Additions to the flora of Kithira (Greece) II.

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Abstract

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31 records of native, adventive and cultivated taxa of flowering plants new to Kithira and new localities for 36 taxa rare on this island are presented. The family *Tetragoniaceae* and the genera *Cerinthe, Eleocharis, Lepidium, Tetragonia* and *Xanthium* are reported for the first time from the island, the presence of the genus *Mentha* is confirmed and new localities for the rare local endemic *Polygala helenae* are reported. Morphological, chorological, ecological and other data are included for most of the taxa.

Introduction

This paper is the second adding new records to the flora of the island of Kithira, which is situated between Peloponnisos and Kriti in the South Aegean Sea. With the lists of taxa in the two basic inventories (Greuter & Rechinger 1967, Yannitsaros 1969), the additions of the first paper (Yannitsaros 1998) and the addition of some taxa by other researchers (Gölz & al. 1995, Artelari & Georgiou 1998, 1999, 2002, 2003, Tan & Iatrou 2001, Böhling & Scholz 2003) the known vascular plant taxa of the island have been raised to over 800.

The present paper includes 67 taxa of flowering plants, most of which are natives while some are adventives or cultivated. Of these, 31 taxa are new records for the island; the other reports give new localities for 36 taxa that are rare on the island or undercollected, mostly known only from one or two localities.

Material and methods

The data presented here are based on specimens of my own collections and observations during April 1965 to May 1967, August 1993, July 1994 and April 1995. I have also included some interesting specimens collected by Theodoros Kominos between 1994 and 2003, by Dr Antonios Bartsiokas in August 1978, by Dr Garifalia Economou in August 2001, by Irini Vallianatou in September 2001 and by Ioannis Bazos in April 2000. All specimens except those of I. Bazos are in my personal herbarium, which is kept in ATHU. Two specimens, which belong to two differ-

ent taxa, were collected on the offshore islet of Makrikithira, E of Kithira. Today this offshore islet is connected with the main island by an artificial stripe of land.

In the following list the adventive and cultivated taxa are set in square brackets. Taxa that are new to Kithira are marked with an asterisk preceding the name.

The nomenclature follows Strid & Tan (1997, 2002), Greuter & al. (1984, 1986, 1989) and/or Tutin & al. (1968-1980, 1993), unless otherwise specified. The families, genera, species and subspecies are listed in alphabetical order within the major taxonomic groups .

List of taxa

Dicotyledones

Aizoaceae

*[*Carpobrotus edulis* var. *rubescens* Druce] – Agia Pelagia, margins of streets and roads, waste places, 17.4.1995, *Yannitsaros obs.* (cultivated and possibly naturalized). – This is the variety with purple flowers, var. *edulis* has been reported recently by Yannitsaros (1998).

Amaranthaceae

*[*Amaranthus caudatus* L.] – Fratsia, humid place near a house, 28.8.1993, *Yannitsaros 8525;* Paleopolis, olive groves and orchards, 28.8.1993, *Yannitsaros 8537;* Potamos, in gardens, 5.9.2001, *Kominos;* Agia Pelagia, roadsides and waste places, 30.8.1993, *Yannitsaros obs.;* ibid., 15.7.1994, *Yannitsaros 8865;* ibid., weed in a garden, 4.11.2002, *Kominos;* Milopotamos, roadsides, 29.8.1993, *Yannitsaros obs.;* Frilingianika, roadsides, 29.8.1993, *Yannitsaros obs*. – The species is cultivated for ornament in Greece. Obviously it is a garden escape in Kithira, probably fully naturalized. It has been mapped recently for a few scattered localities of Greece (Strid & Tan 1997).

*[*Amaranthus hybridus* L.] – Fratsia, humid place near a house, 28.8.1993, *Yannitsaros 8524*. – Mature fruits are lacking but all other features agree with the description by Raus (in Strid & Tan 1997).

*[*Amaranthus quitensis* Kunth] – Paleopolis, margins of vegetable cultivations, 5.8.2001, *Economou;* Karavas, humid shady places, 9.8.2001, *Economou;* Potamos, roadsides, 14.9.2001, *Vallianatou.* – In contrast to the description by Raus (in Strid & Tan 1997) the inflorescences have ascending to erect lower lateral branches. *A. quitensis* is a native of tropical and temperate South America reported recently from a few localities in Greece. The above records are the first for the wider region of the Peloponnisos as considered by Strid & Tan (1997).

[*Amaranthus retroflexus* L.] – Karavas, humid shady places, 9.8.2001, *Economou;* Milopotamos, in a garden, 12.9.2001, *Vallianatou.* – This species of North American origin is naturalized on Kithira but has been known from only one other locality (Yannitsaros 1998).

Boraginaceae

**Cerinthe major* L. subsp. *major* – Viaradika, in the abandoned garden of an old house, 3.5.2002, *Kominos.* – This is the first record of the genus *Cerinthe* from Kithira.

