

New floristic records in the Balkans: 24*

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Abstract: New chorological data are presented for 155 species and subspecies from Bulgaria (42-55, 104-130, 137-141) and Greece (1-41, 56-103, 131-136, 142-155). The taxa belong to the following families: *Adoxaceae* (2), *Alliaceae* (16, 73, 74), *Amaryllidaceae* (153), *Apiaceae* (42, 56, 57, 122), *Araceae* (75), *Asteraceae* (3-6, 26, 27, 43-45, 58-62, 84, 107, 108, 113-115, 132, 133, 137, 138, 142, 149), *Berberidaceae* (28, 150, 151), *Boraginaceae* (29), *Brassicaceae* (30, 31, 85), *Caprifoliaceae* (7), *Caryophyllaceae* (8, 46, 116, 134), *Cistaceae* (9, 47), *Colchicaceae* (76), *Crassulaceae* (48), *Cuscutaceae* (49), *Cyperaceae* (128), *Cystopteridaceae* (1, 83), *Dipsacaceae* (10, 50, 63), *Euphorbiaceae* (51, 64, 86), *Fabaceae* (32, 52, 87-89, 109, 117, 123), *Fumariaceae* (65), *Gentianaceae* (11, 135), *Geraniaceae* (110, 118, 139), *Hyacinthaceae* (36, 37, 77, 78, 154, 155), *Iridaceae* (17, 18, 38-40, 79-81, 131, 147), *Isoetaceae* (25), *Lamiaceae* (53, 66, 90, 91, 140, 152), *Liliaceae* s.l. (41, 99-101, 121, 129), *Malvaceae* (12), *Morinaceae* (13), *Orchidaceae* (19-21, 82, 102, 104-106, 111, 141, 148), *Poaceae* (22-24, 55, 103, 112, 130), *Polygalaceae* (92), *Resedaceae* (33), *Rosaceae* (14, 119, 124, 125), *Rubiaceae* (93, 94), *Santalaceae* (67, 95, 96), *Saxifragaceae* (68), *Scrophulariaceae* (54, 69-71, 97, 98, 126, 143, 144), *Solanaceae* (34, 145), *Thymelaeaceae* (120, 127), *Urticaceae* (35), *Valerianaceae* (15), *Verbenaceae* (72), and *Violaceae* (136, 146).

New for science: *Cirsium zarkosii* Kit Tan & al. (142) and *Crocus flavus* subsp. *atticus* Kit Tan & al. (131), both from Greece.

The publication includes contributions by: P. Authier (1-24), B. Biel & Kit Tan (25-41), D. Dimitrov & V. Vutov (42-55), K. Giannopoulos, Kit Tan & G. Vold (56-82), K. Polymenakos & Kit Tan (83-103), A. Popatanasov (104-106), S. Stoyanov & V. Goranova (107-112), S. Stoyanov & I. Kolev (113-121), S. Stoyanov & L. Topalova-Rzerzycha (122-130), Kit Tan, A. Zografidis & D. Mermygkas (131), I. Tsialtas, Kit Tan & G. Vold (132-136), V. Vladimirov (137-141), G. Zarkos, V. Christodoulou, Kit Tan & G. Vold (142-148), A. Zografidis & Kit Tan (149-155).

This is the ongoing report in a series dealing with the new chorological data on vascular plants in the Balkans. For details on the presentation of information see *Phytologia Balcanica*, vol. 12(1), pp. 107-108 and vol. 12(2), p. 279.

*Reports for Bulgaria have been reviewed by V. Vladimirov and for Greece by Kit Tan.

Reports 1–24

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A preliminary account of the flora of the National Park of Vikos-Aoos and its immediate surroundings (Mts Timfi and Astraka, Vikos gorge, Aoos valley) in west Zagoria (Epirus, NW Greece) had previously been published by Authier (1997). The present contribution deals with taxa not yet reported from the area with the exception of *Lonicera alpigena* subsp. *formanekiana*. The herbarium vouchers, unless otherwise stated, are deposited in the collector's private herbarium.

