

Supplementary notes to the flora of Cyprus IV.

Source: Willdenowia, 34(2) : 427-456

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: <https://doi.org/10.3372/wi.34.34210>

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doi:10.3372/wi.34.34210 (available via <http://dx.doi.org/>)

RALF HAND (ed.)

Supplementary notes to the flora of Cyprus IV.

Abstract

Hand, R. (ed.): Supplementary notes to the flora of Cyprus IV. – Willdenowia 34: 427-456. – ISSN 0511-9618; © 2004 BGBM Berlin-Dahlem.

Focussing again on the chorology of vascular plants in Cyprus, the present notes summarize contributions by various authors. This instalment includes data on 164 taxa. *Chenopodium striatiforme* and *C. strictum* are new for the island. Taxonomic considerations result in the validation of the new combination *Hedera pastuchovii* subsp. *cyprica*. *Lactuca triquetra*, a remarkable but much neglected endemic of Cyprus and Lebanon, is discussed as regards its taxonomy, distribution and ecology; its chromosome number ($2n = 18$) is given for the first time.

Introduction

As in the first three parts of the series this instalment continues to summarize supplements to the flora of Cyprus, contributed by various botanists. Again, the additions concentrate on chorological data. Explanations and criteria for the inclusion of data in this series have been published in Willdenowia 30: 53-54. It should be stressed that apart from Meikle's (1977, 1985) detailed standard flora, and floristic treatments on Cyprus published since, all known papers widely scattered in the taxonomic literature have been considered when accepting specimen-based records as supplementary. A database containing such records is being completed continuously. Meanwhile, all specimens of the editor's herbarium including the Cyprus collections of K. P. Buttler have been transferred to the Berlin herbarium (B).

Instalment V 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), Dr Karl Peter Buttler (Frankfurt/Germany), Charalambos S. Christodoulou (Lysos/Cyprus), Yiannis Christofides (Pano Platres/Cyprus), Efthimios Efthimiou (Paralimni/Cyprus), Thomas Evaggelou (Episkopi/Cyprus), Dr Michael J. Y. Foley (Lancaster/United Kingdom), Georgios Hadjikyriakou (Trachoni/Cyprus), Thomas Hadjikyriakou (Lemesos/Cyprus), Dr Kostas Kadis (Lakkia/Cyprus), Dr Norbert Kilian (Berlin/Germany), Christodoulos Makris (Lemesos/Cyprus), John Papadopoulos (Kampos/Cyprus), Prof. Dr Hildemar Scholz (Berlin/Germany), Dr Karel Sutorý (Brno/Czech Republic) and Dr Robert Vogt (Berlin/Germany).

The flora of Cyprus includes a continuously increasing number of alien species. As elsewhere in the world, the degree of their permanence varies extremely. Following Clement & Foster (1994) the word “alien” is used in a broad sense denoted to all plants that are thought to have arrived as a result of human activities. The composition of the Cyprus flora before the 19th century is nearly unknown. Without further archaeobotanical research it is impossible to decide which taxa have been introduced in ancient times or later. Species probably introduced in ancient or medieval times are treated as though native. Taxa common in Cyprus which must have been later introductions unequivocally, i.e. species from the New World, are treated as aliens. However, the vast majority of aliens appeared in the 20th century. Their degree of permanence can be judged in most cases.

As regards Cyprus there have been several attempts to divide plants – whether introduced intentionally or not – into categories resulting in numerous rather vaguely defined terms interpreted individually by various authors (Della 1999, Hadjikyriakou & Hadjisterkotis 2002). Clearly defined categories have not been formulated so far, a general problem in many areas of the world (Pyšek & al. 2004). Taking into account the systems by, e.g., Clement & Foster (1994), Buttlar & Harms (1998) and Pyšek & al. (2004), it is recommended to use the following categories of permanence of alien taxa: (1) casual, (2) naturalized non-invasive and (3) naturalized invasive. Their definition follows the standardized terminology explained in detail by Pyšek & al. (2004) and is not repeated here in detail. The question how long a species must persist to be considered naturalized is indeed inevitably arbitrary as pointed out by Pyšek & al. (2004). In the case of Cyprus a 10-year period (as proposed by Pyšek & al. 2004) and not a 25-year period as for the Flora Europaea area may prove to be appropriate as regards climatic extremes and other possible negative effects. Certainly, there will be further discussions about that definition as well as about the scale to define spreading taxa. Invasive plants should spread more than 100 m in less than 50 years approximately according to Pyšek & al. (2004). This definition seems to be too narrow. Consequently, the list of naturalized non-invasives would be much inflated – at least for Cyprus – and dominated by very slowly spreading taxa. As regards Cyprus, naturalized invasives must be species that are spreading or have been spreading without direct human assistance into habitats away from the first known place(s) of introduction. Naturalized invasives should occur in at least three of the eight phytotaxonomical divisions of Cyprus or inhabit less than three divisions but with a high frequency.

Species deliberately planted or sown in the wild do not belong to any of these categories. If cultivation has ceased they can be classified within the scheme as either casual or naturalized.

Spermatophyta

Ephedraceae

Ephedra fragilis subsp. *campylopoda* (C.A. Mey.) Asch. & Graebn.

+ Division 6: Below Orga, streamside with tall shrubs, alt. c. 40 m, 20.12.2003, *Hadjikyriakou* 5855. G. Hadjikyriakou

Cruciferae

Diplotaxis viminea (L.) DC.

Meikle (1977) cites two collections from divisions 5 and 7 only. It is also cited by Hand & Kalheber (in Hand 2001) for division 1. However, it seems to be more common in Cyprus.

+ Division 2: Mazeri at Vouni Panagias, margins of forest road, alt. c. 600 m, 31.12.1996, *Makris* in *Hadjikyriakou* 2082.

+ Division 3: Avdimou – Pissouri, on cultivated strips, alt. c. 150 m, 8.4.1997, *Hadjikyriakou* 2572; Laneia – Trimiklini, garigue vegetation, alt. c. 600 m, 11.3.1998, *Hadjikyriakou* 2976; Tunnel Beach at Episkopi Military Base, natural vegetation near the

golf course, 6.1.1999, *Hadjikyriakou 3920*; Omodos, vineyard, alt. c. 700 m, 15.3.2003, *Hadjikyriakou 5569*.

- + Division 4: Kelia Larnaka District, garigue vegetation, alt. c. 200 m, 5.3.2001, *Makris in Hadjikyriakou 5213*.
G. Hadjikyriakou & C. Makris

Carrichtera annua (L.) DC.

Meikle (1977) cites two collections from divisions 1 and 3. It is also mentioned by Alziar (2000) and Alziar & Guittoneau (2004) for the latter. Recent findings by Hadjikyriakou (no. 488, 2597 and 5620) and Hand (no. 2154, 2588 and 2704) confirmed the occurrences in these areas (Smigies in the Akamas and coastal area between Episkopi and Petra tou Romiou) whereas the following record is far from known sites.

- + Division 6: Mammari, phrygana vegetation, alt. c. 200 m, 3.4.1997, *Kadis in Hadjikyriakou 2521*.
G. Hadjikyriakou, R. Hand & K. Kadis

Crambe hispanica L.

Meikle (1977) cites a specimen collected in 1862 by Kotschy from Kavο Gkreko (division 4) and a specimen collected in 1941 by Davis from Larnakas tis Lapithou (division 7). Not reported since.

- Division 4: NW of Kavο Gkreko, rocky place, alt. c. 50 m, 5.3.1999, *Hadjikyriakou 4071*;
Kavο Gkreko, rocky place, alt. c. 60 m, 29.3.2003, *Hadjikyriakou 5596*.
G. Hadjikyriakou

Cakile maritima Scop.

- + Division 6: Akrotirio Kormakitis, sandy coast, about sea level, 20.12.2003, *Hadjikyriakou 5876*.
G. Hadjikyriakou

Iberis odorata L.

- + Division 3: Kantou – Sotira, fallow field, alt. c. 150 m, 23.3.2003, *Hadjikyriakou 5585*.
+ Division 6: Mitsero, eroded hillsides, alt. c. 500 m, 19.3.1998, *Christodoulou in Hadjikyriakou 3000*.
C. Christodoulou & G. Hadjikyriakou

Capparaceae

Capparis spinosa L. var. *canescens* Coss.

- + Division 6: Below Orga, field margins, alt. c. 40 m, 20.12.2003, *Hadjikyriakou 5854*.
+ Division 8: Agios Theodoros – Vokolida, field margins, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5767*.
Mentioned without cited specimen for division 6 by Alziar (1985).
G. Hadjikyriakou

Frankeniaceae

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

- + Division 6: Akrotirio Kormakitis, rocky coast, 20.12.2003, *Hadjikyriakou 5877*.
G. Hadjikyriakou

Caryophyllaceae

Petrorhagia cretica (L.) P. W. Ball & Heywood

Although a plant of igneous rocks in Cyprus it has been collected from sedimentary formations.

Since the Pediaios River passes through the ophiolite rocks of the Troodos mountains occurrence of the species near Archaggelos evidently results from water dispersal.

- + Division 6: Pediaios River near Archaggelos, river bank, alt. c. 180 m, 21.6.2003, *Hadjikyriakou 5691*. G. Hadjikyriakou

Silene gigantea L.

Meikle (1977) cites collections only from the limestone cliffs of the Pentadaktylos mountain range (Division 7) between 600 and 900 m altitude. However, the specimen cited below is far away from Pentadaktylos cliffs and the altitude is far below 600 m.

- + Division 6: Kokkinokremmos near Agios Georgios church between Orga and Livera, crevices of limestone rocks about 50 m from the sea, alt. c. 50 m, 20.4.2003, *Hadjikyriakou 5868*. G. Hadjikyriakou

Portulacaceae

Portulaca oleracea L.

- + Division 3: Limassol [= Lemesos], on the seashore, about 8 km E from the city centre, 27.6.2000, *Sutorý BRNM 658033*. K. Sutorý

Guttiferae

Hypericum triquetrifolium Turra

- + Division 8: 5 km W of Apostolos Andreas monastery along the main road to Rizokarpaso, roadside, alt. c. 15 m, 28.10.2003, *Hadjikyriakou 5815*. G. Hadjikyriakou

Hypericum perforatum L.

Meikle (1977) mentions two collections from Agios Theodoros River near Stavros tis Psokas. The specimens cited below have been collected about 15 km E of Stavros tis Psokas.

- Division 2: Agiasma SW of Kampos village, abandoned vineyard, alt. c. 850 m, 13.5.1997, *Hadjikyriakou 2690*; *ibid.*, 25.5.2003, *Hadjikyriakou 5676*. G. Hadjikyriakou

Linaceae

Linum usitatissimum L.

Certainly, flax is a casual species not showing signs of naturalization in Cyprus.

- + Division 3: E side of Polemidia Forest, edge of a jeep track among garigue, alt. c. 100 m, 24.3.1997, *Hadjikyriakou 2438*. G. Hadjikyriakou

Linum grandiflorum Desf.

Already documented from division 1 (Hand 2001). A casual escape from cultivation showing tendencies to spread. It may become an invasive naturalized species in the future.

- + Division 3: Lakkidia Episkopi Lemesou, in maquis vegetation between the stream and the agricultural road, alt. c. 100 m, 19.4.1998, *Hadjikyriakou 3141*. G. Hadjikyriakou

Zygophyllaceae

Tribulus terrestris L.

