from seeds produced by the former.

Etymology. – The epithet *campitica* is the Latinized feminine form of the epithet καμπιτικος which refers to something that occurs at, or comes from Kampos village. The nothosubspecific epithet *hylatis* is the genitive of Hylates (Υλατης) an epithet attributed by the ancient Cypriots to the Greek God Apollo (Απολλων Υλατης, Apollo Hylates, Apollo who lives in hyle = forest). It is worthwhile to mention here that the Cypriot vernacular name of *Q. alnifolia* is lakia / λακια or latzia / λατζια derived from hylatea/υλατεα or hylates / υλατης, respectively (Giagkoullis 2002).

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Table 4. Diagnostic characters of *Quercus* ×*campitica* nothosubsp. *hylatis* and the two parent taxa.

	Quercus* ×*campitica nothosubsp. ***hylatis***	***Quercus alnifolia***	***Quercus coccifera*** subsp. ***calliprinos***
Leaves			
– upper surface	dark shining green	dark shining green	bright green
– lower surface	rather densely silvery to pale golden yellow-tomentose below in young leaves and densely silvery-tomentose in mature leaves, except the region of the rather prominent midrib and lateral nerves with less dense indumentum	densely golden or brownish-tomentose in var. *alnifolia* or silvery tomentose in var. *argentea*	glabrous or thinly stellate-pubescent, or nearly tomentose at first, usually becoming glabrous with age
– indumentum in leaves >1 year, lower surface	a few stellate hairs and fragments of glandular hairs	mixture of a few stellate and many glandular hairs	a few stellate hairs only
– apex	acute, spinose	rounded or shortly acute	a few stellate hairs only
– base	distinctly or shallowly cordate	rounded or broadly cuneate	rounded or often shallowly cordate
– margins	spinose dentate with usually upwards-directed pungent teeth	conspicuously or obscurely serrate, or sometimes entire or almost entire	marginal teeth upwards-directed, those of the suckers or sterile, coppiced growth markedly spinose
Styles	3-4(5)	3	3-4(-6)

Distribution and ecology. – It has been located so far in three widely separated localities, namely Kampos village at the E part of Pafos forest, at Stavros tou Kratimatou at the W part of the same forest, and in the Pera Vasa – Alonoudi area at the S edge of the forest. It should be looked for in other localities of Troodos mountain range where both parents grow together. The geological formation of the three localities consists of igneous diabasitic rocks. However, in the former locality occurs a single shrub about 5 m high, dwelling on a steep slope, surrounded by scattered shrubs of *Q. alnifolia* and *Q. coccifera* subsp. *caliprinos*. Other plants growing in the area are: *Cistus creticus* subsp. *creticus, C. salviifolius, Calycotome villosa* and *Asphodelus aestivus*. In the second locality there are six shrubs up to 2.5 m high, much younger than the plant at Kampos, within a fairly dense *Pinus brutia* forest with an understorey of *Q. alnifolia, Q. coccifera* subsp. *calliprinos, Olea europaea, Pistacia lentiscus, Calycotome villosa, Genista fasselata, Cistus creticus* subsp. *creticus, C. salviifolius* and *Asphodelus aestivus*. In the third locality, three mature shrubs are to be found in open pine forest together with the two parental taxa, the same taxa as in the first locality as well as *Olea europaea*.

Additional specimens seen:

+ Division 2: Kampos, slope with tall shrubs, 767 m, 24.7.1997, *Papadopoulos in Hadjikyriakou 2877;* Agia Anastasia Kampos, steep slope with *Quercus alnifolia* and *Quercus coccifera* subsp. *calliprinos,* 767 m, 22.1.1999, *Hadjikyriakou 3956 & Anastasiou;* ibid., 20.5.2005, *Hadjikyriakou 6408 & Hand;* ibid., 20.5.2005, *Hand 5051 & Hadjikyriakou;* Stavros tou Kratimatou, fairly dense *Pinus brutia* forest, 600 m, *Hadjikyriakou 6452* (duplicate also at B); ibid., 30.5.2005, *Hadjikyriakou 6454;* ibid., 30.5.2005, *Hadjikyriakou 6456;* Paliomylos Pafos forest on the road from Pera Vasa via Alonoudi to Panagia 200 m W of the

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watertank, open pine forest with *Quercus alnifolia* and *Quercus coccifera* subsp. *calliprinos,* c. 700 m, 22.10.2005, *Hadjikyriakou 6823*.

The hybrid has been compared to herbarium material of *Quercus alnifolia* var. *alnifolia* specimens preserved at B (incl. *Hand 1131, 2099, 2931, 3645, 4043, 5052, 5054*) and in the private herbarium of the first author (numbers *Hadjikyriakou 277, 1638, 2883, 3947, 3952, 3953, 3954, 3955, 5137, 6407, 6409, 6455* [duplicate also at B]) as well as to specimens of *Q. coccifera* subsp. *calliprinos* (B incl. *Hand 2195, 4014, 4813* and *Hadjikyriakou 240, 1995, 2014, 3904, 3957, 6332, 6453* [duplicate also at B], *6457*). G. Hadjikyriakou & R. Hand

Quercus alnifolia var. ***argentea*** Hadjik. & Hand, **var. nov.**

Holotype: Cyprus, division 2 (sensu Meikle 1977, 1985), Argaki ton Spilion – Kerami road west of Filagra in Troodos Forest, open *Pinus brutia* forest with *Quercus alnifolia* and *Quercus coccifera* subsp. *calliprinos,* 755 m, 9.6.2005, *Hadjikyriakou 6527* (B; isotypes: CYP, JE, herb. Hadjikyriakou).