Cystopteridaceae

1. *Gymnocarpium robertianum* (Hoffm.) Newman

Gr Nomos Ioanninon, Eparchia Konitsis: shady rocks and limestone cliffs near Neraidovrisi, Aoos valley, 1200 m. 06.08.1986, Authier 4834; wet rocks, abandoned path from Ag. Triada monastery to the Aoos river, 850 m, 28.08.2003, Authier 17960.

New for N Pindos. Rare in Greece and in the Timfi area, only known from the two localities cited. Reported from Mts Olimbos and Pieria (in North Central) and Mt Chelmos (Peloponnese).

Adoxaceae

2. *Adoxa moschatellina* L.

Gr Nomos Ioanninon, Eparchia Dodonis: in woody karst vegetation between Oxia and the village of Vikos, 1350 m, flowering, forming dense carpet, 24.05.1999, Authier 15227.

The site has not been visited since 1999 but the species probably still exists as the population was large and the area not easily accessible. Two cytotypes occur in *Adoxa* ($2n = 36$, diploid and $2n = 54$, triploid, this last ploidy level being present in the recently described subsp. *cescae* Peruzzi & N.G. Passal. which is endemic to Calabria, southern Italy (Peruzzi & Passalacqua 2006). It would be interesting to know the ploidy level of the plants from Timfi. The genus *Adoxa* L. has been placed in at least 6 different families by various authors. For further details concerning the circumscription of *Adoxaceae*, see Benko-Iseppon & Morawetz (2000), Donoghue & al. (2003) and Reveal (2008).

Asteraceae

3. *Erigeron annuus* (L.) Desf.

Gr Nomos Ioanninon, Eparchia Dodonis: meadow in the cultivated plain of Klidonia, 388 m, single plant flowering, 05.06.2011, Authier *s.n.*; dirt road margins in the Konitsa-Klidonia plain, 400 m, 14.06.2013 & 02.07.2013, Authier *s.n.*

A North American species naturalized in Europe but not listed in Arianoutsou & al. (2010) although reported for Epirus by Chitos (2009). Other collections (unpublished) from northern Greece are known and the distribution in Bulgaria is provided by Petrova & al. (2013a). In the Timfi area, the species occurs mainly at low altitudes, up to *ca.* 400 m in the Konitsa-Klidonia plain. The population observed on 14.06.2013 was abundant and in full flower.

4. *Senecio othonnae* M. Bieb. (≡ *Iranecio othonnae* (M. Bieb.) B. Nord., *Jacobaea othonnae* (M. Bieb.) C.A. Mey.) (Fig. 1)

Gr Nomos Ioanninon, Eparchia Dodonis: Miga cirque, 1830 m, single flowering plant, 23.07.1998, Authier 15040; road margins between Skamneli and Gyphtokampos, *ca.* 1100 m, single flowering plant, 13.07.2013, Authier *s.n.*

Rare in Greece, known from several collections only in the North East (Mts Pangeon, Vrontous and Athos). The occurrence on Mt Timfi is a significant extension westwards.



Fig. 1. *Senecio othonnae* (photo P. Authier).

5. *Phagnalon rupestre* (L.) DC. (including *P. rupestre* subsp. *graecum* (Boiss. & Heldr.) Batt.)

Gr Nomos Ioanninon, Eparchia Dodonis: limestone cliff in the Voidommatis gorge, between the bridge below Aristi and the Klidonia plain,

600 m, in fruit, 09.08.1986, Authier 4772; *loc. ibid.*, 21.05.2004, Authier obs.

Very rare in the Timfi area, recorded only twice from the Voidommatis gorge. Although there are potentially suitable habitats (calcareous cliffs), the often severe climatic conditions (heavy rainfall in the spring and autumn, frequent snow in winter) do not favour permanent establishment of the species. Some of the outer and middle phyllaries are obtuse but most are acute and the capitula are very similar to those of *P. graecum* (Ginzberger 1921: figs. e & f). Thus our specimens can probably be referred to *Ph. r.* subsp. *graecum* (Boiss. & Heldr.) Batt.

6. *Xeranthemum cylindraceum* Sm.

Gr Nomos Ioanninon, Eparchia Dodonis: dry meadow between Papingo and Mikropapingo near 'swimming pool', 1000 m, 17.07.1980, Authier 1123; *loc. ibid.*, 04.08.1985, Authier 3730 & 16.07.1989, Authier 8076.