- + Division 8: Mpogazi, sandy beach, 2.5.2000, *Hadjikyriakou 5002*. G. Hadjikyriakou

Geranicaceae***Erodium moschatum* (L.) L'Hér.**

- + Division 3: Trachoni Lemesou, roadside, alt. c. 10 m, 15.1.2003, *Hadjikyriakou* 5547. Mentioned without cited specimens for this division by Alziar & Guittonneau (2004). G. Hadjikyriakou

***Erodium gruinum* (L.) L'Hér.**

- + Division 6: Astromeritis – Deneia, cultivated field, alt. c. 150 m, 3.4.1997, *Kadis in Hadjikyriakou* 2529. G. Hadjikyriakou & K. Kadis

***Erodium botrys* (Cav.) Bertol.**

The rare taxon has been collected only twice in Cyprus (Meikle 1977, Kalheber in Hand 2001, both for division 2). Additionally, Coulot (2000) mentions a site in division 3 without cited specimen.

- Division 2: Orkontas – Katydata, rocky place on pillow lavas, alt. c. 250 m, 28.2.1999, *Makris in Hadjikyriakou* 4042.
- + Division 3: Dyosmis, Lemesos Forest, among garigue, alt. c. 300 m, 1.3.1996, *Makris in Hadjikyriakou* 1746; Parekklesia – Pyrgos Lemesou, field margins, alt. c. 200 m, 12.2.1997, *Makris in Hadjikyriakou* 2206. C. Makris

Erodium laciniatum* (Cav.) Willd. f. *laciniatum

- + Division 2: Gialia forest station, sandy seashore, 19.3.1991, *Hadjikyriakou* 1038.
- + Division 3: Agios Georgios Akrotiri, sandy place with garigue, alt. c. 2 m, 23.2.1997, *Hadjikyriakou* 2233. G. Hadjikyriakou

Rutaceae***Ruta chalepensis* L.**

Meikle (1977) mentions a collection of Hume from Limassol in 1801 but in square brackets expressing doubts about the record.

- + Division 3: Germasogeia dam, roadside, alt. c. 200 m, 17.4.1999, *Hadjikyriakou* 4396. G. Hadjikyriakou

Simaroubaceae***Ailanthus altissima* (Mill.) Swingle**

To be classified as invasive naturalized alien but restricted to larger settlements.

- + Division 7: Kythrea, field margins, alt. c. 400 m, 8.11.2003, *Hadjikyriakou* 5832. Mentioned without cited specimen for division 7 by Viney (1994). G. Hadjikyriakou

Rhamnaceae***Ziziphus spina-christi* (L.) Willd.**

Meikle (1977) mentions that according to Kotschy there is a small wood of old trees between Salamis and Agios Varnavas seen in 1862. Investigations during 2003 failed to locate a single tree. Further investigations are required to decide whether this alien species is an invasive naturalized taxon or not.

- + Division 3: Sympoulos at Episkopi Military Base, alt. c. 30 m, 7.7.1990, *Hadjikyriakou* 937; Agios Antonios church Lemesos, stream margins, alt. c. 3 m, 24.1.1997, *Hadjikyriakou* 2156; Tsiflikoudia Lemesos, field margins, alt. c. 5 m, 31.8. 1999, *Hadjikyriakou* 4880. G. Hadjikyriakou

***Ziziphus zizyphus* (L.) Meikle**

This alien taxon has already been documented from divisions 3 and 8 (see Meikle 1977) but all known recent records are mentioned here to show that it should be classified as invasive naturalized species.

Division 3: Between the old and new port of Lemesos, streambed, about sea level, 16.8.1999, *Hadjikyriakou 4851*; Tsiflikoudia Lemesos, road margins, alt. c. 5 m, 13.5.2003, *Hadjikyriakou 5656*.

+ Division 6: Peristerona Morfou, road margins, alt. c. 200 m, 6.6.1999, *Hadjikyriakou 4627*; *ibid.*, 21.10.1994, *Christodoulou in Hadjikyriakou 4750*.

Division 8: below Kantara Church, on the E side of the road from Gerani to Kantara, alt. c. 550 m, 23.6.2003, *Hadjikyriakou 5698*. C. Christodoulou & G. Hadjikyriakou

***Ziziphus lotus* (L.) Lam.**

+ Division 8: Agios Theodoros – Vokolida, field margins, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5774*. G. Hadjikyriakou

Leguminosae***Medicago scutellata* (L.) Mill.**

+ Division 3: Laneia, road margins, alt. c. 550 m, 4.4.1990, *Hadjikyriakou 600*; Agios Tycho-nas, garigue, alt. c. 200 m, 14.3.1999, *Makris in Hadjikyriakou 4159*.

Mentioned without cited specimens for this division by Alziar & Guittonneau (2004). G. Hadjikyriakou & C. Makris

***Medicago blanchiana* var. *bonarotiana* (Arcang.) Arcang.**

+ Division 1: Armou, valley c. 400 m SW of the church, grassy slope, alt. c. 250 m, 25.4.1999, *Hand 2901*. (ed.)

***Medicago praecox* DC.**

+ Division 2: Kourvoula Xeros valley in Pafos Forest, grassy slope, alt. c. 300 m, 4.4.1999, *Hadjikyriakou 4253*.

+ Division 3: Agia Varvara Kelokedaron, road margins, alt. c. 350 m, 24.3.1999, *Makris in Hadjikyriakou 4207*. G. Hadjikyriakou & C. Makris

***Medicago arabica* (L.) Huds.**

+ Division 3: Potamos Kyparissias N of Germasogeia, riverbed, alt. c. 150 m, 13.4.1991, *Hadjikyriakou 1109*. G. Hadjikyriakou

Medicago littoralis* Loisel. var. *littoralis

+ Division 1: Pegeia, SW, at crossing to Agios Georgios, rocks, alt. c. 120 m, 13.3.1999, *Hand 2548*. (ed.)

***Medicago disciformis* DC. / *M. rigidula* (L.) All.**

In Hand (2001) the specimen *Hand 2005* has been referred to the latter species erroneously. Actually, it belongs to *M. disciformis* DC. (ed.)

***Medicago intertexta* var. *ciliaris* (L.) Heyn**

+ Division 1: Armou, valley c. 400 m SW of the church, grassy slope, alt. c. 250 m, 25.4.1999, *Hand 2900*; Drouseia, WNW edge of the village, margins of fields, alt. c. 600 m, 29.4.1999, *Hand 2969*.

+ Division 3: Livadi Akrotiriou, grassy place, about sea level, 15.3.1998, *Makris in Hadjikyriakou 2989*; Agios Georgios Alamanou, fallow fields, alt. c. 50 m, 5.5.2003, *Hadjikyriakou 5627*.

Mentioned without cited specimens for division 1 by Alziar & Guittonneau (2004).
G. Hadjikyriakou, R. Hand & C. Makris

Medicago hypogaea E. Small [Syn.: *Factorovskya aschersoniana* (Urb.) Eig]

Studies (Small & Brookes 1984, Steele & Wojciechowski 2003) of this remarkable geocarpic taxon revealed that the monotypic genus *Factorovskya* should be merged with *Medicago*.

+ Division 1: Moutti tou Athou at Akamas, disturbed place, alt. c. 210 m, 1.5.1997, *Hadjikyriakou 2633*.

+ Division 3: Agia Marinouda Pafos, grassy rocky slope, alt. c. 400 m, 12.2.1999, *Makris in Hadjikyriakou 3977*.
G. Hadjikyriakou, R. Hand & C. Makris

Robinia pseudoacacia L.

This tree has been mentioned by Meikle (1977) as an ornamental only. According to Viney (1994) it is much planted and spreading by suckering in the Pentadactylos range. The same is true to parts of the Troodos mountains and some other areas of Cyprus (Hadjikyriakou & Hadjisterkotis 2002). *R. pseudoacacia* must be classified as a naturalized invasive.

+ Division 7: Pentadactylos/Kyreneia Range, roadsides between Alevkayesi and Esentepe/Agios Amvrosios, alt. c. 300m, 21.7.2004, *Vogt 16215*. R. Hand & R. Vogt

Erophaca baetica subsp. ***orientalis*** (Chater & Meikle) Podlech [Syn.: *Astragalus lusitanicus* subsp. *orientalis* Chater & Meikle]

Meikle (1977) cites collections from Troodos mountain range (divisions 2 and 3), Stavrovouni being the easternmost locality of occurrence. The taxon is mentioned by Viney (1994) for a single locality between Flamoudi and Kantara in division 7 (Pentadactylos mountain range) without cited specimens. The locality at Flamoudi is about 60 km away from Stavrovouni. The plant thrives well in an area of about 1 km². Repeated investigations on the Pentadactylos mountain range have failed, at present, to add any new locality.

+ Division 7: Sapilou above Flamoudi, garigue, alt. c. 200 m, 18.10.2003, *Hadjikyriakou 5791*; *ibid.*, 23.3.2004, *Hadjikyriakou 5050*.
G. Hadjikyriakou

Coronilla repanda (Poir.) Guss. subsp. ***repanda***

Meikle (1977) cites only one collection from Salamis (division 5). Perring (1999) mentions the species for division 8 but does not cite specimens.

+ Division 3: Akrotiri at Episkopi bay, among *Juniperus phoenicea*, alt. c. 15 m, 7.4.1996, *Makris in Hadjikyriakou 1778*; Agios Georgios church W of Akrotiri village, grassy openings among garigue, about sea level, 23.2.1997, *Hadjikyriakou 2228*.
G. Hadjikyriakou & C. Makris

Alhagi graecorum Boiss.

+ Division 8: Karpasia/Karpas peninsula, Dipkarpaz/Rizokarpaso – Cape Apostolos Andreas, beach and dunes “Golden Sands” between Kiles Point and Galounopetra Point, alt. c. 2-5 m, 17.7.2004, *Vogt 16183*.
R. Vogt

Vicia bithynica (L.) L.

According to Meikle (1977), *V. bithynica* is confined to the coastal strip. The cited specimen below is from a locality much above sea-level.

+ Division 2: Argaki tou Pissokremmou, Xeros valley in Pafos Forest, rocky place by the stream, alt. c. 450 m, 14.4.1998, *Hadjikyriakou 3128*.
G. Hadjikyriakou

Ceratonia siliqua L.

+ Division 8: Apostolos Andreas, maquis with *Juniperus phoenicea*, alt. c. 5 m, 28.10.2003, *Hadjikyriakou 5820*.
G. Hadjikyriakou

Prosopis farcta (Banks & Sol.) J. F. Macbr.

- + Division 7: Alakati W of Agios Amvrosios Keryneias, sandy fields about 400 m from the sea, alt. c. 5 m, *Hadjikyriakou 5850 & Christodoulou*.
- + Division 8: Agios Theodoros – Tavrou, cultivated field, alt. c. 70 m, 25.10.2003, *Hadjikyriakou 5803*.
C. Christodoulou & G. Hadjikyriakou

Acacia farnesiana (L.) Willd.

According to Meikle (1977) “not infrequently planted in Cyprus gardens”. Georgiades (1994) mentions first records of naturalization. The following collection documents tendencies to spread outside gardens. Further investigations are required to clarify the degree of naturalization in Cyprus.

- + Division 8: Komikepir, field margins, alt. c. 200 m, 18.10.2003, *Hadjikyriakou 5787*.
G. Hadjikyriakou

Rosaceae***Rubus sanctus*** Schreb.

- + Division 8: Rizokarpaso, margins of cultivated field and road, alt. c. 50 m, 25.10.2003, *Hadjikyriakou 5804*; Karpasia/Karpas peninsula, c. 10 km E of Dipkarpaz/Rizokarpaso on road to Cape Apostolos Andreas, moist ditch and roadside, alt. c. 5-10m, 18.7.2004, *Vogt 16187*.
G. Hadjikyriakou & R. Vogt

Rosa chionistrae H. Lindb.

This endemic species is known to occur only in the Troodos area and at Madari peak (Meikle 1977, Hadjikyriakou 2003). The Papoutsas site means a slight extension of the species' very small area to the east. The taxonomic relationships of *R. chionistrae* have been discussed by Meikle (1977) and, indeed, it seems questionable if it deserves species rank. Results of investigations regarding this problem will be presented in a future instalment.