A *Querco alnifolia* var. *alnifolia* foliis adultis complanatis argenteis glanduloso-pilosis infra differt.

In the description of *Quercus alnifolia* cited by Meikle (1985) the leaves are described as follows: "… leaves thick, rigid, coriaceous, ovate, oblong, obovate or suborbicular, 1.5-6(-10) × 1-5(-8) cm, dark shining green above, densely golden- or brownish-tomentose below, apex rounded or shortly

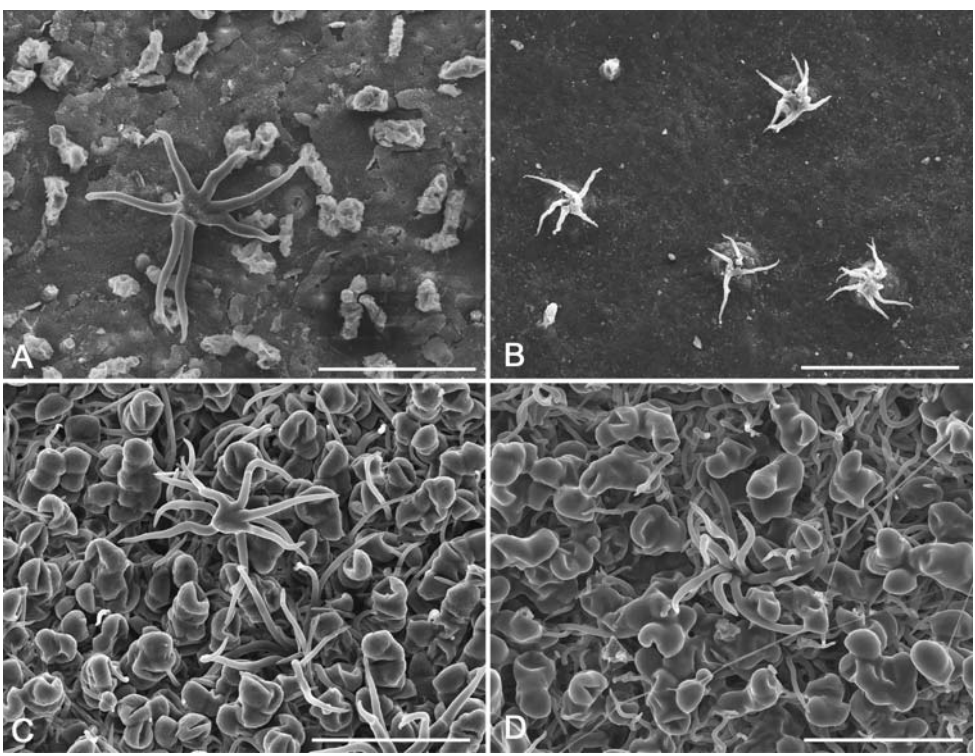

Fig. 10. Indumentum in about one year old leaves, lower surface, scanning electron micrographs – A: *Quercus* × *campitica* nothosubsp. *hylatis* (from *Hand 4449*); B: *Q. coccifera* subsp. *calliprinos* (from *Hand 4813*); C: *Q. alnifolia* var. *alnifolia* (from *Hand 5054*); D: *Q. alnifolia* var. *argentea* (from *Hand 5055*). – Scale bars = 200 µm.

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acute, base rounded or broadly cuneate, margins conspicuously or obscurely serrate, or sometimes entire or almost entire; nervation obscure above, the midrib and lateral nerves rather prominent below …". Descriptions and illustrations by other authors (e.g. Camus 1934, 1936-1938, Knopf 2000, Menitsky 2005) confirm this more or less. However, further field observations and examination of herbarium specimens showed that the leaves are more polymorphic than mentioned before. Generally, they are convex, sometimes flattish with revolute margins, thick, rigid, leathery, dark green above, usually densely golden- or brownish-tomentose, sometimes silvery-tomentose below, variously shaped, ovate, broadly ovate, oblong, suborbicular, elliptic, lanceolate or broadly lanceolate, base rounded, cuneate or broadly cuneate, somewhat truncate or slightly cordate, apex rounded, acute or occasionally somewhat acuminate.

The vast majority of the plants have convex leaves with densely golden- or brownish-tomentose lower surface. This colouration is the source of the taxon's vernacular name in many European languages (e.g. Golden oak, Chêne doré de Chypre, Gold-Eiche). However, at several places within such populations small groups of plants have been located showing flattish leaves with slightly revolute margins and silvery-tomentose lower surface. This remarkable variation is constant on such plants supporting recognition at varietal level.

According to Menitsky (1984) the indumentum of the leaves consists of colourless, stellate and glandular hairs with ochreous-red secretion imparting the characteristic colour. Studies based on SEM photos (see Fig. 10C-D) confirm this. There seems to be no clear qualitative difference in the relation of both hair types in leaves of the same age in the two varieties of *Quercus alnifolia*. The different colouration of leaves older than one year is possibly caused by a deviating colour of the glandular hairs. Young leaves of both varieties are almost indistinguishable.

Illustrations. – See Fig. 10D and several colour photos of habit and habitat in the electronic supplement.