— Nomos Ioanninon, Eparchia Konitsis: dry meadow behind a chapel between Iliohorion and Vrissohorion, 1000 m, 22.07.1990, Authier 9020; *loc. ibid.*, several observations between 04.07.1994 and 07.07.2013.

Occurring at 400–1200 m in the Timfi area. The most widespread species of *Xeranthemum* in the region and very typical with its obtuse or emarginate, external phyllaries. *Xeranthemum annuum* and *X. inapertum*, the other two species in Greece, also occur.

Caprifoliaceae

7. *Lonicera alpigena* subsp. *formanekiana* (Halácsy)

Hayek (≡ *L. formanekiana* Halácsy) (Fig. 2)

Gr Nomos Ioanninon, Eparchia Dodonis: between Kaloyeriko and the foot of Gamila, Miga cirque, 1600 m, in fruit, 13.07.1986, Authier 5429a & b; cirque between Loutsa and Miga, 1800 m, in fruit, 13.08.1988, Authier 7293; calcareous rock fissures above Vradeto, towards Filakio, 1600 m, single plant in full flower, 02.06.1993, Authier 11493; between Loutsa and Miga cirques, 1700 m, in fruit, 10.07.1994, Authier 12993b; karst between Oxia and Vikos village, 1350 m, at beginning of flowering, 24.05.1999, Authier 15244. Eight other observations made in the area between 23.07.1998 to 14.07.2013.

“*Hieracium neodivergens* was found on the rocks of a hard limestone outcropping in a steep north-facing non-grazed meadow. Epirus, Nom. Ioannina, Timfi,

N Katafygio, above Konitsa, 40°00'12"N 20°46'03"E, subalpine meadow, limestone, 1675 m, 19.08.2007, Bergmeier 07-457 (Hb. Bergmeier, Hb. Gottschlich 55260... with such herbs... and such woody species as... *Lonicera alpigena* subsp. *formanekiana*...”. Reported as indicated, indirectly associated with the discovery of *Hieracium neodivergens* Gottschl. (Gottschlich & Bergmeier 2010:150–151). Occurrence of the taxon was also reported by Authier & al. (2002: 386), however, in a publication not widely circulated.

Occurring from 1350 to 1950 m, mainly in the rocky cirques on the northern slopes of Timfi, above the Aaos valley. Blečić & Mayer (1974) argues for a treatment at species rank, recognising two subspecies, subsp. *formanekiana* and subsp. *hectoderma* V. Blečić & E. Mayer, the latter being endemic to Montenegro. Subspecies rank would, however, be more appropriate (see Tan w/ Iatrou 2001: 341). The free ovaries and fruits connate only at the base, are very characteristic of *L. alpigena* subsp. *formanekiana*. *Lonicera hellenica* Boiss. and *L. glutinosa* Vis., two taxa closely related to *L. alpigena*, have been treated as *L. alpigena* subsp. *hellenica* (Boiss.) Kit Tan & Ziel. and *L. alpigena* subsp. *glutinosa* (Vis.) Kit Tan & Ziel. respectively (see Tan & Zieliński 2000: 232). Examination of specimens deposited at the Muséum National d'Histoire Naturelle, Paris (P) showed that there are plants and populations in the geographical range with semi-connate ovaries and fruits, thus, partly free. Some of them have been recognised at varietal rank, e.g., var. *semiconnata* Zabel, with semi-connate berries. In Greece only plants with entirely free fruits have been noted (*L. alpigena* subsp. *formanekiana*). Plants from Timfi are very polymorphic and variable in leaf size and shape, and density of indumentum on leaves and peduncles.



Fig. 2. *Lonicera alpigena* subsp. *formanekiana* (photo D. Gasnier).

Caryophyllaceae**8. *Dianthus stenopetalus* Griseb.**

Gr Nomos Ioanninon, Eparchia Dodonis: Mt Grabala, above Aristi and Elafotopos, dry meadows, 1000 m, 02.06.1997, Authier 14233; *idem*, stony places, 02.06.1997, Authier 14242a & b. Four other observations in the same locality between 04.06.1997 and 08.06.2013.