- Division 2: Agios Theodoros, summit of and saddle W of Papoutsas, open rocky ground, alt. 1500-1550 m, 2.11.2002, *Hand 3684*.
(ed.)

Pyrus syriaca Boiss.

- + Division 7: Flamoudi, cultivated field, alt. c. 30 m, 17.9.2003, *Hadjikyriakou 5731*.
- + Division 8: Eftakomi, margins of cultivated field and road, alt. c. 250 m, 25.10.2003, *Hadjikyriakou 5800*.
G. Hadjikyriakou

Crataegus azarolus L.

- + Division 8: 1 km W of Apostolos Andreas, roadside, alt. c. 15 m, 28.10.2003, *Hadjikyriakou 5819*; Komi Kepir – Eftakomi, field margins, alt. c. 150 m, 18.1.2004, *Hadjikyriakou 5891*.
G. Hadjikyriakou

Datisceae***Datisca cannabina*** L.

- + Division 6: Peristerona River near the bridge of Agia Marina, riverbed, alt. c. 300 m, 5.8.1990, *Hadjikyriakou 957*; *ibid.*, 20.10.2003, *Hand 4001 & Hadjikyriakou*.
G. Hadjikyriakou & R. Hand

Cucurbitaceae***Ecballium elaterium*** (L.) A. Rich.

- + Division 8: Agios Theodoros – Vokolida, cultivated fields, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5772*.
G. Hadjikyriakou

Aizoaceae***Glinus lotoides* L.**

- + Division 3: Foinikas, upper end of Asprokremmos dam, c. 1 km NE of the village, dry mud, alt. c. 90 m, 22.10.2003, *Hadjikyriakou 5797 & Hand 4018*.

G. Hadjikyriakou & R. Hand

Umbelliferae***Eryngium creticum* Lam.**

- + Division 8: Kairos between Komi Kepir and Davlos, fallow field, alt. c. 300 m, 18.10.2003, *Hadjikyriakou 5790*; Karpasia/Karpas peninsula, c. 10 km E of Dipkarpaz/Rizokarpaso on road to Cape Apostolos Andreas, moist ditch and roadside, alt. c. 510 m, 18.7.2004, *Vogt 16188*.

G. Hadjikyriakou & R. Vogt

***Eryngium maritimum* L.**

- + Division 6: Akrotirio Kormakitis, sandy coast, 20.12.2003, *Hadjikyriakou 5872*.
 + Division 7: Coast between Catalköy/Agios Epiktitos and Esentepe/Agios Amvrosios, dunes behind the beach “Allagadi”, alt c. 3-5 m, 10.7.2004, *Vogt 16166*.

G. Hadjikyriakou & R. Vogt

***Torilis heterophylla* Guss.**

- + Division 1: Akoursos, small gorge in serpentine area c. 1 km NW Mavrokolympos dam, rocky phrygana, alt. c. 100 m, 21.3.1999, *Hand 2620*. (ed.)

***Daucus broteri* Ten.**

- + Division 8: Apostolos Andreas, coastal cliffs, alt. c. 3 m, 29.5.2003, *Hadjikyriakou 5680*.

G. Hadjikyriakou

***Bupleurum lancifolium* Hornem.**

- + Division 1: Pegeia, c. 2 km NW, dry rivulet of brook N of road to Kathikas, rocky banks of dry rivulet, alt. c. 690 m, 18.4.1999, *Hand 2851*. (ed.)

***Falcaria vulgaris* Bernh.**

First records for Cyprus have been published by Hadjikyriakou & al. (2004). The authors argue that this very conspicuous umbellifer may be indigenous to the island. But it seems doubtful that its occurrence in the vicinity of the towns at the S coast escaped the attention of all the botanists visiting these areas. The editor would prefer it to be classified as casual but it may prove to be a naturalized invasive in the nearer future.

- + Division 1: Geroskipou, along coastal track near public beach, c. 3 km S of village, field margin, alt. c. 5 m, 20.04.1999, *Hand 2867*. (ed.)

***Crithmum maritimum* L.**

- + Division 3: Mantria Pafou, gravelly coast, 22.12.1996, *Hadjikyriakou 2021*; Akrotiri at Episkopi bay, gravelly coast, 23.12.1996, *Hadjikyriakou 2029*. G. Hadjikyriakou

***Ferula cypria* Post**

Meikle (1977) cites a single specimen, collected in 1898 by Post from Agios Ilarion. It is a very rare species not collected since.

- Division 7: Above Lapithos, crevices of vertical cliffs, alt. c. 450 m, 1.10.2003, *Hadjikyriakou 5738*. G. Hadjikyriakou

Ferulago cypria H. Wolff

Formerly thought to be an endemic of the Pentadactylos range (division 7; Meikle 1977) the species has been found recently in the NE of the Troodos range but so far no specimens have been cited (Tsintides 1998). The following record comes from the central Troodos range.

+ Division 2: Lemythou – Kaminaria – Treis Elies junction, vineyard, alt. c. 800 m, 11.9.1998, *Hadjikyriakou 3710*. G. Hadjikyriakou

Ferulago syriaca Boiss.

Meikle (1977) cites a collection of Lindberg f. (7.7.1939) from Ammos locality (division 7), however, according to the Gazetteer of Cyprus (Christodoulou & Konstantinidis 1987) there is no such locality in the area covered by this division. But the locality is included in another 1939 collection of Lindberg f. (1946) from division 7. It refers to *Erodium laciniatum* f. *glanduloso-pilosum* collected from Ammos (Kyrenia District) “in litore arenoso maris”. This collection is cited together with two other collections by Meikle (1977), the first one from 6 miles E of Kyrenia, on sandhills 1951, *Casey 1170*, and the second from Pachyammos, 7 miles E of Kyrenia, 1955, *Merton 2292*. The area included between the 6th and 7th mile E of Keryneia is situated N of Agios Epikritos village and has been cited in the Gazetteer as Pachyammos. In this respect it seems likely that all collections are from the same locality and the citation of Ammos is due to misunderstanding.

Division 7: Stalos SW of Flamoudi, in young *Pinus brutia* forest, alt. c. 300 m, 17.9.2003, *Hadjikyriakou 5732*; *ibid.*, 7.2.2004, *Hadjikyriakou 5909*. G. Hadjikyriakou

*Araliaceae**Hedera helix* L. sensu latissimo

The ivy taxon occurring in the Troodos range treated by Meikle (1977) as *Hedera helix* s.l. has been described as the endemic species *H. cypria* McAllister (Rutherford & al. 1993), distinguished from typical *H. helix* in W and Central Europe by, e.g., small reddish scale hairs and silvery bordered veins of leaves in the juvenile phase. McAllister (in Rutherford & al. 1993) points out that the Cypriot taxon is closely related to *H. pastuchovii* Woronow, which is known to occur in Iran and Transcaucasia, but he does not give detailed differences of both taxa. Morphometric analyses confirm (1) that the latter two taxa are clearly distinct from *H. helix* and (2) very similar to each other even sharing the same hexaploid chromosome number $2n = 144$ (Ackerfield & Wen 2002). According to Ackerfield & Wen (2002) “the main character that distinguishes these taxa is the presence of trichomes on both abaxial and adaxial sides in *H. pastuchovii* juvenile leaves, those of *H. cypria* have trichomes only on the abaxial side”. Other clearly defined characters are not described. In a key provided by the authors the trichome character is the only one included. Apart from the fact that in some Cypriot populations juvenile leaves are glabrous or nearly so, even in the small sample of specimens cited below some leaves have reddish trichomes on both sides (*Hand 4017*). According to a molecular phylogeny based on chloroplast DNA sequences *H. cypria* seems to be closer to *H. helix* s.str. (Ackerfield & Wen 2003), whereas Vargas & al. (1999) show an ITS based phylogeny placing *H. cypria* and *H. pastuchovii* close to each other. “Hybridization associated with allopolyploidy may well explain the incongruence between nuclear and chloroplast molecular data” (Ackerfield & Wen 2003). Whatever the genetical distance may be, it is not expressed in clear morphological differences.

According to Rose (1996), the grounds for elevating the Troodos taxon to species rank are slender because the only differences he found are the “presence of grey-green areas around the veins of the juvenile leaves and a certain greater vigour”. Rose (1996) proposed varietal rank but the name he published is invalid because of incomplete citation of the basionym (lacking page number). Indeed, differences between *H. cypria* and *H. pastuchovii* are very slight. Even the silvery veins do not occur in every leaf of juvenile shoots but are to be found in all Troodos populations. Previous descriptions, as well as the phylogenetic investigations, are based on very few

specimens collected in Cyprus and cultivated outside the island. This may be one reason for the contradictions described. However, species rank is not a convincing solution in view of the minor morphological differences. Compared to the other European taxa upgraded recently, differences do not justify ranking at that level. An infraspecific position as proposed by Rose (1996) seems more appropriate. Because of the geographical vicariance, subspecies rank should be adequate.

***Hedera pastuchovii* subsp. *cyprica* (McAllister) Hand, comb. & stat. novi**

≡ *Hedera cyprica* McAllister in *Plantsman* 15(2): 116. 1993 [= *Hedera pastuchovii* var. *cyprica* P. Q. Rose, *Gard. Guide Growing Ivies* 134. 1996, nom. inval.].

Specimens seen

Division 2: Foini, picnic site ENE Moni Panagias Trooditissas, along brook Argaki tou Xerokolymbou above road, partly humid ground along brook with *Platanus* stands, alt. c. 1350 m, 4.11.2002, *Hand* 3736; Kakopetria, alt. 2200 ft, 1.3.1978, *Della Soc. Échange Pl. Vasc. Eur. Bassin Médit.* 17244, det. McAllister (“*H. cyprica*”); Lagoudera, below Polystipos junction, in a distinctive road bend, hazelnut grove, alt. c. 1120 m, 20.10.2003, *Hand* 4000 & *Hadjikyriakou*; Vretsia, at the bridge a few m above Gefyra Roudia, riverine forest, alt. c. 350 m, 22.10.2003, *Hand* 4017 & *Hadjikyriakou*; carrefour de piste en aval de Ayia (piste de Panayia et piste de Kannaviou, Paphos), lit de l’Ezoussas, alt. 450 m, 23.4.1991, *Alziar & al.* 4. *Iter Optima* 1230 (“*H. helix* cf. *poetarum*”) (B); Caledonia-Schlucht, 14.5.1981, *Faber CY* 77 (“*H. helix* subsp. *helix*”) (B); Pano Panagia, area between Alonoudhi bridge and next bridge WNW, rocky, shadowy riverine forest, alt. c. 650 m, 28.3.1999, *Hand* 2676.

Furthermore, it should be stressed that a second taxon of the genus is known from Cyprus. Ackerfield & Wen (2002, 2003) mention the nominal black-fruited taxon of *H. helix* as occurring in Cyprus but this seems not to be substantiated by specimens. Della & Iatrou (1995) cite a specimen collected by Christodoulou between Akourdhalia and Kathikas (Pitharolakkos; division 1) which has been determined as *H. helix* subsp. *poetarum* Nyman. This taxon has been downgraded by McAllister & Rutherford (in Rutherford & al. 1993) who treat it as a yellow-fruited form of *H. helix*, a designation which was followed by Rose (1996). It is thought to be native in Transcaucasia and naturalized in the Mediterranean (Rose 1996). Its occurrence at the site mentioned has been confirmed recently (*Hand* 3143). This specimen is sterile but its leaves are covered by stellate trichomes characteristic for *H. helix* in the sense of Ackerfield & Wen (2002, 2003). A fruiting plant from that area is depicted by Tsintides & al. (2002). Further studies are required to clarify the identity of *Hedera* occurrences outside the Troodos range mentioned by Meikle (1977). According to Viney (1994) yellow-berried plants occur in division 7 also. (ed.)

Rubiaceae

Valantia muralis L.