Additional specimens seen:

+ Division 2: Moummouros in Stavros tis Psokas valley, pine forest, 500 m, 28.9.1997, *Papadopoulos in Hadjikyriakou 2884;* ibid., 700 m, 22.1.1999, *Hadjikyriakou 3946 & Papadopoulos;* Selladin tou Marouliou Kampos valley, pine forest, 580 m, 22.1.1999, *Hadjikyriakou 3951;* ibid., 20.5.2005, *Hadjikyriakou 6410 & Hand;* ibid., 20.5.2005, *Hand 5055 & Hadjikyriakou;* Argaki ton Spilion – Kerami road west of Filagra in Troodos Forest, open *Pinus brutia* forest with *Quercus alnifolia* and *Quercus coccifera* subsp. *calliprinos,* 755 m, 9.6.2005, *Hadjikyriakou 6525;* ibid., 9.6.2005, *Hadjikyriakou 6526* (duplicate at B).
G. Hadjikyriakou & R. Hand

Liliaceae

Asphodeline brevicaulis (Bertol.) Gay

+ Division 8: 100 m E of Gerani – Kantara road, maquis vegetation, c. 500 m, 3.5.2004, *G. Hadjikyriakou 6048 & T. Hadjikyriakou;* 1 km E of Kantara – Gerani road, among shrubs, c. 350 m, 22.5.2004, *Hadjikyriakou 6085*.
G. Hadjikyriakou & T. Hadjikyriakou

Fritillaria persica L.

Found by the second contributor in 1995.

+ Division 1: Kritou Terra, 5.3.2005, *Papachristophorou CYP 4687.*
T. Papachristophorou & N. Symons

Allium rubrovittatum Boiss. & Heldr.

+ Division 8: Coastal rocks at the ruins of Karpasia/Agios Filon, c. 3-5 m, 5.7.2005, *Vogt 16320*.
R. Vogt

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Allium curtum Boiss. & Gaill.

+ Division 1: Between Polis and Latsi (Lakki), sandy seashore, 0-5 m, 20.5.2005, *Seregin A-540 & Privalova.*
+ Division 3: Akrotiri at Episkopi bay, sandy place, 22.5.1996, *Makris in Hadjikyriakou 1843*. C. Makris, I. Privalova & A. Seregin

Allium amethystinum Tausch

+ Division 2: Saittas nursery, banks in cultivated field, c. 600 m, 19.5.1988, *Hadjikyriakou 1;* Panagia Bridge, margins of cultivated fields, c. 600 m, 12.7.1996, *Hadjikyriakou 1897*.
+ Division 3: Akrotiri at Episkopi bay, sandy place, 18.5.1996, *Makris in Hadjikyriakou 1820;* ibid., 22.5.96, *Makris in Hadjikyriakou 1845*.
+ Division 5: Episkopeio, SSW Ergates at the road, dry ditch by the road, c. 350 m, 23.5.2005, *Hand 5067, Christodoulou & Kyriakou*.
+ Division 6: Makedonitissa, fallow land, c. 160 m, 30.5.1991, *Hadjikyriakou 1227;* ibid., 30.5.1991, *Hadjikyriakou 1228*.
C. Christodoulou, G. Hadjikyriakou, R. Hand, C. Makris & T. Kyriakou

Allium willeanum Holmboe

+ Division 8: Dipkarpaz/Rizokarpaso – Cape Apostolos Andreas, beach and dunes behind Pachyammos Point, sands, c. 0.5-20 m, 9.7.2005, *Vogt 16344*. R. Vogt

Scilla morrisii Meikle

According to Meikle (1985) two taxa of the *S. siberica* alliance occur in Cyprus: (1) *S. cilicica* in Pentadactylos range (division 7) and on the Akamas peninsula in the W of the island (division 1). (2) *S. morrisii*, a micro-endemic described from the vicinity of Chrysorrogiatissa monastery (division 2). C-band karyotyping and DNA content determinations by Greilhuber & Speta (1989) revealed that both taxa are sibling species but also that all Cypriot provenances actually belong to one endemic species, by priority *S. morrisii*. *S. cilicica* is restricted to S Anatolia. Some variability exists with regard to flower colour and possibly timing of leaf expansion of *S. morrisii*. Plants from the following site proved to be intermediate between the two segregates sensu Meikle (1985) as regards petal segment position, colouration and length of anthers, confirming the results published by Greilhuber & Speta (1989).

Division 1: Near Agios Neofytos monastery, open *Cupressus sempervirens* forest, in shady places by a streamside, 400 m, 15.3.1995, *Papachristophorou CYP 1797;* ibid., 28.2.1996, *Christodoulou CYP 3240* C. Christodoulou & T. Papachristophorou

Juncaceae

Juncus littoralis C. A. Mey.

+ Division 2: Armyroleivadon at Troodos, marshy place, c. 1650 m, 2.11.1999, *Hadjikyriakou 4916;* ibid., 22.8.2000, *Hadjikyriakou 5117 & Christodoulou;* Leivadi tou Pachia at Troodos, marshy place, c. 1650 m, 22.8.2000, *Hadjikyriakou 5128 & Christodoulou*.
+ Division 6: SW of Agia Eirini, moist place among sand dunes, 17.4.2004, *Hadjikyriakou 6027*. C. Christodoulou & G. Hadjikyriakou

Juncus heldreichianus Parl. subsp. ***heldreichianus***

Subspecific division according to Kirschner (2002a).