Reported from Mt Timfi by Chitos (2009: 41) and near Vrissohori by Willing (specimens at B, unpubl.), otherwise rare in the Timfi area. A Balkan endemic distinct by its dark purple petals with small narrow limb scarcely exceeding the calyx. According to Strid (1997: 371), individuals with broader serrate petal limb have been observed in NW Greece and named *D. tristis* Velen.; they may have resulted from an introgression with *D. cruentus* Griseb. Similar plants from Bulgaria have been described as *D. pancicii* Velen. and *D. velenovskyi* Borbás. We have not observed such individuals in Timfi where *D. stenopetalus* and *D. cruentus* both exist, but never sympatrically. Similarly, we have never found the almost stemless “*subacaule*” form mentioned by Tutin & Walters (1993: 237).

Cistaceae**9. *Cistus sintenisii* Litard. (= *Cistus albanicus* Heywood) (Fig. 3)**

Gr Nomos Ioanninon, Eparchia Konitsis: meadow by forest road W of Vrissohorion, 1000 m, in fruit, 03.08.1986, Authier 5152 (P); *loc. ibid.*, in flower and fruit, 17.07.1987, Authier 6089 (P); meadow W of Vrissohorion, 1000 m, in fruit, 26.08.1987, Authier 6689. Other observations between 17.06.1990 to 10.06.2013.



Fig. 3. *Cistus sintenisii* (photo H. Rodriguez).

Central West Balkan element (NW Greece and Albania). Concerning the nomenclature of this taxon, see Demoly (1996), Greuter (1996: 715–716) and Brummitt (1999: 365–366). Greuter calls for maintaining the binomial *C. albanicus*, while Brummitt, on behalf of the Committee for Spermatophyta, recommends the use of *C. sintenisii*. Indicated as with serpentine affinities (Stevanović & al. 2003: 155–156), which, however, is not the case for Timfi where it grows on schist or even calcareous substrate. It belongs to subgen. *Leucocistus* Willk., one of the two subgenera of *Cistus* with white-flowered species. Stated as with affinities to *C. monspeliensis* L.; however, molecular studies indicate a relationship to *C. parviflorus* Lam. instead (Civeyrel & al. 2011). Rare in the area and confined to a few localities at ca. 1000 m in the eastern part of the region, toward the villages of Iliohorion and Vrissohorion. Reported on serpentine from Laistas further to the east (Arabatzis & al. 1999: 328).

Dipsacaceae**10. *Scabiosa atropurpurea* L. (= *Sixalix atropurpurea* subsp. *maritima* (L.) Greuter & Burdet, *Scabiosa maritima* L.)**

Gr Nomos Ioanninon, Eparchia Dodonis: road embankment in basin of Klidonia, near the bridge on the Voidommatis river, 400 m, in flower and fruit, 11.08.1985, Authier 3797; near Kalpaki, 500 m, in flower and fruit, 20.06.1996, Authier obs.

Common in Greece but very rare in the Timfi area and known only from the places cited. Also collected SE of Kalpaki by Snogerup (specimens in LD, unpubl.). No subspecies have been recognized in Greece.

Gentianaceae**11. *Gentiana lutea* L.**

Gr Nomos Ioanninon, Eparchia Dodonis: above the Loutsas cirque, in gorge towards Miga cirque, 1700 m, flowering, 28.07.1987, Authier 6364. Also noted in the same locality on 20.07.1987 and 13.08.1988.

New for Timfi. Very rare in area. The plants have free anthers and thus belong to subsp. *lutea*.

Malvaceae**12. *Abutilon theophrastii* Medik. (= *A. avicennae* Gaertn.)**

Gr Nomos Ioanninon, Eparchia Dodonis: edge of track near the bridge on the Voidommatis river,

Klidonia basin, single plant in flower, 05.07.1989, Authier 7648. Also noted on six separate occasions between 31.07.1997 and 17.07.2013, mainly amongst crops in the cultivated basin.

Chitos (2009: 44) also records it from eparchia Dodonis. A more or less naturalized species occurring amongst crops in the Konitsa-Klidonia basin at ca. 400 m. Native to Asia (China) but widely introduced in western Eurasia, mainly in cultivated areas. However, it is not invasive, contrary to the situation in some other countries, e.g. Japan.