+ Division 8: About 800 m E of Apostolos Andreas, crevices of maritime rocks, alt. c. 2-6 m, 26.3.2004, *Hadjikyriakou* 5953 & *Hadjikyriakou* f.

G. Hadjikyriakou & T. Hadjikyriakou

Rubia tenuifolia d’Urv.

+ Division 6: Kokkinokremmos between Orga and Agios Georgios church, garigue, alt. c. 40 m, 20.12.2003, *Hadjikyriakou* 5867.

G. Hadjikyriakou

Galium setaceum var. *urvillei* (Req.) Halácsy

One record only from division 8 is cited by Meikle (1977).

+ Division 3: Zakaki – Alyki Akrotiriou, margins of marshy place, about sea level, 20.3.1999,

Hadjikyriakou 4181 & Makris; Kantou – Souni, roadside, alt. c. 200 m, 4.5. 2002, *Hadjikyriakou 5346 & Alziar*.

G. Alziar, G. Hadjikyriakou & C. Makris

Galium canum Req.

+ Division 6: Kokkinokremmos between Orga and Agios Georgios church, rock crevices, alt. c. 40 m, 20.12.2003, *Hadjikyriakou 5862*. G. Hadjikyriakou

Asperula cypria Ehrend.

+ Division 6: W of Orga, roadside, alt. c. 30 m, 20.12.2003, *Hadjikyriakou 5859*. G. Hadjikyriakou

Compositae

Eupatorium cannabinum var. *syriacum* (Jacq.) Boiss.

Meikle (1985) cites only one collection from Lapithos (division 7).

+ Division 2: Mandria – Kato Platres, roadside, alt. c. 750 m, 20.8.1999, *Makris in Hadjikyriakou 4863*. C. Makris

Bellis sylvestris Cirillo

+ Division 6: Livera – Akrotirio Kormakitis, roadside, alt. c. 30 m, 20.12.2003, *Hadjikyriakou 5871*. G. Hadjikyriakou

Conyza canadensis (L.) Cronquist

First detailed records of this alien have been published by Della & Iatrou (1995). It must be classified as invasive and naturalized according to the criteria mentioned in the introduction.

+ Division 2: Agios Theodoros, c. 300 m from Palaichori junction, below Papoutsas, slopes and road bank, alt. c. 1260 m, 2.11.2002, *Hand 3688*; Mozoras Pelentri village, roadside, alt. c. 850 m, 24.10.1998, *Hadjikyriakou 3821*.

+ Division 3: Livadi Akrotiriou, along the margins of the marsh, about sea level, 8.9.1995, *Hadjikyriakou 1712*; Fasouri, margins of *Eucalyptus* plantation, alt. c. 5 m, 10.11.1998, *Hadjikyriakou 3835*. G. Hadjikyriakou & R. Hand

Filago aegaea subsp. *aristata* Wagenitz

+ Division 1: Baths of Aphrodite [= Loutra tis Afroditis], along coastal track S/SE of Agios Georgios island, alt. c. 50 m, 14.4.1998, *Hand 2178*. (ed.)

Dittrichia viscosa subsp. *angustifolia* (Bég.) Greuter [Syn.: *Inula viscosa* (L.) Aiton, *D. orientalis* Brullo & De Marco]

In a taxonomical revision of the genus *Dittrichia*, Brullo & de Marco (2000) treated the E Mediterranean plants of *D. viscosa* s.l. as a separate species. Recently, Greuter (2003) ranked the taxon as subspecies of the latter without any discussion of the problem. However, the existence of a contact zone in Greece where hybrids between the W and the E Mediterranean taxon occur frequently (see Brullo & de Marco 2000) speaks in favour of the latter solution.

+ Division 6: below Orga, roadside, alt. c. 40 m, 20.12.2003, *Hadjikyriakou 5853*.

+ Division 8: Patriki – Komi Kepir, roadside, alt. c. 150 m, 18.10.2003, *Hadjikyriakou 5786*. G. Hadjikyriakou & R. Hand

Dittrichia graveolens (L.) Greuter [Syn.: *Inula graveolens* (L.) Desf.]

+ Division 8: Agios Theodoros – Gastria, disturbed place along the road, alt. c. 30 m, 18.10.2003, *Hadjikyriakou 5785*. G. Hadjikyriakou

***Bidens pilosa* L.**

Obviously, the spread of this alien species started after the completion of 'Flora of Cyprus'. Records from divisions 5 and 6 are mentioned by Georgiades (1994). Viney (1994, 1996) added observations without cited specimens (division 7). Della & Iatrou (1995) list some additional specimens (also divisions 5 and 6). The plant is spreading in lowland areas and must be classified as naturalized invasive.

- + Division 2: Panagia Galoktisti S of Kato Pyrgos, moist place near the stream, alt. c. 20 m, 29.5.1999, *Hadjikyriakou* 4593.
- + Division 3: Trachoni – Kolossi, wasteland, alt. c. 10 m, 2.1.1998, *Makris in Hadjikyriakou* 2893. G. Hadjikyriakou & C. Makris

***Ambrosia maritima* L.**

- + Division 7: Pachynas W of Davlos, among *Saccharum spontaneum* on sandy seashore, 29.11.2003, *Hadjikyriakou* 5843 & *Christodoulou*. C. Christodoulou & G. Hadjikyriakou

***Achillea biebersteinii* Afan.**

Meikle (1985) cites three collections, one from division 4 and two from division 6.

- + Division 2: Analyontas, riverbed, alt. c. 400 m, 13.5.1999, *Christodoulou in Hadjikyriakou* 4519; Krysfygeto Afxentiou near Machairas Monastery, rocky slope with *Quercus alnifolia*, alt. c. 900 m, 17.2.2000, *Hadjikyriakou* 4934.
- + Division 5: Sia mines, streambed, alt. c. 400 m, 26.2.1999, *Hadjikyriakou* 4011.
- + Division 7: Flamoudi, abandoned land, alt. c. 300 m, 12.5.2003, *Hadjikyriakou* 5651. C. Christodoulou & G. Hadjikyriakou

Otanthus maritimus* (L.) Hoffmanns. & Link subsp. *maritimus

The separation of two subspecies by Chrtek & Slavík (1993) is followed here.

- + Division 8: Ronnas Bay N of Rizikarpaso, sandy coast, 1.2.2004, *Hadjikyriakou* 5900 & *Hadjikyriakou f.*; sand dunes S of Vokolida, 1.2.2004, *Hadjikyriakou* 5902 & *Hadjikyriakou f.* G. Hadjikyriakou & T. Hadjikyriakou

***Anthemis chia* L.**

A single record is cited by Meikle (1984) from division 2.

- + Division 7: SW of Vasileia village, in phrygana along the road to Larnakas tis Lapithou, alt. c. 150 m, 21.2.2004, *Hadjikyriakou* 5918. G. Hadjikyriakou

***Glebionis coronaria* var. *discolor* (d'Urv.) Turland**

≡ *Chrysanthemum coronarium* var. *discolor* d'Urv.

Due to conservation of the name *Chrysanthemum* in the sense of the ornamental chrysanthemums of the trade, the former *Chrysanthemum* of the Mediterranean takes the name *Glebionis* (Greuter & al. 2003). Mentioned by Meikle (1985) from division 6, and by Alziar (2000) from division 4.

- + Division 3: Trachoni Lemesou, on limestone, alt. c. 30 m, 30.3.1989, *Hadjikyriakou* 202. G. Hadjikyriakou & R. Hand

***Matricaria aurea* (Loefl.) Sch. Bip.**

- + Division 3: Trachoni Lemesou, cultivated land, alt. c. 10 m, 9.4.2003, *Hadjikyriakou* 5613. G. Hadjikyriakou

***Echinops spinosissimus* Turra s.l.**

- + Division 8: Agios Theodoros – Vokolida, roadside, alt. c. 70 m, 18.10.2003, *Hadjikyriakou* 5769. G. Hadjikyriakou

Carlina pygmaea (Post) Holmboe

This generally dwarf endemic seems to be more variable in some characters than previously described (for typical habit and colouration see the photograph in Tsintides 1998). Meikle (1985) gives a detailed description and points out that the often nearly stemless plant grows up to 30 cm under exceptional circumstances. Actually, populations comprising dwarfish and erect, robust plants are not rare. Plants from the herbarium Hadjikyriakou cited below often have up to 35 cm long stems, those from the collections Buttler and Hand (now in B) up to 56 cm. While being generally rigid and spiny, the leaves in *Hadjikyriakou 1714* are unusually soft. Furthermore, achene length exceeds the measurements published so far. The total range is 3.5–4.5 mm. No signs of hybridization with *C. involuocrata* subsp. *cyprica* Meusel & Kästner (included in *C. libanotica* Boiss. var. *libanotica* according to a later revision by Meusel & Kästner 1994) could be found. Plants from division 3 thought to be such hybrids have been misinterpreted (see Meikle 1985). Specimens collected in the Pendakomo area showing partly yellow, pink or purple innermost phyllaries have been discussed as possible hybrids (Della 1992). Some of the variable characters mentioned above have already been documented by Meusel & Kästner (1994), but further material is needed to clarify the taxonomy of this species.

Division 1: Smiges – Kefalovrisia, Akamas Forest, forest jeep track among garigue, alt. c. 350 m, 21.9.1989, *Hadjikyriakou 347*.

Division 2: Elias Bridge below Kaminaria, roadside, alt. c. 580 m, 20.9.1988, *Hadjikyriakou 83*; 1 km W of Agios Konstantinos, margins of vineyard, alt. c. 1000 m, 20.8.1993, *Hadjikyriakou 1436*.

Division 3: Gerasa, 1.7 km above Apsiou junction, rocky bank of road, alt. c. 550 m, 6.11.2002, Hand 3760; Gerasa, at the road to Kalo Chorio 850 m N of Apsiou junction, open Pinus forest, serpentine, alt. 410 m, 12.10.1998, Buttler 32458 & Diguet, det. Hand; Petra tou Romiou, rocky streamside 200 m from the sea, alt. c. 10 m, 30.9.1995, *Hadjikyriakou 1714*.

K. P. Buttler, G. Hadjikyriakou & R. Hand

Carduus pycnocephalus subsp. *albidus* (M. Bieb.) Kazmi

There is a record by Alziar (2000) which may belong to division 2 or 3.

+ Division 2: Kremmos tou Astraka in Platys valley, rocky place, alt. c. 1000 m, 6.5.1998, *Hadjikyriakou 3317*. G. Hadjikyriakou

Onopordum cyprium Eig

+ Division 8: 5 km W of Apostolos Andreas monastery along the main road to Rizokarpaso, roadside, alt. c. 15 m, 28.10.2003, *Hadjikyriakou 5811*. G. Hadjikyriakou

Cynara cardunculus L.

+ Division 8: 5 km W of Apostolos Andreas monastery along the main road to Rizokarpaso, abandoned field, alt. c. 15 m, 28.10.2003, *Hadjikyriakou 5812*. G. Hadjikyriakou

Scolymus hispanicus L.

+ Division 8: 5 km W of Apostolos Andreas monastery along the main road to Rizokarpaso, roadside, alt. c. 15 m, 28.10.2003, *Hadjikyriakou 5814*. G. Hadjikyriakou

Cichorium intybus L.

Mentioned by Meikle (1985) from divisions 2 and 6. However, observations show that it is commoner than records suggest.

+ Division 3: Petra tou Romiou, roadside, alt. c. 5 m, 26.11.1989, *Hadjikyriakou 384*; Polemi-dia dam, roadside, alt. c. 150 m, 10.6.1990, *Hadjikyriakou 915*.

G. Hadjikyriakou

Cichorium spinosum L.

+ Division 3: Petra tou Romiou, gravelly seashore, 7.12.1996, *Hadjikyriakou* 1938.

G. Hadjikyriakou

Picris pauciflora Willd.