+ Division 8: Dipkarpaz/Rizokarpaso – Cape Apostolos Andreas, brackish pond behind the beach between Pachyammos Point and Galounopetra Point, c. 1 m, 9.7.2005, *Vogt 16346*. R. Vogt

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Juncus subulatus Forssk.

+ Division 8: Dipkarpaz/Rizokarpaso – Cape Apostolos Andreas, brackish pond behind the beach between Pachyammos Point and Galounopetra Point, c. 1 m, 9.7.2005, *Vogt 16343*. R. Vogt

Juncus hybridus Brot.

+ Division 8: Rizokarpaso, at the Ronas "River" a little bit N of the road NE Moni Panagias Eleousas, open partly wet ground, c. 30 m, 29.4.2005, *Hand 4759 & Hadjikyriakou*.
Mentioned without cited specimens for this division by Perring (1999).
G. Hadjikyriakou & R. Hand

Juncus ambiguus Guss.

Meikle (1985) cites only one little overmature collection from Limassol Salt Lake (division 3). Our specimen was collected before anthesis, but the inner perianth segments are markedly less acute than the outer ones even in young state. The taxonomy of the *J. bufonius* group is still controversial. According to a worldwide monograph of the genus, Kirschner (2002b) accepts six taxa as members of that group at species rank. *J. ambiguus* sensu Meikle (1985) is treated as synonym of *J. hybridus,* another taxon known to occur in Cyprus. However, current opinion is very much divided on the desirability of recognizing these (and further) segregates. For the time being it seems wise to err on the side of the splitters and treat *J. ambiguus* as separable taxon.

Division 3: Akrotiri Sovereign Base Area, Akrotiri, SW shore of the Limassol Salt Lake, saline marshes with *Plantago maritima, Juncus maritimus* and *Salicornia fruticosa,* 0 m, 13.3.2004, *Seregin A-299 & Sokoloff,* conf. Novikov.
A. Seregin & D. Sokoloff

Potamogetonaceae

Potamogeton perfoliatus L.

There are reports of an occurrence in division 6 by Viney (1994) but without specimen based details. Meikle (1985) did not accept the pure listing of the species by Osorio-Tafall & Seraphim (1973). The species may have colonized the island supported by water birds recently but it is restricted to anthropogenous waters and should be classified as a naturalized non-invasive alien (cf. also *Myriophyllum spicatum* and *Najas marina* subsp. *armata*).

+ Division 6: Manglis pond, 1.5 km N of Kato Lakatameia, SW of Lefkosia, pond edges, 150 m, 14.7.1998, *Christodoulou CYP 3863*
+ Division 7: Lakkovounara dam W of Kythrea, mouth of the dam, c. 160 m, 7.8.2004, *Hadjikyriakou 6156;* ibid., 30.6.2005, *Vogt 16287*.
C. Christodoulou, G. Hadjikyriakou & R. Vogt

Potamogeton pectinatus L.

Viney (1994) mentions observations from two reservoirs in divisions 5 and 6. Hadjikyriakou & al. (2004) give a first specimen based record for division 3. Obviously, the species is colonizing dams constructed in the last century and other artificial water bodies. The occurrence in a natural pool near Kalavasos speaks in favour of its indigenous status.

Division 3: Kalavasos, in the pool below Drapeia, c. 100 m, 4.5.2005, *Hand 4802;* Moni, Agios Epifanios, pool in quarry c. 1 km SW Gerondas summit, c. 40 m, 8.5.2005, *Hand 4865*.
+ Division 5: Trypimeni, dam ESE of the village, E side, shallow parts, c. 150 m, 9.5.2005, *Hand 4910 & Hadjikyriakou* and *Hadjikyriakou 6366 & Hand.*
+ Division 7: Lakkovounara dam W of Kythrea, mouth of the dam, c. 160 m, 7.8.2004, *Hadjikyriakou 6157*. G. Hadjikyriakou & R. Hand

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Najadaceae

Najas marina subsp. ***armata*** (H. Lindb.) Horn [Syn.: *N. delilei* Rouy]

Taxonomy following Triest (1988). Compared to the nominal subspecies differing only slightly as regards morphology. Subspecies *armata* is replacing the other taxon in subtropical and tropical regions of the Old World, which justifies its ranking as subspecies. The former is known to occur in neighbouring countries, e.g. Turkey, Syria and Israel (Triest 1988). The taxon is mentioned for division 6 by Viney (1994) but he does not cite specimens. It may be a recent arrival to the island, brought by natural dispersal (e.g. birds) and establishing now in reservoirs and storage basins, recently created in Cyprus (cf. *Myriophyllum spicatum).*

+ Division 4: Achna storage basin, near the edge, 50 m, 30.5.1997, *Papachristophorou CYP 3706*.
+ Division 5: Tamasos reservoir, near the edge, 380 m, 20.9.2004, *Papachristophorou CYP 4671*.
+ Division 6: Manglis pond, 1.5 km N of Kato Lakatameia, SW of Lefkosia, pond edges, 150 m, 14.7.1998, *Christodoulou CYP 3864*.
+ Division 7: Lakkovounara dam W of Kythrea, mouth of the dam, c. 160 m, 7.8.2004, *Hadjikyriakou 6158*.