Heliotropium dolosum De Not. – Paleopolis, weed in tree cultivations, 28.8.1993, *Yannitsaros 8527;* ibid., margins of vegetable gardens, 5.8.2001, *Economou;* Agia Pelagia, waste places, 14.7.1994, *Yannitsaros 8834*. – The last mentioned specimen has nutlets that are tuberculate to tuberculately rugose on both sides; the ventral side is smooth and shiny and the dorsal has a very thin glandular indumentum. The species is known only from two other localities on Kithira (Greuter & Rechinger 1967, Yannitsaros 1969).

Campanulaceae

Campanula versicolor Andrews – Hill Paleokastro ESE of Viaradika, in crevices of vertical limestone rocks named Fridia tou Tsakonou, 2.12.1966, *Yannitsaros* (non-flowering, speci-

men lost). – This species was observed recently in one other locality on Kithira (Strid & Tan 1996), where it has its southernmost known occurrence.

Caryophyllaceae

**Petrorhagia graminea* (Sm.) P. W. Ball & Heywood – Between Frilingianika and the airport, in the locality called Ammoutses, sandy places with phrygana vegetation, 8.1978, *Bartsiokas;* ibid., 26.7.1994, *Kominos;* ibid., 31.7.1994, *Kominos;* ibid., 13.8.1994, *Kominos;* ibid., 2.11.2002, *Kominos.* – This endemic of Greece closely related to *P. saxifraga* (L.) Link, is known from a few scattered localities of Peloponnisos, Epiros and Kefallinia (see Strid & Tan 1997, Tan & Iatrou 2001). The flowering period lasts from September to January but in Kithira flowering individuals may occur earlier. The species is probably more widespread in Kithira and Greece but undercollected due to its late flowering. Its occurrence on Kithira is the southernmost known and the only one known in the Aegean area.

Chenopodiaceae

**[*Chenopodium ambrosioides* L.] – Agia Pelagia, in a place of discharge of fodder near the harbour, 4.11.2002, *Kominos*. – The specimen has dense inflorescences and relatively small leaves with a blade up to 4 cm long. The species is naturalized in Greece, originating from tropical America, and obviously a very recent introduction to Kithira.

Cistaceae

Helianthemum syriacum (Jacq.) Dum.-Courset subsp. *syriacum* – Between Frilingianica and the airport, in the place called Ammoutses, sandy places with phrygana vegetation, 14.7.1994, *Yannitsaros obs.* and *photo;* ibid., 15.7.1994, *Yannitsaros 8864a* (non-flowering); 2.5 km NW of Paleopolis, by the road to Frilingianika, 90 m, phrygana vegetation, 26.4.2000, *Bazos 4001*. – This short-lived suffrutex, which may at least occasionally be monocarpic, is known only from one other locality on Kithira (Greuter & Rechinger 1967, as *H. fasciculi* Greuter).

Compositae

Aetheorhiza bulbosa subsp. *microcephala* Rech. f. – Near Yerakari, abundant in shady places under shrubs, 21.4.1995, *Yannitsaros obs.;* E of Stathianika, wet places near a shallow well, 20.4.1995, *Yannitsaros obs*. – *A. bulbosa* s.l. has been reported from Kithira by Greuter & Rechinger (1967) and Yannitsaros [1969, as *Crepis bulbosa* (L.) Tausch] and subsp. *microcephala* from only one locality of the island by Rechinger (1974). This subspecies seems to be more common in the Aegean than subsp. *bulbosa*. All specimens cited in Yannitsaros (1969) belong to subsp. *microcephala.*

**Anthemis arvensis* L. – Near the monastery of Mirtidia (Moni Mirtidion), stony calcareous ground, 120 m, 27.4.1965, *Yannitsaros 100;* Agia Pelagia, pebbly ground, 29.4.1965, *Yannitsaros 333;* approximately 0.5 km ENE of the village Lourantianica, fallow field, 14.4.1967, *Yannitsaros 1546;* E of Stathianica, fallow fields, 330 m, 17.4.1967, *Yannitsaros 1851;* E of Potamos, stony places, 11.5.1967, *Yannitsaros 2033;* N side of Karavas, 12.5.1967, *Yannitsaros 2091;* near the monastery of Agia Moni, stony calcareous ground, 340 m, 13.5.1967, *Yannitsaros 2242;* S of the village Fratsia, fallow fields, 340 m, 13.5.1967, *Yannitsaros 2347;* S of Trifillianika, stony fallow fields, 300 m, 14.5.1967, *Yannitsaros 2379;* Yerakari, fallow fields, 380 m, 14.5.1967, *Yannitsaros 2498;* between Agia Pelagia and Karavas, roadsides, 18.4.1995, *Yannitsaros 8909;* between Potamos and Karavas near the crossroad to Yerakari, footpaths, rural roads and burnt areas with degraded macchie, 18.4.1995, *Yannitsaros 8937*, *8940;* near the airport in the locality called Ammoutses, footpaths and rural roads, sandy places with phrygana vegetation, 19.4.1995, *Yannitsaros 8979;* Avlemon, dirty gravelly places in the castle, 19.4.1995, *Yannitsaros 8989;* N of Yerakari, in the place called Pirgia, 260 m, 21.4.2000, *Bazos 3932;* in the place called Stenokampoi north of Karavas, stony ground with phrygana vegetation (*Erica manipuliflora* Salisb.), 100 m, 20.4.2000, *Bazos 3910*. – Most specimens lack mature fruits and identification of the subspecies is uncertain; those with mature fruits belong to subsp. *arvensis*.