This taxon replaces the closely related *P. cyprica* Lack in the Troodos range above 2800 ft according to Meikle (1985) but recent investigations show it descends to c. 400 m in some valleys.

Division 2: Vretsia, at the track to Gefyra Roudia, c. 2.5-3 km before the bridge, alt. c. 400 m, 28.4.1998, *Hand* 2350; Kelefos Bridge – Platys valley, roadside, alt. c. 600 m, 29.4.1990, *Hadjikyriakou* 735; Moniatitis, roadside, alt. c. 750 m, 10.5.1996, *Makris in Hadjikyriakou* 1815. G. Hadjikyriakou, R. Hand & C. Makris

Helminthotheca echioides (L.) Holub

+ Division 3: Near the new port of Lemesos, roadside, about sea level, 16.8.1999, *Hadjikyriakou* 4850.

G. Hadjikyriakou

Taraxacum cyprium H. Lindb.

+ Division 6: Agrokipia, Kreatos, NE side not far from Moni Agios Panteleimona, above road, phrygana, alt. c. 550 m, 5.11.2002, *Hand* 3757. (ed.)

Taraxacum hellenicum Dahlst.

Apart from a doubtful collection from the summit of Olympus cited by Meikle (1985) the species is apparently lowland in distribution (below 2000 ft altitude). Obviously, it occurs sometimes above that limit.

Division 2: Pano Panagia, Moni Chryssorogiatissas, on square in front of the entrance, alt. c. 850 m, 27.10.2002, *Hand* 3649; Saranti, Moni Panagias tou Araka, stony ground at the edge of the parking place, alt. 970 m, 10.10.1998, *Buttler* 32429 & *Diguët*, det. *Hand*. K. P. Buttler & R. Hand

Taraxacum aphrogenes Meikle

The known area of this Cyprus endemic has been described by Hand (2000). The locality of the following collection is about 25 km E of Petra tou Romiou which was thought to be the easternmost point of occurrence.

+ Division 3: Akrotiri Episkopi bay, gravelly coast, 10.11.1991, *Hadjikyriakou* 1261.

G. Hadjikyriakou

Chondrilla juncea L.

+ Division 7: Coast between Cataköy/Agios Epiktitos and Esentepe/Agios Amvrosios, dunes behind the beach “Allagadi”, alt c. 3-5 m, 10.7.2004, *Vogt* 16162. R. Vogt

Lactuca triquetra (Labill.) Boiss. [Syn.: *Prenanthes triquetra* Labill., *Scariola triquetra* (Labill.) Soják]

Taxonomy. – Both carpology (see Fig. 1) and molecular analyses (Kilian in prep.) clearly confirm that the little known species belongs to *Lactuca* s.l. and is no member of *Prenanthes*. The achenes are scarcely compressed and have no dominant pair of lateral ribs, but this is a condition also found in other species of *Lactuca* (Kilian 2001). The numerous ribs represent subdivisions of five main ribs (corresponding to five principal vascular bundles as is illustrated by the cross sections), which is a plesiomorphic character state in *Lactuca*.

Chromosome number. – Chromosome counts in root tip metaphases of a plant raised in the Botanic Garden Berlin-Dahlem from material collected by K. P. Buttler at Gerasa (Division 3, see Buttler in Hand 2000: 60) revealed $2n = 18$ (Fig. 2). The chromosome number of this species was not

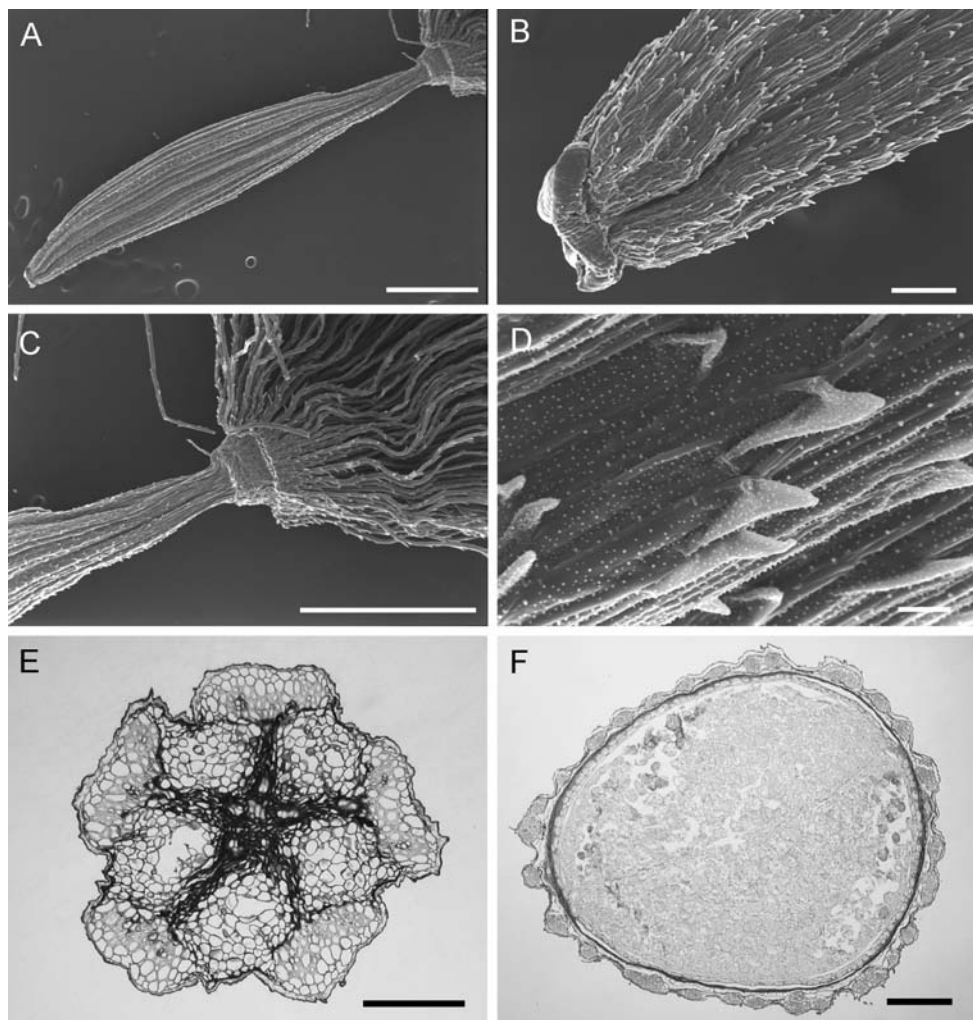


Fig. 1. *Lactuca triquetra*, achene – A: overview; B: base; C: apex with base of pappus; D: ornamentation of achene epidermis; E: cross section at base, showing five vascular bundles branching into the five wall segments; F: cross section in middle third, showing differentiation of the five wall segments into (secondary) longitudinal ribs. – Scale bars: A+C = 1 mm, B, E-F = 0.1 mm, D = 10 μ m; all from Cyprus, *Buttler 32460* (see Hand 2000: 60).

known previously. The basic number of $x = 9$ is widespread in *Lactuca* (compare Mejías 1993); evolution led probably ones to $x = 7$ (boreal American species) and more than once to $x = 8$.

Distribution. – In Cyprus, *L. triquetra* seems to be restricted to Lemesos Forest. The distribution shown in Fig. 3 is based, as regards Cyprus, on the records by Meikle (1985), Buttler (in Hand 2000) and the specimens cited below. The search in other lowland serpentine areas, e.g. in the W part of Cyprus has not been successful. The Lebanese records are from the specimens cited below and those quoted by Mouterde (1935, 1978). The latter specimens have not been checked, but misidentification of this unmistakable species is unlikely. The following sites could not be localized: Mar Ya'qoub, Beit Kachbo and Doubra (Mouterde 1978).

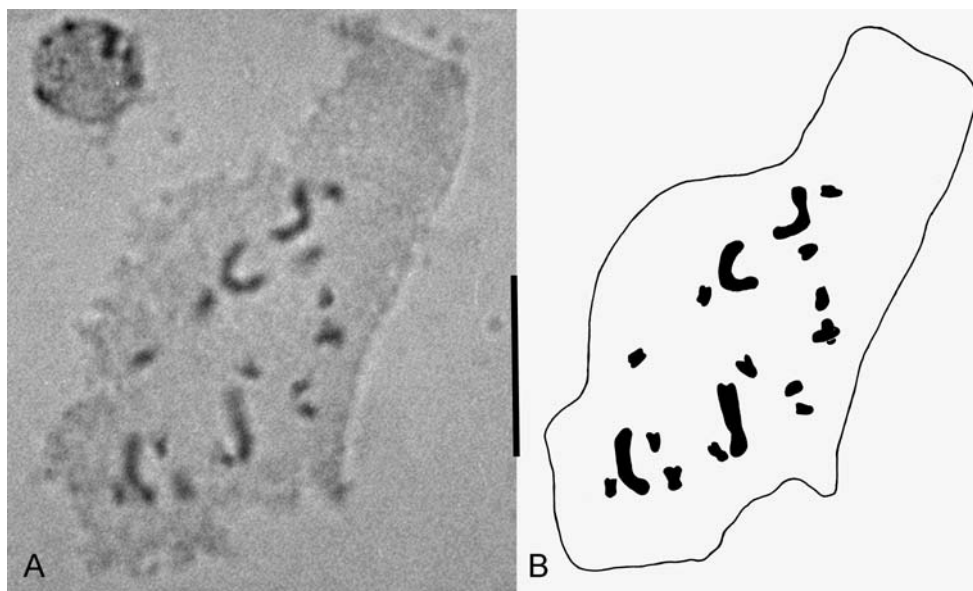


Fig. 2. *Lactuca triquetra* – root tip metaphasis in a plant from Gerasa, Cyprus, showing $2n = 18$ chromosomes. – Scale bar = 0.01 mm.

Additional specimens seen. – CYPRUS: Division 3: River of Kyparissia, rocky place by the river, alt. c. 500 m, 22.10.1989, *Hadjikyriakou 351*; Fountanoudin, Lemesos Forest, rocky streamside in open *Pinus brutia* forest, alt. c. 600 m, 5.11.1990, *Hadjikyriakou 1002*; Akrounta, 1.8 km above,

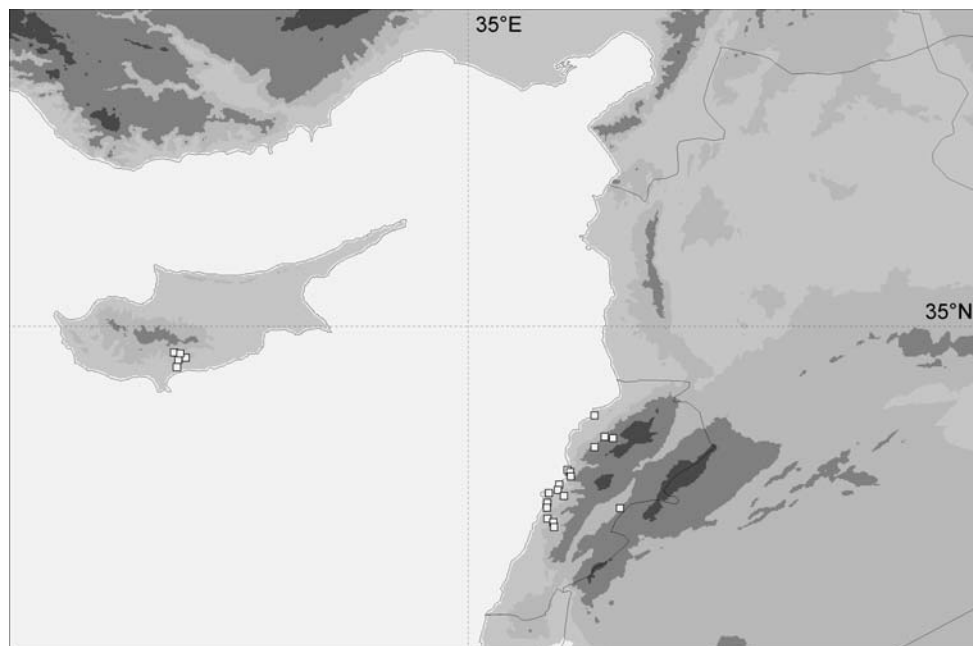


Fig. 3. Distribution of *Lactuca triquetra*. – Sources of the records are given in the text.

at road to Dierona, brook in serpentine area E of a distinctive bend, alt. c. 250 m, 21.10.2003, *Hand 4009*. — LEBANON: Fentes des rochers calcaires de la rive gauche du Nahr-el-Kelb, entre le pont et le moulin du convent de Mar Joussef, au N. de Beyrouth, 18.10.1857, *Gaillardot Reliqu. Mailleana 276* (“*Phaenopus triqueter*”) (B); ad Berytum (Beirut), in rupestribus vallis fluvii Nahr el-Kelb, 5.5.1910, *J. & F. Bornmüller Iter Syriacum II 12060* (B); Schluchten bei Brummana, 600-700 m, 07.1897, *J. Bornmüller Iter Syriacum I 321* (B); prope Beirut, *Gaillardot Pl. Syriacae 2019* (B).