C. Christodoulou, G. Hadjikyriakou & T. Papachristophorou

Cyperaceae

Eleocharis vulgaris (Walters) Á. Löve & E. Löve

Meikle (1985) treated *E. palustris* in a very broad sense. The problem regarding the segregates of the taxon occurring in Cyprus has not been solved so far (see, e.g. Hand 2001). The specimens cited below clearly belong to *E. vulgaris*. Other gatherings proved to be *E. palustris* s.str. Some characters of *E. vulgaris* point to an origin as an allopolyploid derived from *E. palustris* s. str. and *E. uniglumis*: (1) the somatic chromosome number of 38(39) is explainable from the fusion of an unreduced gamete of *E. palustris* s.str. ($2n = 16$) and a reduced gamete of *E. uniglumis* ($2n = 23$), (2) the second glume is not always sterile as in *E. palustris* s.str. but may bear a flower as in *E. uniglumis*, (3) fruit size and micromorphological characters correspond to *E. uniglumis*, (4) hybridization with *E. uniglumis* occurs frequently, (5) the area of *E. vulgaris* lies within the range of *E. palustris* (for details see Strandhede 1965, 1966). It seems more appropriate to regard the segregate as separate species and not as subspecies.

The gathering *Meikle 2539* from "Galatia" has very probably been collected at the site mentioned below.

+ Division 1: Lasa, seasonal pool, c. 600 m, 22.6.2005, *Hadjikyriakou 6620*.
+ Division 8: Galateia, W part of the dry lake SW of the village, open dry mud and reed fragments, 94 m, 24.5.2005, *Hand 5087 & Hadjikyriakou,* det. Gregor; also collected at the same site somewhat earlier, 26.3.2005, *Hadjikyriakou 6192 & Delipetrou*.

P. Delipetrou, T. Gregor, G. Hadjikyriakou & R. Hand

Eleocharis palustris (L.)Roem. & Schult. s. str.

+ Division 3: Leivadi Akrotiriou, marshy place, 19.5.1997, *Hadjikyriakou 2719;* ibid., 24.5. 1997, *Hadjikyriakou 2731*.
+ Division 4: Liopetri forest, seasonal pool on kafkalla, 5.3.1999, *Hadjikyriakou 4079*.

G. Hadjikyriakou

Schoenus nigricans L.

The species has been characterized by Meikle (1985) as a typical plant of marshy ground by streams and springs as well as salt-marshes. Along the S coast of Cyprus between Lemesos and Mazotos, Black Bog-rush grows in a totally different habitat. Scattered populations are found in hollows and crevices of more or less flat chalk plateaus of the Lefkara formation a few metres

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above sea-level where water flows only after torrential winter rains. No other hygrophilous species occur there, and typical phrygana elements such as, e.g., *Asperula cypria, Coridothymus capitatus, Euphorbia cassia* subsp. *cassia* and *Teucrium* micropodioides accompany *S.nigricans.*

Division 3: Pentakomo, 1 km WSW Akrotirio Dolos, above coastal track, rocky ground, c. 20 m, 1.5.2005, *Hand 4782*. (ed.)

Carex illegitima Ces.

Two previous collections are cited by Meikle (1985) from division 7. The records below are from a new locality.

Division 7: Stalos SW of Flamoudi, slope with pines and low shrubs, c. 200 m, 8.5.2004, *G. Hadjikyriakou 6060 & T. Hadjikyriakou;* ibid., 14.5.2005, *Hadjikyriakou 6392 & Hand* and *Hand 4979 & Hadjikyriakou*.

G. Hadjikyriakou, T. Hadjikyriakou & R. Hand

Gramineae

Narduroides salzmannii Rouy

First detailed record for Cyprus. Stace (1985) mentions Cyprus as a part of the species' area but details never have been published. According to information by C. A. Stace this record for Cyprus is based on a specimen kept at Kew. It was collected by Merton *(ARI 834)* in Cyprus, misidentified in 1968 by Bor als *Micropyrum tenellum* and determined as *N. salzmannii* in 1976 by Stace. Unfortunately, there are no details about site and date of collection (T. Cope, in litt.). Because of the isolated occurrences in W Turkey and Cyprus, it was believed that the taxon could be "perhaps introduced" in these countries (Stace 1985). The main area is W Mediterranean and concentrates on the Iberian Peninsula. There are scattered sites in S France and parts of NW Africa (cf. map in de Bolòs & Vigo 2001). A site discovered in Libya bridges the gap to Cyprus (Brullo 1985). At the new site in Cyprus, the tiny grass grows on semi-shaded slopes in small gorges in the serpentine area of the Lemesos forest. In the very open *Pinus brutia* stands with scattered populations of the micro-endemic Alyssum chondrogynum Narduroides is accompanied by *Arenaria rhodia* subsp. *cypria, Bupleurum trichopodum, Valantia hispida var. hispida* and other annuals. Apart from the grazing pressure by goats, no obvious signs of human interference exist. Consequently, a more or less recent introduction of this species seems improbable. Lemesos forest is rather rich in endemics and in non-endemic taxa not found elsewhere on the island. *N. salzmannii* should be treated as indigenous to Cyprus.

+ Division 3: Akrounta, 1.8 km above, at road to Dierona, along brook in serpentine area E of a distinctive bend, among rocks and on screes, c. 250 m, 7.5.2005, *Hand 4833,* conf. Scholz. R. Hand & H. Scholz

Echinaria capitata (L.) Desf.

Previously known from a few sites on the Troodos range in division 2 (Meikle 1985, Alziar 2000).

+ Division 1: Akamas, about 1 km N of Magnisia mine, among phrygana, 320 m, 6.4.1995, *Christodoulou CYP 3402*. C. Christodoulou

Festuca rubra L.