Carduncellus caeruleus (L.) C. Presl – ENE of Karvounades, 20.4.1995, *Yannitsaros obs*. – The species has been reported from two other localities of Kithira (Greuter & Rechinger 1967, Yannitsaros 1969, as *Carthamus caeruleus* f. *incisus* (DC.) Hay.).

**Carthamus dentatus* subsp. *ruber* (Link) Hanelt – Near Paleopolis, in the locality called Kastri, olive groves, 15.7.1994, *Yannitsaros 8854*.

**Crepis fraasii* Sch. Bip. subsp. *fraasii* – Karavas, in the locality called Amirali, moist places in a stream with *Platanus orientalis* L., 21.4.2000, *Bazos 3928*. – With a height of 56 cm and leaves of 30 × 6.2 cm the specimen is higher and has larger leaves than given by Lamond (1975) and Sell (in Tutin & al. 1976).

Onopordon laconicum Heldr. & Sart. ex Rouy – Between Frilingianika and Paleopolis, sandy places, 28.8.1993, *Yannitsaros obs*. – An endemic of S Peloponnisos and Kithira known from only a few other localities of the island (Greuter & Rechinger 1967, Yannitsaros 1969).

Pulicaria odora (L.) Rchb. – Yerakari, open places in burnt macchie, 21.4.1995, *Yannitsaros obs.* – The species has been reported previously from Kithira (Greuter & Rechinger 1967, Yannitsaros 1969). In spite of many old records from mainland Greece and the adjacent islands (Halácsy 1902, Rechinger 1943), the occurrence of the species in this area was omitted in Flora Europaea (Ratcliffe in Tutin & al. 1976).

*[*Xanthium strumarium* L. s.l.] – Paleopolis, margins of vegetable gardens, 5.8.2001, *Economou.* – The specimen has very young fruits and the identification of the subspecies is uncertain. The young fruits have hooked spines and the stem is tinged with violet lines and dots, which is a characteristic of subsp. *italicum* (Moretti) D. Löve. This taxon is probably an early introduction to European countries from the Americas (Löve in Tutin & al. 1976). In Kithira it seems to be a recent introduction and this is the first record of the genus *Xanthium* for the island.

Convolvulaceae

Cuscuta epithymum (L.) L. – Agia Pelagia, on *Coridothymus capitatus* (L.) Rchb. fil., 22.4.1995, *Yannitsaros obs.* – There is only one other record of this species from Kithira (Yannitsaros 1969).

Crassulaceae

Umbilicus rupestris (Salisb.) Dandy – Karavas, on walls, 18.4.1995, *Yannitsaros 8933*. – This very variable and somewhat calcifuge species (Webb in Tutin & al. 1993) is known from only one other locality on Kithira (Yannitsaros 1969). The specimens have smaller stems (10-17 cm), smaller flowers (5-7 mm) and pedicels (1.5-5 mm) than given by Webb (in Tutin & al. 1993); the corolla tube is about 3 times as long as the lobes.

Cruciferae

Alyssum minus (L.) Rothm. – Near the monastery of Agios Georgios, 22.4.2000, *Bazos 3946*. – The species has been reported from one other locality on Kithira (Greuter & Rechinger 1967). The specimen has fruits with one seed in each loculus.

Arabidopsis thaliana (L.) Heynh. – Karavas, in the locality called Amirali, moist and damp places near a stream, 18.4.1995, *Yannitsaros 8913a*. – The species is known from only one other locality on Kithira (Yannitsaros 1998).

**Capsella bursa-pastoris* (L.) Medik. – Near the south side of Kithira (Chora), roadsides, 120 m, 12.4.1967, *Yannitsaros 1340;* Katouni, 13.4.1967, *Yannitsaros obs.;* Potamos, street margins, 11.5.1967, *Yannitsaros obs.;* Karavas, street margins, 18.4.1995, *Yannitsaros obs.;* Stathianika, street margins and paths, 20.4.1995, *Yannitsaros 9011*. – The specimen *Yannitsaros 1340* was identified by Yannitsaros (1969) as *C. rubella* Reut., which was also reported from Kithira by Greuter & Rechinger (1967). The specimen has some characteristics of *C. rubella,* i.e. the smooth sepals and the 1.5-2 mm long petals, but the petals are entirely white and exceed the sepals. The specimen *9011* has somewhat larger, also entirely white petals exceeding the smooth sepals. Meikle (1977) and Chater (in Tutin & al. 1993) do not

include Greece in the distribution area of *C. rubella* and report the species only from the W and central Mediterranean. Greuter & al. (1986) also exclude Greece from its distribution and mark it as doubtful for many other Mediterranean countries.