Ecology. – The small Cypriot area of distribution is nearly identical to the largest occurrence of serpentinized, tectonized harzburgites in the island. More rarely, the taxon is also found on chalks and marls from Neogene and Palaeogene but very close to the serpentine area. The altitudinal range extends from c. 250 to c. 600 m. At least in the serpentine area, *L. triquetra* prefers small valleys and flushes with summer-dry rivulets. In some cases the scoparioid perennial dominates the vegetation in such situations. Especially when close to permanent springs it develops large tufts similar at first sight to those of certain *Carex* or *Juncus* species. In Cyprus, it is parasitized by *Cuscuta palaestina* Boiss. and by an as yet unidentified *Orobanchae* species.

Not much is known about the ecology in Lebanon. According to Thiébaud (1940), the species occurs from sea-level to subalpine areas. Its habitat should comprise rocks and rocky ground. Mouterde (1935) mentions “rochers calcaires”.

The flowering season in both countries seems to be similar: In Cyprus September to November, in Lebanon August to November or December (Thiébaud 1940, Mouterde 1978).

Illustrations. – Colour illustrations are to be found in the following publications: Tsintides & al. (2002), capitula and habit (sub *Prenanthes triquetra*), Tohmé & Tohmé (2002), capitula and parts of shoots (sub *Scariola triquetra*).
N. Kilian & R. Hand

Reichardia intermedia (Sch. Bip.) Cout.

- + Division 2: Delikipos – Lefkara, maquis on rocky slope, alt. c. 500 m, 3.3.1999, *Hadjikyriakou 4057*.
- + Division 3: Parekklesia, grassy slope, alt. c. 100 m, 17.2.1996, *Hadjikyriakou 1730*; Karmiotissa near Polemidia, garigue on rocky slope, alt. c. 200 m, 27.2.1999, *Hadjikyriakou 4015*.
- + Division 4: Potamos Liopetriou – Kavos Pyla, rocky place, alt. c. 5 m, 1.4.2003, *Hadjikyriakou 5601*.
- + Division 6: Kokkinotrimithia – Deneia, phrygana vegetation, alt. c. 200 m, 31.3.1997, *Kadis in Hadjikyriakou 2539*.
Mentioned without cited specimens for division 3 by Alziar & Guittonneau (2004).
G. Hadjikyriakou & K. Kadis

Scorzonera laciniata L.

The few records from 1936 onwards cited by Meikle (1985) led to the suggestion that it could be a recent introduction. Since then, further records or at least observations have been published (Viney 1994, Perring 1999, Alziar 2000). The record at the Alyki salt lake in (semi-)natural vegetation either speaks for indigenous occurrence or a secondary spread into such habitats.

- + Division 3: Agia Eirini W of Palodia, disturbed place, alt. c. 250 m, 12.3.1997, *Hadjikyriakou 2324*.
- + Division 4: Alyki Larnakas, lake margins, about sea level, 23.4.1999, *Makris in Hadjikyriakou 4440*.
G. Hadjikyriakou & C. Makris

Plumbaginaceae

Limonium cyprium (Meikle) Hand & Buttler [Syn.: *L. albidum* subsp. *cyprium* Meikle]

Documented by Meikle (1985) for a few sites in divisions 7 and 8 only. Records for the W coast have been added by Buttler and Hand (in Hand 2003).

- Division 1: Kato Pafos Castle, rocky seashore, alt. c. 5 m, 3.9.1998, *Hadjikyriakou 3704*.
 + Division 3: Mandria Pafou – Pafos Airport, maritime rocks, about sea level, 12.12.2003, *Christodoulou in Hadjikyriakou 5852*.
 + Division 6: Akrotirio Kormakiti, near the light house, rocky sea shore, alt. c. 5 m, 6.12.2003, *Hadjikyriakou 5847 & Christodoulou*.
 Division 8: Giouti, rocky seashore, alt. c. 5 m, 25.10.2003, *Hadjikyriakou 5801*.
 C. Christodoulou & G. Hadjikyriakou

Oleaceae

Olea europaea L.

- + Division 4: Kavos Gkreko, maquis, alt. c. 40 m, 18.1.1997, *Hadjikyriakou 2141*.
 Mentioned without cited specimens for this division by Alziar & Guittonneau (2004).
 G. Hadjikyriakou

Asclepiadaceae

Cyprinia gracilis (Boiss.) Browicz

Typically on igneous rocks but the following records are from limestone areas. There is another single occurrence in division 7 mentioned by Meikle (1985) and confirmed by Viney (1994).

- + Division 4: Tigani at Kavos Gkreko, rocky place, alt. c. 60 m, 22.3.1997, *Hadjikyriakou 2420*.
 Division 7: Limnes northwest of Sina Oros peak, among *Pistacia lentiscus*, alt. c. 600 m, 3.1.2004, *Hadjikyriakou 5888*.
 G. Hadjikyriakou

Boraginaceae

Heliotropium dolosum De Not.

- + Division 3: Dierona, 3.0 km S of the village, at the road to Akrounta, 100 m N of the pass, stony ground at the road, alt. 660 m, 12.10.1998, *Buttler 32465 & Diguët*, det. Hand
 K. P. Buttler & R. Hand

Heliotropium supinum L.

Meikle (1985) cites two collections only but records cited below suggest that it is commoner in Cyprus.

- + Division 1: Evretou dam, margins of the dam, alt. c. 200 m, 14.8.1999, *Hadjikyriakou 4839*.
 + Division 3: Foinikas, upper end of Asprokremmos dam, c. 1 km NE of the village, dry mud, alt. c. 90 m, 22.10.2003, *Hand 4021 & Hadjikyriakou*; Mouth of Xeros River near Mantria Pafou, cultivated field, alt. c. 5 m, 10.10.1998, *Makris in Hadjikyriakou 3814*; Ezousa River, riverbed, alt. c. 100 m, 10.7.2003, *Christodoulou in Hadjikyriakou 5747*.
 + Division 5: Achna dam, margins of the dam, alt. c. 50 m, 31.7.1999, *Hadjikyriakou 4779*.
 + Division 6: Magglis reservoir, along its margins, alt. c. 200 m, 9.6.1999, *Hadjikyriakou 4630*; Pediaios River near Archagelos, riverbed, alt. c. 180 m, 21.6.2003, *Hadjikyriakou 5692*.
 + Division 7: Agios Amvrosios Keryneias, cultivated land, alt. c. 150 m, 6.12.2003, *Hadjikyriakou 5849 & Christodoulou*.

C. Christodoulou, G. Hadjikyriakou, R. Hand & C. Makris

Convolvulaceae

Ipomoea imperati (Vahl) Griseb. [Syn.: *I. stolonifera* (Cyr.) J. F. Gmel.]

- + Division 3: Akrotiri at Episkopi bay, gravelly seashore, 7.7.1999, *Hadjikyriakou 4695*.

- + Division 7: Pachynas, sandy seashore, W of Davlos, 23.6.2003, *Hadjikyriakou* 5699; N of Flamoudi village, sandy seashore near the abandoned carob stores, 11.10.2003, *Hadjikyriakou* 5762.
- + Division 8: Kastrouli E of Mpogazi, sandy seashore, 1.10.2003, *Hadjikyriakou* 5734; S of Vokolida village, sandy seashore, 18.10.2003, *Hadjikyriakou* 5778; E of Apostolos Andreas, sandy beach, 28.10.2003, *Hadjikyriakou* 5822.

G. Hadjikyriakou

Convolvulus dorycnium L.

- + Division 3: In the area of the ancient city Amathus, about 10 km ENE from Limassol [= Lemesos], 17.6.2000, *Sutorý BRNM* 658047. K. Sutorý

Cressa cretica L.

- + Division 8: Agios Theodoros – Vokolida, cultivated fields, alt. c. 70 m, 18.10.2003, *Hadjikyriakou* 5773; Karpasia/Karpas peninsula, coastal rocks near the harbour of ancient Karpasia (Agios Filon), alt. c. 3 m, 16.7.2004, *Vogt* 16174.

G. Hadjikyriakou & R. Vogt

Cuscuta campestris Yunck.

- + Division 3: Foinikaria, NE edge of Germasogeia dam, muddy ground, parasitizing *Xanthium strumarium* L., alt. c. 90 m, 21.10.2003, *Hand* 4007. (ed.)

Cuscuta planiflora Ten.

- + Division 1: Baths of Aphrodite [= Loutra tis Afroditis], c. 1.5 km SW, alt. c. 180 m, 12.5.1998, *Hand* 2441; Lakki – Loutra tis Afroditis, parasitizing *Urginea maritima*, alt. c. 20 m, 16.3.2003, *Hadjikyriakou* 5573. G. Hadjikyriakou & R. Hand

*Solanaceae**Lycium schweinfurthii* U. Dammer

As regards the colour of ripe fruits which has been discussed by Buttler & Hand (in Hand 2000), it must be added that at least in some populations black and red-orange berries occur. Such a plant is documented by a colour photograph in Tsintides & al. (2002).

- + Division 8: Akrotiri Apostolou Andrea near Kleides Islands, coastal rocks, alt. c. 5 m, 25.10.2003, *Hadjikyriakou* 5806. G. Hadjikyriakou

Nicotiana glauca Graham

The species is known in Cyprus since at least 1913 (see Meikle 1985), spreading slowly in the lowlands. Consequently, it should be classified as a naturalized invasive taxon.

- + Division 3: Polemidia, roadside, alt. c. 100 m, 20.5.1990, *Hadjikyriakou* 834.

G. Hadjikyriakou

*Scrophulariaceae**Verbascum sinuatum* L.

- + Division 8: Agios Theodoros – Vokolida, margins of cultivated fields, alt. c. 70 m, 18.10.2003, *Hadjikyriakou* 5766. G. Hadjikyriakou

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

The endemic of Cyprus has been ranked as a subspecies of *O. linkii*, a taxon occurring in S Greece, by Bolliger (1996). Because of the relatively slight morphological differences this taxonomy is followed here.

- + Division 8: Agios Nikolaos church south of Davlos, garigue, alt. c. 250 m, 28.1.2004, *Hadjikyriakou 5894*.
G. Hadjikyriakou

Orobanchaceae

Orobanche ramosa L. var. *ramosa*

- + Division 2: Vretsia, c. 300 m downstream Gefyra Roudia, at the track, alt. c. 350 m, 28.4.1998, *Hand 2358*.
(ed.)