First record for Cyprus. Hitherto collected from a single locality, where it occurs in an area of one hectare. It is known to occur throughout Europe (Markgraf-Dannenberg 1980) and NW Anatolia in Turkey (Markgraf-Dannenberg 1981, 1985). Despite its absence from the neighbouring Near East regions the character of its habitat suggests that it is probably native to Cyprus.

+ Division 2: Kryos Potamos, rocky slope under *Pinus nigra* subsp. *pallasiana* forest, c. 1500 m, 27.7.1999, *Hadjikyriakou 4723;* ibid., 25.6.2005, *Hadjikyriakou 6642,* conf. Scholz. G. Hadjikyriakou & H. Scholz

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Cynosurus effusus Link [Syn.: *C. elegans* Desf.]

+ Division 1: Pano Akourdaleia, E flank of Pitharolakhos gorge WSW of the village, upper slope, open patches in phrygana, c. 375 m, 28.4.2005, *Hand 4727, Christodoulou & Hadjikyriakou,* conf. Scholz.
C. Christodoulou, G. Hadjikyriakou, R. Hand & H. Scholz

Vulpia fasciculata (Forssk.) Fritsch [Syn.: *V. membranacea* auct., non (L.) Dumort.]

+ Division 1: Between Polis and Latsi (Lakki), sandy seashore, 0-5 m, 20.5.2005, *Seregin A-544 & Privalova.* I. Privalova & A. Seregin

Vulpia ciliata Link

+ Division 6: N of Livera, among low shrubs, c. 25 m, 28.3.2004, *G. Hadjikyriakou 5963 & T. Hadjikyriakou*. G. Hadjikyriakou & T. Hadjikyriakou

Lolium rigidum subsp. ***lepturoides*** (Boiss.) Sennen & Mauricio

First record for Cyprus. The distribution of the subspecies is restricted to the E and central Mediterranean area.

+ Division 2: Agioi Vavatsinias, at the track to Machairas, SE of Faratsena, rocky slope, partly with shrubs, c. 950 m, 26.4.2005, *Hand 4701,* det. Scholz.
R. Hand & H. Scholz

Lolium subulatum Vis. [Syn.: *L. loliaceum* auct. pro parte]

+ Division 4: Larnaka, at the SE shore of the great salt lake Alyki, 0-5 m, 23.4.2000, *Dunkel 10724-1*, conf. Scholz. F.-G. Dunkel & H. Scholz

Sclerochloa dura (L.) P. Beauv.

+ Division 5: Agios Sozomenos, WSW, S of the sandstone cliffs of height 266, SW of the brook, on track, c. 200 m, 16.3.2005, *Hand 4335,* conf. Scholz.
R. Hand & H. Scholz

Sphenopus divaricatus (Gouan) Rchb. subsp. ***divaricatus***

See Scholz (in Hand 2001) for another record differentiating subspecies in Cyprus.

+ Division 3: Mazotos, at the river mouth below Petountas church, brackish marsh, c. 1 m, 7.4.2005, *Hand 4534,* det. Scholz; E of Akrotiri lake, margins of marshy place, 9.4.1999, *Hadjikyriakou 4274*. G. Hadjikyriakou, R. Hand & H. Scholz

Sphenopus divaricatus subsp. ***permicranthus*** (Hausskn.) H. Scholz

Division 4: Larnaka, between sewage works at the airport and the coast, brackish marsh, c. 2 m, 31.3.2005, *Hand 4491,* det. Scholz. R. Hand & H. Scholz

Poa sylvicola Guss.

+ Division 3: Agios Therapon, Kryos valley c. 50 m above road bridge, shaded ground under trees, c. 460 m, 2.5.2005, *Hand 4788,* conf. Scholz. R. Hand & H. Scholz

Corynephorus articulatus (Desf.) P. Beauv. [Syn.: *C. divaricatus* (Pourr.) Breistr.]

+ Division 6: Agia Eirini, c. 2 km SSW at main track vertically to the coast, open sands in fixed sand dune area, c. 30 m, 9.5.2005, *Hand 4872 & Hadjikyriakou,* conf. Scholz & *Hadjikyriakou 6343 & Hand*. G. Hadjikyriakou, R. Hand & H. Scholz

Trisetaria linearis Forssk.

+ Division 6: Agia Eirini, c. 2 km SSW at main track vertically to the coast, open sands in fixed sand dune area, c. 10 m, 9.5.2005, *Hand 4873 & Hadjikyriakou,* det. Scholz.
G. Hadjikyriakou, R. Hand & H. Scholz

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Avena ludoviciana Durieu

+ Division 1: Pafos, Kato Pafos, tourist area S of the Limnarka River mouth, sandy path along the seashore, 0-5 m, 16.5.2005, *Seregin A-331 & Privalova;* Pafos, tourist area of Kato Pafos, Leoforos Danaïs, highway margin, under a poplar tree, 20 m, 18.5.2005, *Seregin A-446 & Privalova.* I. Privalova & A. Seregin

Gaudiniopsis macra (M. Bieb.) Eig

This species was discovered in Cyprus only a few years ago. Two records have been published by Alziar (2000) and Scholz (in Hand 2001) from divisions 2 and 3. The late discovery is somewhat surprising because investigations in 2005 by the second author showed that it is not rare on igneous rocks (diabase, serpentine, pillow lava) at lower and medium altitudes of the Troodos range and its southern foothills. It may have escaped the attention of botanists so long because of its superficial habitual similarity to several *Bromus* taxa.