Clypeola jonthlaspi L. subsp. *jonthlaspi* – Yerakari, open places in burnt macchie, 21.4.1995, *Yannitsaros obs.* – According to Runemark (in Strid & Tan 2002) *C. jonthlaspi* is divided into subsp. *jonthlaspi* and subsp. *microcarpa* (Moris) Arcang. All specimens cited by Yannitsaros (1969) belong to subsp. *jonthlaspi*.

Erysimum corinthium (Boiss.) Wettst. – Kaki Langada, in the locality called Limni, in crevices of limestone rocks near the sea and under *Pistacia lentiscus* L. shrubs, 2.1.2003, *Kominos* (flowering). – This endemic of Peloponnisos, Attiki and Kithira grows mainly in rock crevices of limestone cliffs near the sea. The locality reported here and two other localities already known from Kithira (Greuter & Rechinger 1967, Snogerup 1967) are its southernmost occurrences. Polatschek & Snogerup (in Strid & Tan 2002) and Tan & Iatrou (2001) give as flowering time of the species March and April, and mid-March to May respectively. The above-cited flowering specimen, however, has been collected on 2 January and I have documented individuals in full flower as early as on 9 December during botanical excursions in Korinthia and Argolis in E Peloponnisos (between Korfos and Nea Epidavros, crevices of vertical cuts on limestone rocks and gravelly places in a roadside under these, 9.12.1989, *Yannitsaros 8082* and *photos;* Nafplion, the hill of Palamidi, 26.2.1990, *Yannitsaros obs.*).

**Lepidium graminifolium* L. – Potamos, in streets, 28.8.1993, *Yannitsaros obs.*

Raphanus raphanistrum L. subsp. *raphanistrum* – Agia Pelagia, ruderal places, 17.4.1995, *Yannitsaros obs.;* E of Stathianika, field margins and footpaths, 20.4.1995, *Yannitsaros 9012;* between Livadi and Katouni, fallow fields, 260 m, 13.4.1967, *Yannitsaros 1509;* S and near the village Trifillianica, stony fallow fields, 300 m, 14.5.1967, *Yannitsaros 2371*. – The last two specimens cited were reported (Yannitsaros 1969) under the name *R. raphanistrum* f. *flavus* Schübl. & Mart. They have rather well developed fruits and their identification as subsp. *raphanistrum* is without any doubt. The flowers are yellow or yellowish. The fruits in the specimen *9012* have a diameter to 5 mm. The taxon has been recently mapped without exact locality for Kithira (Strid & Tan 2002).

Fagaceae

Quercus ithaburensis subsp. *macrolepis* (Kotschy) Hedge & Yalt. – Between Karavas and Potamos, some clumps by the road, 18.4.1995, *Yannitsaros obs*. – This taxon has already been reported from three other localities in the northern part of Kithira where it forms small groves or occurs with solitary individuals (Yannitsaros 1969, as *Q. macrolepis* Kotschy). Its occurrence on Kithira was, however, omitted by Strid & Tan (1997).

**Quercus pubescens* Willd. – Approximately 1-1.5 km NNE of Potamos near the country chapel of Agios Konstantinos, in a locality called Koufarika, ± 50 trees up to 10-15 m high and many small ones mixed with *Acer* sp., *Pistacia lentiscus* L. and other sclerophyllous shrubs in the vicinity of cultivations of cereals and vineyards, 12.1996, *Kominos.* – *Q. pubescens* is common in Greece. The population of Kithira fills the gap between those of Peloponnisos and Kriti.

Labiatae

**Mentha aquatica* L. – Near Milopotamos, in the locality called Fonissa, near running water, 14.9.2001, *Vallianatou.*

**Mentha* ×*piperita* L. – Karavas, shady humid places near running water, 12.5.1967, *Yannitsaros 2093* (non-flowering); Karavas, in the place called Amirali, shady, humid places in a stream, 28.8.1993, *Yannitsaros 8562;* ibid., 18.4.1995, *Yannitsaros 8922* (non-flowering).

**Mentha pulegium* L. – Potamos, in the place called Livades, wet places, 28.8.2000, *Kominos;* Potamos, 8.8.2001, *Economou.* – Kominos's specimen seems to be close to subsp. *erinoides* (Heldr.) Kokkini but the leaves are much smaller, 3-5 × 3-4 mm instead of 8-18 × 4-8 mm given for this taxon by Kokkini-Gouzkouni (1983). Greuter & al. (1986) consider it as doubtful.

*[*Mentha spicata* L. subsp. *spicata*] – Fratsia, near a house, 28.8.1993, *Yannitsaros 8526* (cultivated).

Leguminosae

Astragalus pelecinus (L.) Barneby – Between Karavas and Potamos, footpaths and dirt roads, 18.4.1995, *Yannitsaros 8952;* Avlemon, 19.4.1995, *Yannitsaros obs.* – The specimen has flowers with a pale yellow corolla and 2-6 mm long leaflets. *A. pelecinus* is known from only two other localities of Kithira (Yannitsaros 1969, as *Biserrula pelecinus* L.).

