Supplementary notes to the flora of Cyprus IV.

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Abstract


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. *cypria*. *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 Costas Kasis (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 to 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.


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 3: Aydiumou – 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...
Carrichtera annua (L.) DC.

Meikle (1977) cites two collections from divisions 1 and 3. It is also mentioned by Alziar (2000) and Alziar & Guittonneau (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.

Crambe hispanica L.

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

Cakile maritima Scop.


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.

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.


Frankeniaceae

Frankenia hirsuta var. hispida (DC.) Boiss.


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.


**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 perfoliatum** 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.


**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
**Geraniaceae**

**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 Alzair & Guittenneau (2004).

**Erodium gruinum** (L.) L’Hér.
+ Division 6: Astromeritis – Deneia, cultivated field, alt. c. 150 m, 3.4.1997, *Kadis in Hadjikyriakou 2529.*

**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; Parekklisia – Pyrgos Lemesou, field margins, alt. c. 200 m, 12.2.1997, Makris in Hadjikyriakou 2206.*

**Erodium laciniatum** (Cav.) Willd. f. laciniatum
+ Division 3: Agios Georgios Akrotiri, sandy place with garigue, alt. c. 2 m, 23.2.1997, *Hadjikyriakou 2233.*

**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.*

**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).

**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; Tsiilikoudia Lemesos, field margins, alt. c. 5 m, 31.8. 1999, Hadjikyriakou 4880.*
**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 Tychnas, 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 blancheana** 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.
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.

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: Pentadaktylos/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 (Pentadaktylos 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 Pentadaktylos 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.

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.

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.

Ceratonia siliqua L.
+ Division 8: Apostolos Andreas, maquis with Juniperus phoenicea, alt. c. 5 m, 28.10.2003, Hadjikyriakou 5820.
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 Papoutsa 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 Papoutsa, 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

Datiscaceae
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

+ 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

*Eryngium maritimum* L.


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

*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.


*Ferula cypria* Post

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

Division 7: Above Lapithos, crevices of vertical cliffs, alt. c. 450 m, 1.10.2003, *Hadjikyria-
kou 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.

**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. glandulosso-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 Epititios 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.

**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), wheras 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. **cypria** (McAllister) Hand, **comb. & stat. novi**

Specimens seen

**Division 2:**

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 forma 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.

**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.

G. Hadjikyriakou

**Compositae**

**Eupatorium cannabinum** var. syriacum (Jacq.) Boiss.
Meikle (1985) cites only one collection from Lapithos (division 7).

C. Makris

**Bellis sylvestris** Cirillo

G. Hadjikyriakou

**Composae**

**Composae**

**Composae**

**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 Papoutsa, 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 5785.*

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

**Ambrosia maritima** L.

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

**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.

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

The separation of two subspecies by Chrték & 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.

**Anthemis chia** L.


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

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

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

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

**Echinops spinosissimus** Turra s.l.

+ Division 8: Agios Theodoros – Vokolida, roadside, alt. c. 70 m, 18.10.2003, Hadjikyriakou 5769.
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. involucrata 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 Apsoi 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 Apsoi junction, open Pinus forest, serpentine, alt. 410 m, 12.10.1998, Buttler 32458 & Di Guet, 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.

Onopordum cyprium Eig
+ 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.

Cynara cardunculus 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 5811.

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.

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; Polemidia dam, roadside, alt. c. 150 m, 10.6.1990, Hadjikyriakou 915.

G. Hadjikyriakou
**Cichorium spinosum** L.
  
  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; Moniatis, 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 & Diguet, 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 Catalköy/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.) Sojak]

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

\textit{Distribution.} – In Cyprus, \textit{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).

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figures}
\caption{\textit{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 \( \mu \)m; all from Cyprus, \textit{Buttler 32460} (see Hand 2000: 60).}
\end{figure}
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,
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 fluviī 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 1919 (B).

Ecology. — The small Cypriot area of distribution is nearly identical to the largest occurrence of serpentiniﬁed, 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 Orobanche species. Not much is known about the ecology in Lebanon. According to Thiébaut (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 (Thiébaut 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 triqueta).

Reichardia intermedia (Sch. Bip.) Cout.

+ Division 2: Delikipos – Lefkara, maquis on rocky slope, alt. c. 500 m, 3.3.1999, Hadjikyriakou 4057.
+ Division 3: Parekklisia, 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 – Kavo Pyla, rocky place, alt. c. 5 m, 1.4.2003, Hadjikyriakou 5601.

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.

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 6: Akrotorio 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

Oleaeae
Olea europaea L.
+ Division 4: Kavo 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 Kavo 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 & Diguet, 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 Archaggelos, 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.
Hand: Supplementary notes to the flora of Cyprus IV.

+ 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. cyprius (Boiss.) Bolliger [Syn.: O. cyprius 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.

**Orobanchacea**

**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.

**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

**Labiateae**

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

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


Y. Christofides & G. Hadjikyriakou

**Corydothymus capitatus** (L.) Rchb. 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.
G. Hadjikyriakou & T. Evaggelou

Ballota integrifolia Benth.
Mentioned by Tsintides (1998) for division 6 without cited specimens.
G. Hadjikyriakou

Teucrium creticum L.
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 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...*
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, Hadjiyriakou 5687.
+ Division 6: Peristerona, in the village SW of the church, waste ground, alt. 190 m, 9.10.1998, Buttler 32420 & Diguet, det. Hand.
K. P. Buttler, G. Hadjiyriakou & R. Hand

Chenopodiaceae

Chenopodium striatiforme 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. striatiforme 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 & Diguet.

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, Hadjiyriakou 5783. G. Hadjiyriakou

Halopeplis amplexicaulis (Vahl) Ung.-Sternb.

Arthrocnemum macrostachyum (Moric.) Moris & Delponte
+ Division 8: Vokolida beach, margins of a small lagoon, about sea level, 18.10.2003, Hadjiyriakou 5782. G. Hadjiyriakou

Noaea mucronata (Forssk.) Asch. & Schweinf.
+ Division 8: Agios Theodoros – Vokolida, phrygana vegetation, alt. c. 70 m, 18.10.2003, Hadjiyriakou 5775. G. Hadjiyriakou
**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: Gouri, 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 maritinum** 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 4: Kavo 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.
  G. Hadjikyriakou & C. Makris

**Euphorbia dimorphocaulon** P. H. Davis
**Euphorbia aleppica** L.

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

+ 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).

**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.


**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.


**Urticaceae**

**Urtica membranacea** Poir.


**Parietaria cretica** L.

+ Division 6: Akrotiri lighthouse, rocky place, 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 (Chrtek & 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.

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 Kavo Gkreko, 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.

Juncaceae

Juncus maritimus L.

+ 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.

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: Kavo 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 7: Machazenia below Agios Amvrosios Keryneas, 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.

**Eragrostis cilianensis** (All.) Vignolo

**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

**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 Trikomo, 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.


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