Orobanche pubescens d'Urv. [Syn.: *O. minor* var. *pubescens* (d'Urv.) Meikle]

- + Division 2: Kannaviou, Argaki tis Agias valley upstream of the road to Panagia, upstream of the second bridge, alt. c. 475 m, 21.04.1998, *Hand 2255*, det. Foley.

M. Foley & R. Hand

Labiatae

Origanum vulgare subsp. *hirtum* (Link) Ietsw.

Only two specimen-based records for Cyprus have been published so far (Meikle 1985, Della & Iatrou 1995).

- Division 2: Pano Platres, under pines in the village, alt. c 1200 m, 31.10.2002, *Christofides in Hadjikyriakou 5536*; *ibid.*, 23.8.2003, *Hadjikyriakou 5725*.

Y. Christofides & G. Hadjikyriakou

Corydolithymus capitatus (L.) Rechb. f. [Syn.: *Thymus capitatus* (L.) Hoffmanns. & Link]

- + Division 8: Kairos between Komi Kepir and Davlos, garigue, alt. c. 300 m, 18.10.2003, *Hadjikyriakou 5789*; Karpasia/Karpas peninsula, Dipkarpaz/Rizokarpaso – Cape Apostolos Andreas, beach and dunes “Golden Sands” between Kiles Point and Galounopetra Point, alt. c. 2-5m, 17.7.2004, *Vogt 16178*.

G. Hadjikyriakou & R. Vogt

Satureja thymbra L.

Meikle (1985) cites only one collection from Mavriskala above Akanthou (division 7). The two specimens cited below for division 7 have been collected between Akanthou and Flamoudi.

- + Division 2: Agios Georgios near Pachyammos, garigue, alt. c. 300 m, 22.4.2001, *Christodoulou in Hadjikyriakou 5273*.

- Division 7: Kathoumeni between Flamoudi and Akanthou, garigue with *Erica manipuliflora* and *Cistus* spp., alt. c. 300 m, 18.10.2003, *Hadjikyriakou 5792*; Potos E of Akanthou, garigue, alt. c. 300 m, 3.2.2004, *Hadjikyriakou 5907* & *Hadjikyriakou f.*

C. Christodoulou, G. Hadjikyriakou & T. Hadjikyriakou

Micromeria chionistrae Meikle

This micro-endemic species described in 1983 was known to be restricted to the central part of the Troodos range (Meikle 1985). According to Tsintides (1998) its area stretches from the Pafos forest (Stavros tis Psokas) in the W eastwards to Lemesos forest. Hadjikyriakou (2003) mentioned occurrences as far east as Alona and Agios Konstantinos in the Pitsylia region. The following specimens are from the easternmost part of the species' area.

- Division 2: Agios Theodoros, summit of and saddle W of Papoutsia, open rocky ground, alt. 1500-1550 m, 2.11.2002, *Hand 3681*; Madari peak, rock crevices, alt. c. 1550 m, 6.6.1990, *Hadjikyriakou 908*; *ibid.*, 2.7.1994, *Hadjikyriakou 1562*; *ibid.*, 25.5.2002, *Hadjikyriakou 5423*.

G. Hadjikyriakou & R. Hand

Salvia lanigera Poir.

- + Division 3: Tunnel Beach in Episkopi Military Base, sand dunes with garigue vegetation, about sea level, 10.2.1999, *Makris & Hadjikyriakou 3971*.
G. Hadjikyriakou & C. Makris

Sideritis curvidens Stapf

- + Division 2: Kremmos tou Astraka in Platys valley, rocky place, alt. c. 1000 m, 6.5.1998, *Hadjikyriakou 2319*.
G. Hadjikyriakou

Moluccella laevis L.

- + Division 3: S of Episkopi Lemesou, cultivated field, about sea level, 4.7.1994, *Evaggelou in Hadjikyriakou 1566*.
G. Hadjikyriakou & T. Evaggelou

Ballota integrifolia Benth.

- + Division 6: W of Livera, rock crevices, alt. c. 40 m, 20.12.2003, *Hadjikyriakou 5870*.
Mentioned by Tsintides (1998) for division 6 without cited specimens.
G. Hadjikyriakou

Teucrium creticum L.

- + Division 6: Below Orga, field margins, alt. c. 40 m, 20.12.2003, *Hadjikyriakou 5857*.
G. Hadjikyriakou

Plantaginaceae***Plantago major*** subsp. ***intermedia*** (DC.) Arcang. [Syn.: *P. uliginosa* F. W. Schmidt]

Second record for Cyprus; cf. Hand 2003 for the first record coming from the the same river system.

- Division 2: Panagia in Peristerona valley, immediately above forestry station at the S end of the village, dry rocky river-bed, alt. c. 500 m, 20.10.2003, *Hand 4004 & Hadjikyriakou*.
G. Hadjikyriakou & R. Hand

Amaranthaceae***Amaranthus retroflexus*** L.

- + Division 1: Lysos, NE edge of the village, at the road exit towards Kinousa, waste land, alt. 490 m, 7.10.1998, *Buttler 32380 & Diguët*, det. Hand.
+ Division 3: Polemidia Forest near Theotokos Foundation, roadside, alt. c. 150 m, 23.1.1997, *Hadjikyriakou 2155*.
K. P. Buttler, G. Hadjikyriakou & R. Hand

Amaranthus blitoides S. Watson

Mentioned by Georgiades (1994) from divisions 1, 2, 3 and 5, also by Viney (1996) without further details. The alien taxon must be classified as naturalized invasive.

- + Division 2: Near Sykopetra on the road to Agios Konstantinos, roadside, alt. c. 800 m. *Hadjikyriakou 1435*.
+ Division 3: Germasogeia, river margins, alt. c. 70. *Hadjikyriakou 3798*.
+ Division 8: Agios Theodoros – Vokolida, cultivated fields, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5771*.
G. Hadjikyriakou

Amaranthus viridis L.

- + Division 3: Acheleia Pafos, cultivated land, alt. c. 20 m, 5.9.1999, *Hadjikyriakou 4885*; Pissouri, S edge of the old village, waste ground, alt. 230 m, 13.10.1998, *Buttler*

32455 & *Diguët*, det. Hand; Limassol [= Lemesos], 27.6.2000, on the seashore, about 8 km E from the city centre, *Sutorý BRNM 658042*.

+ Division 6: Agios Dometios Lefkosia, roadside in a ruderal area, alt. c. 150 m, 30.8.1999, *Hadjikyriakou 4878*.

Mentioned by Georgiades (1994) for both divisions without cited specimens.

K. P. Buttler, G. Hadjikyriakou, R. Hand & K. Sutorý

Amaranthus graecizans L. subsp. *graecizans*

+ Division 1: Pafos, at the municipal parking below market, flower-beds, alt. c. 50 m, 30.10.2002, *Hand 3669*.

+ Division 3: Livadi Akrotiriou, roadside not far from the marsh, about sea level, 16.6.2003, *Hadjikyriakou 5687*.

+ Division 6: Peristerona, in the village SW of the church, waste ground, alt. 190 m, 9.10.1998, *Buttler 32420 & Diguët*, det. Hand.

K. P. Buttler, G. Hadjikyriakou & R. Hand

Chenopodiaceae

Chenopodium striatifforme Murr

First record for Cyprus. The controversial taxon occurring in parts of Central and SE Europe has not been accepted by most recent flora writers, e.g. for Germany by Jäger & Werner (2002). But according to Uotila (2001) it proved very uniform in cultivation and clearly different from *C. strictum* Roth to which it is closer than to *C. album*. Uotila (2001) argues that species rank for *C. striatifforme* is suitable. The taxon may be indigenous in Cyprus but further studies are required.

+ Division 1: Lysos, NE edge of the village, at the road exit towards Kynousa, waste land, alt. 490 m, 7.10.1998, *Buttler 32382 & Diguët*. K. P. Buttler

Chenopodium strictum Roth subsp. *strictum*

First record for Cyprus. The taxon is distributed in Central and E Europe as well as in parts of Asia (Uotila 2001). As in the last species, further data are required to assess distribution and status in the island of Cyprus. At the mentioned site, the plants were extremely vigorous reaching a maximum height of 2.20 m.

+ Division 5: Anageia, Pediaios river above bridge towards Deftera, dry river-bed, alt. c. 250 m, 18.10.2003, *Hand 3981*. (ed.)

Halimione portulacoides (L.) Aellen

+ Division 8: Vokolida beach, margins of a small lagoon, about sea level, 18.10.2003, *Hadjikyriakou 5783*. G. Hadjikyriakou

Halopeplis amplexicaulis (Vahl) Ung.-Sternb.

+ Division 3: NE of Alyki Akrotiriou, salt marshes, about sea level, 12.7.1995, *Hadjikyriakou 1694*; *ibid.*, 28.9.1996, *Makris in Hadjikyriakou 1915*; *ibid.*, 2.9.1999, *Hadjikyriakou 4881*. G. Hadjikyriakou & C. Makris

Arthrocnemum macrostachyum (Moric.) Moris & Delponte

+ Division 8: Vokolida beach, margins of a small lagoon, about sea level, 18.10.2003, *Hadjikyriakou 5782*. G. Hadjikyriakou

Noaea mucronata (Forssk.) Asch. & Schweinf.

+ Division 8: Agios Theodoros – Vokolida, phrygana vegetation, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5775*. G. Hadjikyriakou

Polygonaceae

Persicaria lapathifolia (L.) Delarbre subsp. ***lapathifolia*** [Syn.: *Polygonum lapathifolium* L.]

The recent trends in splitting the genus *Polygonum* are followed here. Plants named *P. lapathifolium* subsp. *maculatum* (Gray) Dyer & Trimen – the only taxon occurring in Cyprus – by Meikle (1985) belong to the nominal subspecies if the taxonomy of Wisskirchen (1998, 2002) is accepted. The specimens cited and described by Meikle (1985) have not been checked but they seem to be morphologically very similar to the plants mentioned below.

Division 2: Gourri, river-bed of Farmakas SSW of the village, c. 4 km before Farmakas village, wet ground in river-bed, alt. c. 640 m, 18.10.2003, *Hand 3987*. (ed.)

Polygonum maritimum L.

+ Division 7: Agios Georgios Keryneias, sandy seashore, 1.10.2003, *Hadjikyriakou 5736*.
G. Hadjikyriakou

Polygonum aviculare L.

+ Division 5: Athalassa, fallow field, alt. c. 170 m, 23.4.1999, *Hadjikyriakou 4439*.
G. Hadjikyriakou

Thymelaeaceae

Thymelaea passerina subsp. ***pubescens*** (Guss.) Meikle

+ Division 3: Fasouri, under eucalypts near marshy place, about sea level, 15.7.2001, *Hadjikyriakou 5303*.

+ Division 4: Kavos Gkreko, field margins, alt. c. 30 m, 15.5.2000, *Efthimiou in Hadjikyriakou 5061*.
E. Efthimiou & G. Hadjikyriakou

Euphorbiaceae

Euphorbia peplis L.

+ Division 4: Voroklini, SE of the village, beach at Lenios Beach Hotel, alt. 0 m, 9.12.2003, *Charalambous in Hand 4046*, det. Hand.
Mentioned without cited specimens for this division by Alziar (1985). (ed.)

Euphorbia nutans Lag.

Meikle (1985) cites a few records from three divisions only but this alien may be more common as it seems. It is known since 1935 and should be classified as naturalized invasive species but further data are required.

+ Division 3: Acheleia, citrus groove, alt. c. 20 m, 5.9.1999, *Hadjikyriakou 4882*; Pissouri, at the strand promenade, easternmost part, irrigated flower-beds, alt. c. 3 m, 17.10.2003, *Hand 3963*.
G. Hadjikyriakou & R. Hand

Euphorbia heterophylla L.

Meikle (1985) cites only one collection from division 4 (collected in 1930). The status is the same as in the last species.