*[*Lathyrus odoratus* L.] – Livadi, margins of roads and fields near the road, 20.4.1995, *Yannitsaros obs.* – *L. odoratus* is an endemic of Italy (including Sicily) with many cultivars for ornament and occurs as an adventive garden escape in several Mediterranean countries (Greuter & al. 1989). It was erroneously recorded as native for the E Aegean Islands (Greuter & al. 1989). It has been reported as an escape from cultivation for the island of Rodos (Carlström 1987) but it seems that there are no records from other parts of Greece. Obviously an escape from cultivation in Kithira and possibly only a casual.

*[*Lupinus luteus* L.] – NW of Potamos, near the cemetery, abandoned fields, 25.2.1997, *Kominos.* – The inflorescence is up to 25 cm long, which exceeds the 5-16 cm given by Franco & da Silva (in Tutin & al. 1968) but agrees with Gladstones (1974) who gives 5-25 cm. The status of *L. luteus* in its known distribution area is somewhat confused (see Franco & da Silva in Tutin & al. 1968, Gladstones 1974, Greuter & al. 1989). In Greece it was first reported by Yannitsaros (1982), but without an exact locality. This record was based on a specimen collected in Peloponnisos (Nomos Lakonias, Eparchia Epidavrou Limiras, between the villages Agios Georgios and Agioi Apostoloi, in fallow fields, 22.3.1971, *Yannitsaros 3527*) and an observation in a nearby locality (Nomos Lakonias, Eparchia Epidavrou Limiras, near the village Dermatianika, in olive groves and roadsides, 22.3.1971, *Yannitsaros obs.*), where it was an escape or probably a remnant of former cultivation. The species has been recorded also from Messinia, near Kalamata (Akeroyd 1986), from Lakonia above Neapolis (Strasser 1986) and from the neighbouring island of Elafonisos (Jagel 1992). Tan & Sorger (1986) reported it from the island of Ikaria as native, which seems rather unlikely. The above-cited occurrence on Kithira is possibly a remnant of previous cultivation.

Linaceae

Linum pubescens subsp. *sibthorpianum* (Margot & Reut.) P. H. Davis – NE of Potamos by the road to Agia Pelagia, in degraded macchie, 19-20.4.1995, *Yannitsaros obs.* – *L. pubescens* s.l. has been reported from a few localities of Kithira (Greuter & Rechinger 1967, Yannitsaros 1969). All specimens cited in Yannitsaros (1969) belong to subsp. *sibthorpianum*.

Moraceae

[*Morus nigra* L.] – Karavas, in the place called Amirali, humid shady places, 28.8.1993, *Yannitsaros 8564* (subspontaneous, two small non-flowering individuals). – *M. nigra* has been recorded previously from Kithira only as a cultivated plant (Greuter & Rechinger 1967). In Karavas it is obviously an adventive escape from cultivation.

Plumbaginaceae

**Limonium graecum* (Poir.) Rech. fil. × *Limonium virgatum* (Willd.) Fourr. – Islet of Makrikithira opposite Diakofti, in maritime sands, 15.7.1994, *Yannitsaros 8862.*

Limonium runemarkii Rech. fil. – NE side of the island, Platia Ammos, rocky places on the beach, 20.4.2000, *Bazos 3895;* NW side of the island, in the locality called Routsounas, rocky beach, 21.4.2000, *Bazos 3933*. – For the presence of this species on Kithira see Artelari & Georgiou (2002, 2003).

Polygalaceae

Polygala helenae Greuter – SE of Kalamos, in the place called Vrulea, stony ground with phrygana vegetation, 80 m, 27.4.1965, *Yannitsaros 57;* between the monasteries of Agios

Kosmas and Mirtidia (Moni Mirtidion), stony places with phrygana vegetation, 150 m, 31.10.1966, *Yannitsaros 1032* (non-flowering). – This species is an endemic of Kithira related to *P. venulosa* Sm. and *P. supina* Schreb. known until now from only one locality close to the village of Kalamos (Greuter & Rechinger 1967, Phitos & Iatrou 1995). In the two new localities the plant is rare, growing in phrygana dominated by *Sarcopoterium spinosum* (L.) Spach, *Genista acanthoclada* DC., *Coridothymus capitatus* (L.) Rchb. fil., *Calicotome villosa* (Poir.) Link and low shrubs of *Pistacia lentiscus* L. The species grows between or under these shrubs and is easily overlooked. An undocumented recent record from the island of Gavdos (Sfikas 1997) is obviously erroneous.

Primulaceae

Anagallis arvensis L. – Yerakari, common in abandoned fields and open places in burnt macchie, 21.4.1995, *Yannitsaros 9045*. – The specimen belongs to the rare pink flowered form, whereas plants with blue flowers [*A. arvensis* var. *caerulea* (L.) Gouan] were dominant in the observed population; plants with red-orange flowers (*A. arvensis* L. var. *arvensis*) also occurred.