Morinaceae

13. *Morina persica* L. (= *M. persica* subsp. *turcica* Halácsy)

Gr Nomos Ioanninon, Eparchia Konitsis: between Konitsa and Kaloyeriko pass in Aaos valley, near the Stomiou monastery, 500–1400 m, 08.08.1985, 23.07.1998 & 13.07.2001, Authier obs. (no collections made).

Only one or two withered plants were noted each August. Rare in the area with few reports from eparchia Konitsis. Several collections have, however, been made from Mt Gramos, further to the north and west. Regarding the taxonomic position of the genus *Morina* L., we have followed Temsch & Greilhuber (2010) where morphological, molecular and cytological data favoured the recognition of the family Morinaceae as separate from Dipsacaceae.

Rosaceae

14. *Malus florentina* (Zucc.) C.K. Schneid. (= *Crataegus florentina* Zucc., *Pyrus florentina* (Zucc.) Targ.-Tozz., *Sorbus florentina* (Zucc.) Nyman, ×*Malosorbus florentina* (Zucc.) Browicz)

Gr Nomos Ioanninon, Eparchia Konitsis: edge of forest road west of Vrissohorion, 1000 m, sterile, 27.07.1987, Authier 6347; *loc. ibid.*, 17.06.1990, Authier 8743; edge of forest road to Laista, 800 m, 27.05.1999, Authier 15319.

Also collected S of Iliohori by Willing (specimens at B, unpubl.) and by van Puijenbroek from Kipi, Doliana to Lake Aaos and the bridge before Laista (unpubl.). Apparently W. Gutermann (WU) was the first to collect it in flowering state from the N Pindos, in May 1989. According to Tomović & al. (2003), this occurs in the mesophilous to thermophilous zone in Serbia, which corresponds well with the characteristics of the biotopes on Timfi where the species was observed, from 400–1400 m in Greece and from 800 to 1190 m

in its localities on Timfi (the third locality listed by Authier (Authier 15319) is slightly out of the area). In Europe, the species occurs in Italy, W Balkans and N Anatolia. Since its first description in 1809 until today, this taxon, shrouded in mystery, has been placed in at least 8 different genera and even in a new nothogenus ×*Tormimalus* Holub. Qian et al. (2008) have recently resumed an investigation and consider it best placed in the genus *Malus*, under the combination *Malus crataegifolia* (Targ.-Tozz.) Koehne, and the hypothesis of an intergeneric hybrid has been rejected. Pending further investigations, we use here at the moment, one of the most favoured, classic names for this shrub. Our samples are very similar to those at the Muséum National d'Histoire Naturelle, Paris (P!) as well as to the illustrations of leaves and photographs of the specimens depicted in Browicz (1970, 1983).

Valerianaceae

15. *Valerianella echinata* (L.) DC.

Gr Nomos Ioanninon, Eparchia Konitsis: meadow in the Aaos valley, between Konitsa and Stomiou monastery, 500 m, in fruit, 13.05.1985, Authier 3435, *loc. ibid.*, 450 m, in flower and young fruiting stage, 19.04.2001, Authier 16604; Voidommatis gorge between Klidonia plain and the bridge below Aristi, 500 m, in fruit, 14.05.1988, Authier 6921; edge of the path to Ano Klidonia, 600 m, in fruit, 21.04.1990, Authier 8411.

New for N Pindos, localized in the western part of the Timfi area at 450–1000 m. Unmistakeable on account of its unusual dimorphic fruit, topped with one to three horns.

Alliaceae

16. *Allium callimischon* Link

Gr Nomos Ioanninon, Eparchia Dodonis: *Platanus orientalis* riparian forest near the bridge over Voidommatis river, below Aristi, 500 m, flowering, 13.09.2008, Authier *s.n.*; at the exit of the Voidommatis (where the river breaks through) to the Klidonia plain, ca. 400 m, flowering, fairly common, 17.09.2008, Authier obs.