Division 2: Agioi Vavatsinias, at the main track SSW of dam near Makrya Laona, open rocky ground, c. 600 m, 26.4.2005, *Hand 4688,* conf. Scholz; Sykopetra, Profitis Ilias, at the pass towards Palaichori, at the tracks W of summit 1144, rocky slopes with phrygana, screes, c. 1060 m, 13.5.2005, *Hand 4962*, conf. Scholz; Lefkara dam W of the road to Lythrodontas, pine forest, c. 400 m, 12.4.2001, *Hadjikyriakou 5253*.

Division 3: Prastio, at main track down to Germasogeia river, c. 500 m WNW village, rocky open bank in a gully, c. 450 m, 12.5.2005, *Hand 4948 & Hadjikyriakou,* conf. Scholz and *Hadjikyriakou 6374 & Hand;* Kalavasos, rocky slope and small gorge above track at the southernmost point of the reservoir, close to the dam, 180-200 m, 16.5.2005, *Hand 4992,* conf. Scholz; Kalavasos, SSW below Drapeia, at pool between Drapeia and Vasilikos River, pillow lava slopes, c. 100 m, 25.5.2005, *Hand 5095,* conf. Scholz. G. Hadjikyriakou, R. Hand & H. Scholz

Rostraria obtusiflora subsp. ***amblyantha*** (Boiss.) M. Doğan
[Syn.: *Lophochloa amblyantha* (Boiss.) Bor]

+ Division 3: Mazotos, SSW Petountas church near the coast, sandy field margins, c. 10 m, 7.4.2005, *Hand 4540*, det. Scholz. R. Hand & H. Scholz

Phalaris canariensis L.

+ Division 1: Pafos, tourist area of Kato Pafos, the Limnarka River mouth, muddy river bank, 0-5 m, 16.5.2005, *Seregin A-359 & Privalova*.

+ Division 3: Foinikaria, Germasogeia dam, E end, more or less wet ground, c. 80 m, 10.5. 2005, *Hand 4914,* conf. Scholz; E of Akrotiri lake, margins of marshy place, 9.4.1999, *Hadjikyriakou 4273.*
G. Hadjikyriakou, R. Hand, I. Privalova, H. Scholz & A. Seregin

Phalaris aquatica L.

+ Division 6: SW of Panagra, moist margins of agricultural road, c. 80 m, 22.5.2004, *Hadjikyriakou 6084*. G. Hadjikyriakou

Maillea crypsoides (d'Urv.) Boiss.

It should be mentioned that the palea is not 2-nerved (cf. Bor in Meikle 1985) but 1-nerved.

+ Division 4: Cape Greco, garrigue calcaire très ouverte …, 20-30 m, 14.4.1992, *Lambinon 92/Cy/479 & Rousselle*, det. Scholz; ibid., (= Kavo Gkreko), sandy and rocky coasts, 17.3.2005, *Christodoulou CYP 4693*.

+ Division 8: Moni Apostolou Andrea, coast c. 1 km WSW Kastros, sandy open ground, c. 5 m, 29.4.2005, *Hand 4740a & Hadjikyriakou*, conf. Scholz.
C. Christodoulou, G. Hadjikyriakou, R. Hand, J. Lambinon & H. Scholz

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Triplachne nitens (Guss.) Link

+ Division 6: Agia Eirini, SW of the village, depression in sand dunes at the beach, open sands, c. 3 m, 9.5.2005, *Hand 4881 & Hadjikyriakou*, det. Scholz; Kormakitis forest, sand covered depressions on maritime rocks, c. 3 m, 17.4.2004, *G. Hadjikyriakou 6022 & T. Hadjikyriakou.*

G. Hadjikyriakou, T. Hadjikyriakou, R. Hand & H. Scholz

Stipa holosericea Trin. [Syn.: *S. lagascae* auct. nonnulli]

+ Division 6: Agia Eirini, c. 2 km SSW at main track vertically to the coast, open sands in fixed sand dune area, c. 30 m, 9.5.2005, *Hand 4878 & Hadjikyriakou*, conf. Scholz; ibid., same date, *Hadjikyriakou 6346 & Hand*.

G. Hadjikyriakou, R. Hand & H. Scholz

Bromus regnii H. Scholz

+ Division 3: Moni, Gerondas, open grassy slopes with scattered rocks, c. 170 m, 25.3.2005, *Hand 4425*, det. Scholz; Pentakomo, valley above coast c. 1 km SE Vikla summit, on grassy track, c. 30 m, 30.3.2005, *Hand 4484*, det. Scholz.

R. Hand & H. Scholz

Bromus lanceolatus Roth

+ Division 3: Foinikaria, on hill with nature trail at the dam, E side, dry open ground, c. 100 m, 23.4.2005, *Hand 4673*, det. Scholz. R. Hand & H. Scholz

Anisantha madritensis subsp. ***haussknechtii*** (Boiss.) H. Scholz
[Syn.: *Bromus madritensis* subsp. *haussknechtii* (Boiss.) H. Scholz]

Third record for Cyprus; two former gatherings are cited by Alziar (2000).