Ranunculaceae

Delphinium hellenicum Pawł. – Between Frilingianika and the airport, near the crossing of the road to Paleopolis, sandy soil with phrygana vegetation, 14.7.1994, *Yannitsaros 8848;* place Kastri near Paleopolis, in olive grove, 15.7.1994, *Yannitsaros 8852;* between Platia Ammos and the Cape Spathi, 20.4.2000, *Bazos 3900* (non-flowering); between Agia Pelagia and the gorge of Kaki Langada, in the locality called Kalamitsi, margins of a rural road, 15.5.2002, *Kominos;* near Milopotamos, margins of the road to the church of Panagia Orfani, 4.5.2002, *Kominos obs*. – This Greek endemic, which has its southernmost localities on Kithira, was reported from there by Halácsy (1901, as *D. peregrinum* L. γ *peloponnesiacum* Halácsy) based on a specimen collected on 15.6.1880 by G. C. Spreitzenhofer in the low mountain Agios Georgios. This last specimen has white flowers according to Greuter & Rechinger (1967). Greuter (in Greuter & Rechinger 1967) also observed *D. hellenicum* in Cape Kapelo but he suggests that the determination is uncertain because the plant was in an early non-flowering stage. My specimens have flowers and fruits and confirm the presence of *D. hellenicum* in Kithira. The specimen collected by T. Kominos at Kalamitsi differs from the description by Pawłowski (1963, in Tutin & al. 1993) by flowers of a dark blue colour. I assume that this is within the range of variation of the species and perhaps related to seasonal and ecological factors. A specimen collected on the offshore islet of Megali Dragonera, east of Kithira (23.4.2000, *Bazos 3975*) is also deep blue flowered, but has, in addition, a much shorter spur than the typical species and needs further study.

Ranunculus asiaticus var. *puniceus* Dörfl. – Manitohori, in abandoned fields, 180 m, 15.4.1967, *Yannitsaros 1629;* 0.5 km E of Stathianika, margins of cultivated fields, 330 m, 17.4.1967, *Yannitsaros 1856*. – *R. asiaticus* s.l. has already been reported from these two localities by Yannitsaros (1969). The plants are red-flowered and referable to var. *puniceus* Dörfl. During the last years this variety has been found also in some other localities of Greece, extending its distribution to the Ionian islands of Kefallinia (Phitos & Damboldt 1985) and Strofades (Yannitsaros & al. 1995) in the West.

**Ranunculus isthmicus* Boiss. subsp. *isthmicus* – In the locality called Ammutses near the airport, footpaths and dirt roads in sandy places with sparse phrygana vegetation, 19.4.1995, *Yannitsaros 8981* (fruiting). – *R. isthmicus* is a polymorphic species with very characteristic fruits. The plants of the specimen are small, to 8 cm high, more or less appressed-pubescent and have fusiform tubers to 10 mm long. The fruits are tubercled and have the characteristic appendage at the base and a wide, falcate beak as long as the achene body. The species is rare in Greece, known only from a few scattered localities in the eastern part of the mainland and in the N and E Aegean islands (see map in Strid & Tan 2002). Perhaps it is overlooked

and undercollected because of its early flowering and small size. It is also reported from the island of Elafonisos, N of Kithira (Jagel 1992).

Rosaceae

**Sanguisorba minor* subsp. *magnolii* (Spach) Briq. – Near Karavas, in fields, 150 m, 12.5.1967, *Yannitsaros 2079*. – This specimen with well developed fruits was recorded by Yannitsaros (1969) as *S. muricata* (Spach) Focke due to misidentification. The taxon has been reported from the neighbouring island of Antikithira (Greuter & Rechinger 1967, as *S. minor* Scop. subsp. *verrucosa* (Decne) Holmboe). From Kithira until now only *S. minor* subsp. *muricata* (Gremli) Briq. has been known (Greuter & Rechinger 1967, Yannitsaros 1969, as *S. muricata* (Spach) Focke p.p.).

Salicaceae

Salix alba L. – Karavas, in the place called Amirali, shady banks of a stream, 28.8.1993, *Yannitsaros 8558* (non-flowering); ibid., 18.4.1995, *Yannitsaros obs.* (non-flowering). – *S. alba* is recorded from only two other localities of Kithira (Greuter & Rechinger 1967, Yannitsaros 1969).

*[*Salix babylonica* L.] – Karavas, in the place called Amirali, cultivated in a garden by a stream, 28.8.1993 and 18.4.1995, *Yannitsaros obs.* (non-flowering).

Scrophulariaceae

Kickxia elatine subsp. *crinita* (Mabille) Greuter – Agia Pelagia, 6.8.1995, *Kominos.* – The taxon is known only from one other locality on Kithira (Greuter & Rechinger 1967). Yannitsaros (1969) reports also *K. elatine* s.l. from a third locality, E of Stathianika, but the determination of the subspecies is not possible because the specimen (*Yannitsaros 1868*) is not flowering.