+ Division 3: Nikokleia, abandoned orange groove, alt. c. 100 m, 13.9.1996, *Makris in Hadjikyriakou 1913*; Germasogeia, gravelly place along riverbed, alt. c. 70 m, 15.11.1997, *Hadjikyriakou 2827 & Makris*.
G. Hadjikyriakou & C. Makris

Euphorbia dimorphocaulon P. H. Davis

+ Division 3: Mantria Pafos, coastal fallow land, about sea level, 22.12.1996, *Hadjikyriakou 2024*.

- + Division 4: Protaras, S of Hotel Grecian Park in Konnos area, open Pinus forest, alt. c. 30 m, 10.12.2003, *Charalambous in Hand 4048*, det. Hand.
Mentioned without cited specimens for division 4 by Alziar & Guittonneau (2004). G. Hadjikyriakou & R. Hand

Euphorbia aleppica L.

According to Meikle (1985) the species has been collected repeatedly at Kyreneia but nowhere else on the island.

- + Division 1: N of Lysos, cultivated field, alt. c. 450 m, 14.10.1990, *Christodoulou in Hadjikyriakou 1000*.
+ Division 3: Episkopi Lemesou, cultivated field, alt. c. 40 m, 12.5.1990, *Hadjikyriakou 792*.
C. Christodoulou & G. Hadjikyriakou

Euphorbia exigua L. var. *exigua*

- + Division 1: Koudounas Akamas, shallow depressions on coastal sandstones with some soil, alt. c. 5 m, 16.3.2003, *Hadjikyriakou 5577*.
+ Division 2: Agios Ioannis cliffs, roadside, alt. c. 400 m, 24.4.1999, *Makris in Hadjikyriakou 4448*.
G. Hadjikyriakou & C. Makris

Euphorbia exigua var. *retusa* L.

- + Division 4: Achna dam, grassy place near the margins of the dam, alt. c. 50 m, 27.4.1992, *Hadjikyriakou 1347*.
G. Hadjikyriakou

Euphorbia paralias L.

- + Division 8: Pachyammos 1 km W of Apostolos Andreas, coastal sand dunes, 25.10.2003, *Hadjikyriakou 5805*; Karpasia/Karpas peninsula, Dipkarpaz/Rizokarpaso – Cape Apostolos Andreas, beach and dunes “Golden Sands” between Kiles Point and Galounopetra Point, alt. c. 2-5 m, 17.7.2004, *Vogt 16181*.
G. Hadjikyriakou & R. Vogt

Urticaceae

Urtica membranacea Poir.

- + Division 3: Fasouri – Asomatos, roadside, about sea level, 28.3.2003, *Hadjikyriakou 5592*.
Division 6: Agios Andreas Lefkosia, roadside in ruderal area, alt. c. 150 m, 26.5.2000, *Christodoulou in Hadjikyriakou 5068*.
G. Hadjikyriakou & C. Christodoulou

Parietaria cretica L.

- + Division 6: Akrotirio Kormakitis, crevices of coastal sandstones, alt. c. 15 m, 28.3.2004, *Hadjikyriakou 5961 & Hadjikyriakou f.* G. Hadjikyriakou & T. Hadjikyriakou

Moraceae

Ficus carica L.

Rarely collected but so far mentioned only without cited specimens for division 3 (Chrték & Slavík 1993, Alziar & Guittonneau 2004).

- + Division 3: Akrotiri lighthouse, rocky place, alt. c. 50 m, 15.5.2002, *Hadjikyriakou 5395*.
G. Hadjikyriakou

Liliaceae

Asparagus acutifolius L.

- + Division 5: 2 km N of Lefkonoiko, among *Zizyphus lotus*, alt. c. 200 m. 3.1.2004, *Hadjikyriakou 5887*.

- + Division 6: Kokkinokremmos between Orga and Agios Georgios church, garigue, alt. c. 40 m, 20.12.2003, *Hadjikyriakou* 5865. G. Hadjikyriakou

***Ruscus aculeatus* var. *angustifolius* Boiss.**

- + Division 1: Katasia Lysos, open pine forest, alt. c. 500 m, 5.6.1991, *Christodoulou in Hadjikyriakou* 1246; Agios Minas Akamas, rocky place with *Pistacia lentiscus*, alt. c. 350 m, 30.5.2001, *Hadjikyriakou* 5289. C. Christodoulou & G. Hadjikyriakou

***Asphodelus tenuifolius* Cav.**

- + Division 4: S of Kavogreko, rocky slope, alt. c. 50 m, 5.3.1999, *Hadjikyriakou* 4072. G. Hadjikyriakou

***Colchicum pusillum* Sieber**

- + Division 1: Tzioni – Fontana Moroza Akamas, rocky place near *Juniperus phoenicea* maquis, alt. c. 150 m, 20.11.1988, *Hadjikyriakou* 112; Koudounas Akamas, rocky place, alt. c. 30 m, 4.12.1996, *Hadjikyriakou* 1930.
+ Division 3: Apollon archaeological site W of Episkopi Lemesou, opening among shrubs, alt. c. 40 m, 20.12.1996, *Hadjikyriakou* 1989. G. Hadjikyriakou

Juncaceae

***Juncus maritimus* Lam.**

- + Division 8: Coastal sand dunes 2 km W of Apostolos Andreas Monastery, 1.2.2004, *Hadjikyriakou* 5899. G. Hadjikyriakou

Posidoniaceae

***Posidonia oceanica* (L.) Delile**

- + Division 8: Mpogazi beach, fresh plants washed ashore by the waves, 2.5.2000, *Hadjikyriakou* 5015. G. Hadjikyriakou

Cymodoceaceae

***Cymodocea nodosa* (Ucria) Asch.**

Meikle (1985) cites two collections from divisions 1 and 4. He remarks that the species, like other thalassophytes, is probably much more frequent but seldom collected.

- + Division 3: Akrotiri at Episkopi bay, fresh plants washed ashore by the waves, 12.2.1996, *Hadjikyriakou* 1725. G. Hadjikyriakou

Gramineae

***Phalaris aquatica* L.**

- + Division 1: Giolou, field margins, alt. c. 500 m, 26.9.1998, *Hadjikyriakou* 3735; N of Koili, field margins, alt. c. 450 m, 11.5.2002, *Hadjikyriakou* 5361.
+ Division 8: 5 km W of Apostolos Andreas monastery along the main road to Rizokarpaso, roadside ditch, alt. c. 15 m, 28.10.2003, *Hadjikyriakou* 5817. G. Hadjikyriakou

***Lagurus ovatus* L.**

- + Division 2: Gialia, sandy seashore, about sea level, 22.3.2003, *Hadjikyriakou* 5580. G. Hadjikyriakou

Stipa lagascae Roem. & Schult.

- + Division 4: N of Koshi, along forest road, alt. c. 200 m, 16.4.2003, *Hadjikyriakou 5617*.
G. Hadjikyriakou

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

- + Division 4: Kavos Gkreko, rocky slope, alt. c. 50 m, 5.3.1999, *Hadjikyriakou 4077*.
G. Hadjikyriakou

Arundo donax L.

The tall grass is rarely collected. Apart from collections listed by Meikle (1985) there is only a published observation by Chrtek & Slavík (1994) from division 3.

- + Division 3: Erimi, roadside, alt. c. 30 m, 19.4.1998, *Hadjikyriakou 3146*; Trachoni Lemesou, roadside, alt. c. 15 m, 14.10.1998, *Hadjikyriakou 3785*.
+ Division 7: Machazenia below Agios Amvrosios Keryneias, along stream not far from the coast, alt. c. 10 m, 11.1.2004, *Hadjikyriakou 5890*.
+ Division 8: Agios Theodoros – Vokolida, field margins, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5765*.
G. Hadjikyriakou

Phragmites australis (Cav.) Steud.

- + Division 2: Vretsia near Vouni Panagias, moist place near stream, alt. c. 650 m, 26.1.1997, *Hadjikyriakou 2174*, *Kadis & Makris*; Kameno Paidi in Xeros valley, alt. c. 450 m, 30.9.1997, *Papadopoulos in Hadjikyriakou 3043*.
+ Division 5: Latsia, streamside, alt. c. 150 m, 27.1.1997, *Hadjikyriakou 2181*.
G. Hadjikyriakou, K. Kadis, C. Makris & J. Papadopoulos

Eragrostis cilianensis (All.) Vignolo

- + Division 5: Athalassa, cultivated land, alt. c. 170 m, 19.8.1999, *Hadjikyriakou 4860*.
G. Hadjikyriakou

Cynodon dactylon (L.) Pers. var. *dactylon*

- + Division 8: Agios Theodoros – Vokolida, field margins, alt. c. 70 m, 18.10.2003, *Hadjikyriakou 5770*.
G. Hadjikyriakou

Sporobolus virginicus (L.) Kunth

- + Division 8: Kastrouli E of Mpogazi, sandy seashore, 11.10.2003, *Hadjikyriakou 5764*; S of Vokolida, sandy seashore, 18.10.2003, *Hadjikyriakou 5777*. G. Hadjikyriakou

Paspalum distichum L.

Obviously, this alien is a garden escape spreading rapidly near urban areas. It belongs to the category of naturalized invasive taxa.

- + Division 3: Foinikaria, NE edge of Germasogeia dam, muddy ground, alt. c. 90 m, 21.10.2003, *Hand 4011*, teste Scholz; Germasogeia, moist place by the river, alt. c. 50 m, 13.8.1999, *Hadjikyriakou 4828*.
+ Division 5: E of Palouriotissa, moist ditch, alt. c. 150 m, 7.8.1999, *Hadjikyriakou 4806*.
+ Division 6: Akadimias Forest W of Aglaggia, moist place by the stream, alt. c. 150 m, 7.8.1999, *Hadjikyriakou 4817*. G. Hadjikyriakou, R. Hand & H. Scholz

Saccharum spontaneum L.

First collected by Chrtek & Slavík (1994) in 1978 from division 3. Viney (1994) mentions an old stand found in 1992 near Salamis. The species may have been confused with *S. ravennae* (L.) Murr. in the past but a relatively recent introduction can not be excluded. In the latter case it must be classified as a naturalized invasive alien.

- Division 3: Episkopi Lemesou on the margins of Kourris River, alt. c. 20 m, 22.11.1998, *Hadjikyriakou 3846*; *ibid.*, 27.10.2002, *Hadjikyriakou 5535*.
- + Division 4: Xylofagou – Akrotiri Pylas, roadside, alt. c. 40 m, 29.1.1999, *Makris in Hadjikyriakou 3967*; Pergamos – Kontea, roadside, alt. c. 100 m, 30.12.2003, *Hadjikyriakou 5884*.
- + Division 5: Charafti beach E of Triкомо, sand dunes, about sea level, 18.2.2004, *Hadjikyriakou 5917 & Hadjikyriakou f.*
- + Division 7: Pachynas W of Davlos, coastal sand dunes, 29.11.2003, *Hadjikyriakou 5842 & Christodoulou*.

C. Christodoulou, G. Hadjikyriakou, T. Hadjikyriakou & C. Makris

Pteridophyta

Ophioglossaceae

Ophioglossum lusitanicum L.

- + Division 3: Ladies Mile Akrotiri, sandy ground with short grassy openings in *Corydanthus capitatus* phrygana, about sea level, 25.2.2004, *Makris in Hadjikyriakou 5924*; *ibid.*, 26.2.2004, *Hadjikyriakou 5925*. G. Hadjikyriakou & C. Makris

Acknowledgements

The editor is grateful to all contributors who provided their records and revised critical taxa, to Prof. Dr Werner Greuter (Berlin) and Michael Ristow (Berlin/Germany) for the loan of literature and comments and to Andreas Charalambous (Berlin/Germany) for his logistical support in Cyprus as well as collecting specimens on the island. Lance Chilton kindly reviewed an earlier version of the manuscript and gave very useful comments.

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