Division 2: Pera Pedi, half-way to Mandria, open ground along road and tracks, c. 880 m, 11.4.2005, *Hand 4593*, det. Scholz. R. Hand & H. Scholz

Elytrigia elongata subsp. ***haifensis*** (Rech. f.) Valdés & H. Scholz
[Syn.: *Agropyron haifense* (Melderis) Bor]

Second record for Cyprus. The other collection was made at Pyla in the SE of the island (Bor in Meikle 1985). Meikle (1985) doubts that *E. elongata* s. str. occurs in Cyprus and believes that the records given by Bor (in Meikle 1985) belong to one taxon only.

+ Division 3: Mazotos, margins of brackish marsh at the river mouth ENE Petounta church, 1 m, 22.5.2005, *Hand 5062*, det. Scholz. R. Hand & H. Scholz

Aegilops triuncialis var. ***persica*** (Boiss.) Eig

+ Division 2: Agios Nikolaos, at Gefyri Kelefou, open gravelly ground near the river, c. 500 m, 5.5.2005, *Hand 4804 & Hadjikyriakou,* det. Scholz; Lagoudera – Madari, along agricultural road, c. 1400 m, 1.6.2001, *Hadjikyriakou 5291 & Christodoulou*.

C. Christodoulou, G. Hadjikyriakou, R. Hand & H. Scholz

Aegilops ventricosa Tausch

+ Division 6: Mouth of Aloupos river between Agia Eirini and Syrianochori, abandoned sandy field, c. 3 m, 17.4.2004, *G. Hadjikyriakou 6030 & T. Hadjikyriakou*.
Mentioned by Viney (1996) from Agia Eirini without cited specimen.

G. Hadjikyriakou & T. Hadjikyriakou

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Hordeum glaucum Steud.

+ Division 1: Pafos, Kato Pafos, tourist area S of the Limnarka River mouth, between Poseidonos Street and seashore, fissures in flagstones of old winery, 5-10 m, 16.5.2005, *Seregin A-326 & Privalova*.

+ Division 8: Bogazi Trikomou, sandy coast, 2.5.2000, *Hadjikyriakou 5001;* Apostolos Andreas Monastery, rocky place, c. 5 m, 2.5.2000, *Hadjikyriakou 5046*.

G. Hadjikyriakou, I. Privalova & A. Seregin

Hordeum vulgare subsp. ***agriocrithon*** (Åberg) Á. & D. Löve [Syn.: *H. spontaneum* auct.]

+ Division 1: Pafos, Kato Pafos, Archaeological Park, ruins and herbaceous associations on limestone, pit, 10 m, 16.5.2005, *Seregin A-383 & Privalova;* ibid., near lighthouse, ruins and herbaceous associations on limestone, 10 m, 16.5.2005, *Seregin A-396 & Privalova*. I. Privalova & A. Seregin

Phragmites frutescens H. Scholz

Collected by Danin & Hadjikyriakou (in Greuter & Raus 2004) from divisions 1, 3 and 7.

+ Division 8: NW of Rizokarpason on Ronias bridge, stream bed, c. 50 m, 19.6.2004, *Hadjikyriakou 6106*. G. Hadjikyriakou

Crypsis aculeata (L.) Ait.

+ Division 8: Galateia, W part of the dry lake SW of the village, open dry mud and reed fragments, 94 m, 24.5.2005, *Hand 5089 & Hadjikyriakou,* det. Scholz and Hadjikyriakou 6442 & Hand; ibid., 20.8.2005, *Hadjikyriakou 6808*.

G. Hadjikyriakou, R. Hand & H. Scholz

Crypsis schoenoides (L.) Lam.

Division 8: Galateia lake, dried lake, c. 95 m, 20.8.2005, *Hadjikyriakou 6807*.

G. Hadjikyriakou

Panicum capillare L.

First record for Cyprus. Only few plants were observed in the locality of collection. For the time being it can be characterized as casual alien for the island. Known from N America, naturalized in S, Central & E Europe northwards to central Russia and other parts of the world (see, e.g., Clayton 1980, Scholz 1985, Feinbrun-Dothan 1986).

+ Division 3: N of Germasogeia dam, riverbed, c. 300 m, 27.6.2004, *Hadjikyriakou 6131 & Delipetrou*. P. Delipetrou & G. Hadjikyriakou

Panicum miliaceum L.

Previously recorded from divisions 1, 3, 4, 5 and 6 (Meikle 1985, Georgiades 1994).

+ Division 7: Agios Panteleimon E of Karmi, disturbed stream bed, c. 350 m, 30.5.2004, *Hadjikyriakou 6088*. G. Hadjikyriakou

Paspalum distichum L.

+ Division 2: Melini – Agioi Vavatsinias, dam, c. 570 m, 20.7.2005, *Hadjikyriakou 6778*.

G. Hadjikyriakou

Saccharum spontaneum L.

A naturalised and apparently invasive alien in Cyprus, first collected in 1978 and spreading since (see, e.g., Chrtek & Slavík 1994, Hand 2004).

+ Division 1: between Polis Chrysochous hospital and camping site, edge of citrus orchard, about sea level, 29.10.2005, *Christodoulou CYP 5094*.

+ Division 2: near Flasou, Karkotis river, riverbank, 270 m, 21.12.2004, *Christodoulou CYP 4675*.

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+ Division 6: 500 m S of the mouth of Aloupos river, sand-dunes, c. 3 m, 17.4.2004, *G. Hadjikyriakou 6032 & T. Hadjikyriakou*.

C. Christodoulou, G. Hadjikyriakou & T. Hadjikyriakou

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