Both localities discovered in September 2008 were thought to be the northernmost in Greece (see Tan w/ Iatrou, 2001: 429, map 343). However, Chitos (2009: 109) records it even further north, from Bourazani in Eparchia Konitsis. The beautiful water-colour by Bent Johnsen in Tan w/ Iatrou (2001) indi-

cates pink to dark pink perianth segments while on Timfi they are paler, whitish with distinct brownish-pink veins. The descriptive text accompanying the watercolour states "segments ... white, often turning pink, with reddish or brownish external linear markings near apex, midvein reddish-brown". Thus the plants observed on Timfi were probably in early flowering stage.

Iridaceae

17. *Iris tuberosa* L. (≡ *Hermodactylus tuberosus* (L.) Mill.)

Gr Nomos Ioanninon, Eparchia Dodonis: stony meadow near the Monodendri monastery, 1000 m, 19.04.1987, Authier 5867; meadow below Mesovounion, 650 m, in fruit, 17.04.1990, Authier 8307, Several observations between 20.04.1987 and 07.04.2011.

Not rare on Timfi, but very scattered at altitudes below 1100 m. First collected in the Timfi area (Papingo) by Landström in April 1982 (unpubl.).

18. *Romulea bulbocodium* (L.) Sebast. & Mauri

Gr Nomos Ioanninon, Eparchia Dodonis: dry meadow near bridge below Vitsa in the Vikos gorge, 550 m, 09.04.1996, Authier 13719; near the chapel of Ag. Nikolaos between Kipi and Monodendri, 900 m, abundantly flowering, 02.04.2003, Authier 17383 (leg. D. Gasnier). Two other observations made in 1994 and 2011.

Rare, new for Timfi (also recorded by Willing in 2003, N of Kalpaki, unpubl.). An early spring-flowering plant, first noted by Costas Zissis, a local photographer from Aristi. Known only from a few localities between 550 and 900 m, the one near the chapel A. Nikolaos, is particularly abundant with several hundred individuals.

Orchidaceae

19. *Coeloglossum viride* (L.) Hartm. (≡ *Dactylorhiza viridis* (L.) R.M. Bateman, Pridgeon & M.W. Chase)

Gr Nomos Ioanninon, Eparchia Dodonis: in woody karst vegetation between Oxia and the village of Vikos, 1350 m, single plant seen flowering, 24.05.1999, Authier obs.

Very rare, only a single observation; to be searched for again in this rarely botanized locality.

20. *Ophrys bombyliflora* Link

Gr Nomos Ioanninon, Eparchia Dodonis: mead-

ow above Kalpaki, 430 m, 23 & 28.04.1995 and 07.04.1996, Authier obs.

Not seen again after the land was cultivated and then left fallow; to be searched for again in the same locality. Possibly extinct in the area.

21. *Orchis lactea* Poir. (≡ *O. tridentata* Scop. subsp. *lactea* (Poir.) K. Richt.; *Neotinea lactea* (Poir.) R.M. Bateman, Pridgeon & M.W. Chase)

Gr Nomos Ioanninon, Eparchia Dodonis: meadow above Kalpaki, 430 m, 23.04.1995, Authier obs.; at the exit of the Voidommatis river to the Klidonia plain, 400 m, 18.04.2001, Authier obs. Nine other observations between 22.04.1987 to 13.04.2011.

The records are all from the western part of the region between 400 and 600 m. This is a spring-flowering species rare in the Timfi area, with populations often comprising only one or two individuals. A closely related species, *O. tridentata* Scop., flowers later and is more widely distributed in the area.

Poaceae

22. *Echinaria capitata* (L.) Desf.

Gr Nomos Ioanninon, Eparchia Dodonis: dirt road from Kallithea to Ano Klidonia, 620 m, 07.05.1996, Authier 13817; in direction towards Mesovounion, 600 m, 25.04.1998, Authier 14808. Five other observations between 16.05.1996 and 15.07.2009.

A distinctive grass, of rare occurrence between 400 and 1000 m, and only in the western part of the area.

23. *Festuca drymeja* Mert. & W.D.J. Koch (≡ *Drymochloa drymeja* (Mert. & W.D.J. Koch) J. Holub)

Gr Nomos Ioanninon, Eparchia Konitsis: embankment of new forest road to Neraidovrisi, 1150 m, 20.07.1990, Authier 8978 (conf. H. Scholz, 1997); forest road W of Vrissohorion, near Ag. Triada monastery, 884 m, 05.07.2000, Authier 16268a.