Kickxia spuria subsp. *integrifolia* (Brot.) R. Fern. – N of Milopotamos, in the locality called Fonissa, weed in gardens and fields, 270 m, 1.11.1966, *Yannitsaros 1058*. – The record of *K. spuria* s.l. by Yannitsaros (1969) based on *Yannitsaros 1058* refers to subsp. *integrifolia*.

Parentucellia viscosa (L.) Caruel – Kastri near Paleopolis, fallow field, 15.7.1994, *Yannitsaros 8852a* (dry plant with fruits); near the torrent Skafidi, between Paleopolis and Avlemon, 19.4.1995, *Yannitsaros 9002a*. – *P. viscosa* is rare in Kithira and until now has been known only from the second locality were a small population grows in damp grassy places (Yannitsaros 1969).

****Tetragoniaceae***

*[*Tetragonia tetragonoides* (Pallas) Kuntze] – Agia Pelagia, margin of a dirt road, 13.7.1994, *Yannitsaros 8828*; Platia Ammos, sandy place in the beach, 14.7.1994, *Yannitsaros obs.* – *Tetragonia* is a genus included by some authors in the family *Aizoaceae*. *T. tetragonoides* is a native of Australia and New Zealand cultivated in some countries as a vegetable and occurring often subspontaneously. It has been reported recently as a new adventive of the Greek flora from the island of Elafonisos, N of Kithira (Jagel 1992). Tan (in Strid & Tan 1997) reports it as more or less naturalized on this island. Very few plants were observed on Kithira and their habitats are influenced by man, which indicates that at present *T. tetragonoides* is only a casual adventive on Kithira, perhaps in the stage of naturalization.

Umbelliferae

**Tordylium* cf. *officinale* L. – Near the torrent Skafidi between Avlemon and Paleopolis, maritime pebbly places, 13.5.1967, *Yannitsaros 2293;* Avlemon, stony and rocky places near the sea, 19.4.1995, *Yannitsaros 8985*. – *T. officinale* occurs in the neighbouring Peloponnisos but has not been reported until now from Kithira. The individuals collected on Kithira are, except one, lower (12-17 cm) than given by Tutin (in Tutin & al. 1968), Runemark (1968) and Al-Eisawi & Jury (1988). In the plants of *Yannitsaros 2293* the shoots are arcuate, not

typically erect. The segments of the lower leaves are not always deeply cordate but often weakly cordate or with obtuse bases. The inflorescences are also much smaller, some of them having a diameter of only 1 cm. The bracts are usually shorter than the rays. *Yannitsaros 2293* consists of three individuals with well-developed fruits (perhaps not in all cases mature), which are mostly smaller (1.5-2.5 mm) than described; the same applies to the outer petals (5-6 × 3.5-4 mm). The mericarps have strongly thickened, corrugated margins with thick, mostly clavate-vesicular hairs. They much resemble the figure cited by Al-Eisawi & Jury (1988) for *Tordylium* sp. Dudley, which they described as *T. ebracteatum* Al-Eisawi & Jury, but it seems that otherwise the plants of Kithira do not have any relation to that taxon. Perhaps most of these differences of my specimen *2293* from typical *T. officinale* are due to the maritime pebbly habitat and it represents only an ecotype adapted to this. Thus at present I prefer to keep the specimen under *T. officinale*. The presence of this species in Kithira is not a surprise. According to Runemark (1968) it is absent possibly from almost the whole Aegean area except W Kriti. Thus the populations of Kithira fill, to some extent, the gap between the populations of W Kriti and Peloponnisos. *T. officinale* is a rather variable taxon and this variability has also been observed by Koumpli-Sovantzi (1983) in specimens collected near Lake Amvrakia in W Sterea Hellas. Al-Eisawi & Jury (1988) note that the petals of *T. officinale* are yellow (rarely reddish), but according to Runemark (1968) they are pure white during anthesis and only on drying usually turn ± yellowish. The colour of petals observed in living plants on Kithira was pure white and it also remained so on drying.

Monocotyledones

Cyperaceae

**Carex otrubae* Podp. – Near the village Karavas (north side), wet places by a stream, 100 m, 12.5.1967, *Yannitsaros 2129*; ibid., 21.4.2000, *Bazos 3921*. – *Yannitsaros 2129* was reported by Yannitsaros (1969) as *C. vulpina* L. due to misidentification. The two species are very close and have many similarities. Thus very often they are confused and their real distribution is not clear (see Chater in Tutin & al. 1980, Nilsson 1985). My specimen has some clear diagnostic characters that correspond to *C. otrubae*, such as the smooth, shiny utricles (dull and papillose in *C. vulpina*), but all bracts are thin, setaceous, and have auricles, whereas in *C. otrubae* the lower bract is reported to be sometimes leaf-like without auricles. *C. vulpina* is not present on Kithira.

**Eleocharis palustris* (L.) Roem. & Schult. subsp. *palustris* – Approximately 0.5 km ENE of Karvounades, wet places, 20.4.1995, *Yannitsaros 9018.* – This is the first record of the genus *Eleocharis* from Kithira.