New for Timfi. Very rare in the region and known only from the two localities cited which are along forest tracks and only in the region of Vrissohorion, incidentally, the wettest area of the region. The identification of our first voucher was aided by the well known agrostologist Hildemar Scholz, who passed away recently.

24. *Taeniatherum caput-medusae* (L.) Nevski (≡ *Elymus caput-medusae* L.)

Gr Nomos Ioanninon, Eparchia Konitsis: dry

meadow near the chapel between Iliohorion and Vrissohorion, 1180 m, in withered state, 27.07.1987, Authier 6344; *loc. ibid.*, fairly common, 16.07.1989, Authier 8084; near the fountain outside Skanneli in direction towards Iliohorion, 1000 m, 14.07.1990, Authier 8900; *loc. ibid.*, 28.06.1995, Authier 13276. Four other observations between 1998 and 2013.

Rare in Timfi, occurring from 1000–1200 m, with the best populations situated near the chapel between Iliohorion and Vrissohorion villages. Ni & al. (2011) suggests a taxonomic affinity to *Hordelymus europaeus*.

Acknowledgements. To the late Hildemar Scholz for his help with the identification or confirmation of the Poaceae, Daniel Gasnier, Jeanne Covillot, Helen Rodriguez and Costas Zissis for field assistance, staff of Laboratoire de Phanérogamie and Département Systématique et Évolution, Muséum National d'Histoire Naturelle, Paris for their hospitality and use of facilities, Martine Letellier for help in collecting data. Daniella Ivanova and Vladimir Vladimirov have translated respectively, the original text from French to Bulgarian and then to English; Kit Tan has kindly corrected and revised the entire text. I remain deeply indebted to them for carrying out these arduous tasks.

Reports 25–41

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This is the first report of new plant-records for the island of Amorgos (phytogeographical region Kiklades, Nomos Kikladon, Eparchia Thiras) based on field-work carried out in February 2014, a time when few or no botanists are present on the island. The records listed are new to the island, or to the floristic region Kiklades (Kik) as circumscribed in *Flora Hellenica* (Strid & Tan 1997). Occurrence on the other Kikladian islands is also mentioned.

Isoetaceae

25. *Isoetes duriei* Bory

Gr Amorgos: S-SE of Katapola, phrygana and wet ground beside path near Skopi, 300 m, 36°48'19"N, 25°52'21"E, 18.02.2014, *Biel* 14.047.

Isoetes duriei and *I. histrix* both occur on the island,

with *I. duriei* growing on seasonally damp ground and *I. histrix* found in permanently wet places. Recorded from Andros, Mikonos, Naxos, Paros, Sikinos and Tinos.

Asteraceae

26. *Erigeron bonariensis* L.

Gr Amorgos: Egiali, Laki, edge of road near houses, 15 m, 36°54'30"N, 25°58'40"E, 14.02.2014, *Biel* 14.001.

On several Kikladian islands, including Andros, Kea, Kithnos, Milos, Naxos, Paros and Andiparos, Serifos, Siros, Thira and Tinos.

27. *Hyoseris lucida* L.

Gr Amorgos: N-NW of Katapola, phrygana in gorge south of Vlichadha Bay, 20 m, 36°50'48"N, 25°51'12"E, 21.02.2014, *Biel* obs. (photo).

Recorded from several Kikladian islands, published as new for Folegandros by Biel & Kit Tan (2008: 134, as *H. radiata* L.).

Berberidaceae

28. *Leontice leontopetalum* L. subsp. *leontopetalum* (Fig. 4)



Fig. 4. *Leontice leontopetalum* subsp. *leontopetalum* (photo B. Biel).

Gr Amorgos: W of Hora, uncultivated fields and phrygana south of the main road, 280 m, 36°48'19"N, 25°52'21"E, 23.02.2014, *Biel* 14.072; NW of Lagadha near chapel of Ag. Varvara, terraces of abandoned field with fruit trees, 280 m, 36°54'51"N, 26°01'19"E, 26.02.2014, *Biel* obs.

A conspicuous sight when in full flower. Recorded from Andros, Astipalea, Folegandros, Naxos, Paros, Siros and Tinos. *Leontice leontopetalum* subsp. *ewersmannii* (Bunge) Coode occurs in SE Anatolia.