Gramineae

Anthoxanthum odoratum L. – Between Karavas and Potamos, grassy places, 18.4.1995, *Yannitsaros obs.;* Yerakari, footpaths and margins of dirt roads, 21.4.1995, *Yannitsaros 9037a*. – There is only one other known locality of this species on Kithira (Yannitsaros 1969).

Avena sterilis subsp. *ludoviciana* (Durieu) Nyman – Agia Pelagia, 21.4.1995, *Yannitsaros obs.* S of Kithira (Chora), roadsides, 130 m, 11.4.1967, *Yannitsaros 1262;* W of Potamos, sides of a dirt road, 340 m, 11.5.1967, *Yannitsaros 1919*. – *A. sterilis* s.l. has been reported from a few localities on Kithira (Greuter & Rechinger 1967, Yannitsaros 1969), two of which are the second and third localities reported here.

Echinochloa crus-galli (L.) Beauv. – Paleopolis, margins of vegetable gardens, 5.8.2001, *Economou.* – This hydrophilous weed was recently reported from one other locality of Kithira where it was very rare (Yannitsaros 1998). The specimen has an inflorescence without secondary branchlets; spikelets 2.5-5 mm long.

**Vulpia fasciculata* (Forssk.) Fritsch – Paleopolis, sandy shore, 23.4.2000, *Bazos 3977*. – The nomenclature is according to Stace (1985).

Iridaceae

Crocus cf. *hadriaticus* Herbert – In a place called Ammoutses near the airport, on sandy soil with phrygana vegetation, 27.10.1996, *Kominos.* – *C. hadriaticus* is a variable endemic species of W and S Greece not included in the two basic inventories of the flora of Kithira (Greuter & Rechinger 1967, Yannitsaros 1969). It was reported by Mathew (1982) for the island but without exact locality. Tan & Iatrou (2001) do not give it for Kithira in their distribution map. The specimens collected by Kominos have some characteristics much deviating from Mathew's description: the plants are extremely robust with very large corms having a diameter of 1.5-4 cm (c. 1-1.5 cm according to Mathew's description), up to 16 leaves (instead of 5-9 leaves), with a length to about 30 cm. The habitat on Kithira is also different to the habitats reported by Mathew (1982) and Tan & Iatrou (2001). The population of this *Crocus* in Ammoutses needs further study.

**Romulea linaresii* subsp. *graeca* Béguinot – NNE of Potamos near the country chapel of Agios Konstantinos, in a locality called Livada, phrygana vegetation and fallow fields, 5.2.1997, *Kominos.*

Liliaceae

Allium chamaespathum Boiss. – Livadi, roadsides, 4.10.2002, *Kominos;* near Potamos, road to Agia Pelagia, roadsides, 5.10.2002, *Kominos.* – An early autumn flowering species reported from a few other localities of Kithira (Yannitsaros 1969). Possibly more widespread and undercollected.

Allium guttatum subsp. *sardoum* (Moris) Stearn – Near the airport, in the place called Ammoutses, sandy soil with phrygana vegetation, 15.7.1994, *Yannitsaros 8864*. – *A. guttatum* s.l. has been reported from Kithira (Tzanoudakis & Vosa 1988) but without exact locality.

**Allium staticiforme* Sm. – Islet of Makrikithira opposite Diakofti, in maritime sands, 15.7. 1994, *Yannitsaros 8863*. – This locality is at the southwestern limit of the distribution range of the species (see map in Tzanoudakis & al. 1991).

Bellevalia hyacinthoides (Bertol.) K. Persson & Wendelbo [= *Strangweia spicata* (Sibth. & Sm.) Boiss.] – Paleopolis, in a fallow field, 1.1.2003, *Kominos* (flowering). – This species is an endemic of Greece recently reported from Kithira but without exact locality (Tan & Iatrou 2001). The species is perhaps more widespread on Kithira and overlooked due to its early flowering. For a distribution map and nomenclature see Tan & Iatrou (2001).

Gagea cf. *fibrosa* (Desf.) Schult. & Schult. f. – About 1.5 km SW of Paliochora, on a rural road, 28.2.1997, *Kominos;* between Stathianica and Dokana, stony and pebbly places, 20.4.1995, *Yannitsaros obs*. – *G. fibrosa* is an interesting taxon quite recently reported from one other locality of Kithira (Yannitsaros 1998). According to Richardson (in Tutin & al. 1980) it is perhaps conspecific with *G. reticulata* (Pallas) Schult. & Schult. f., because there are intermediates and a part of variation may be due to ecological factors. Meikle (1985) expressed the same view regarding populations on Cyprus. The two individuals of Kominos's specimen have the features of *G. fibrosa* as described by Richardson (in Tutin & al. 1980), except that in one of them the collar of the bulb is much longer (about 2.5 cm, instead of up to 0.8 cm in *G. fibrosa*) and as long as in *G. reticulata,* which has a collar of 1-3 cm.

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