Boraginaceae

29. *Buglossoides arvensis* subsp. *sibthorpiana* (Griseb.) R. Fern.

Gr Amorgos: S of Katapola, W of chapel Stavros, phrygana on steep terraced slopes, 260 m, 36°48'00"N, 25°51'15"E, 18.02.2014, *Biel* obs.; N-NE of Hora, phrygana at rocky SW slope of Profitis Ilias, 520 m, 36°50'31"N, 25°54'18"E, 23.02.2014, *Biel* 14.075.

Recorded only from the larger islands of Naxos, Paros and Thira.

Brassicaceae

30. *Clypeola jonthlaspi* subsp. *microcarpa* (Moris) Fiori

Gr Amorgos: S-SE of Katapola, phrygana in ravine beside path S of Moni Ag. Georgios, 280 m, 36°48'22"N, 25°52'33"E, 18.02.2014, *Biel* 14.043.

On several Kikladean islands investigated.

31. *Enarthrocarpus arcuatus* Labill.

Gr Amorgos: NW of Tholaria, terraced, previously cultivated fields near Vighla, 140 m, 36°55'7"N, 25°58'43"E, 15.02.2014, *Biel* 14.011.

Recorded from Astipalea, Folegandros, Naxos, Paros, Sikinos, etc.

Fabaceae

32. *Medicago marina* L.

Gr Amorgos: NW of Egiali, sandy beach of Psili Ammos, 2 m, 36°54'29"N, 25°57'59"E, 14.02.2014, *Biel* 14.005.

Widespread on islands, coastal Peloponnese and mainland.

Resedaceae

33. *Reseda alba* L.

Gr Amorgos: Egiali, road margins and ruderal places in village, 15 m, 36°54'2"N, 25°58'36"E, 25.02.2014, *Biel* 14.084.

On several Kikladean islands but noticeably absent from the larger islands of Andros, Tinos and Naxos.

Solanaceae

34. *Solanum nigrum* subsp. *schultesii* (Opitz) Wessely

Gr Amorgos: Hora, road margins and ruderal places in village, 310 m, 36°49'53"N, 25°53'52"E, 19.02.2014, *Biel* 14.054.

Noted only on Andros, in irrigated fields and gardens.

Urticaceae

35. *Urtica membranacea* Poir.

Gr Amorgos: Katapola, Rachidi, small park with palms behind the coast road, 5 m, 36°49'40"N, 25°51'57"E, 17.02.2014, *Biel* 14.028.

Near habitation and cultivated ground. Recorded from Andros, Mikonos, Siros and Tinos.

Hyacinthaceae

36. *Scilla autumnalis* L.

Gr Amorgos: NW of Katapola, open phrygana on flat ground near chapel Ag. Pandelemonas, 10 m, 36°50'3"N, 25°51'22"E, 17.02.2014, *Biel* obs.

On almost all of the larger islands.

37. *Scilla bifolia* L.

Gr Amorgos: E-NE of Lagadha, at base of steep rocks beside path to Stavros, 670 m, 36°54'36"N, 26° 2'24"E, 26.02.2014, *Biel* 14.089.

On the larger islands of Andros, Milos, Naxos and Tinos.

Iridaceae

38. *Iris tuberosa* L. (≡ *Hermodactylus tuberosus* (L.) Mill.)

Gr Amorgos: E of Katapola, olive terraces with phrygana above dirt track, 10 m, 36°54'6"N, 25°58'50"E, 16.02.2014, *Biel* 14.018.

Recorded mainly from the N Kiklades (Andros, Kea, Kimolos, Milos, Paros and Siros).

39. *Romulea columnae* Sebast. & Maur.

Gr Amorgos: S-SE of Katapola, phrygana and wet ground beside path to Skopi, 300 m, 36°48'19"N, 25°52'21"E, 18.02.2014, *Biel* 14.045; grassy slope by stone-paved path at western outskirts of Hora, 280 m, 36°49'56"N, 25°53'44"E, 19.02.2014, *Biel* 14.053.

Recorded from Andros, Dilos, Kimolos, Mikonos, Naxos and Sikinos.

40. *Romulea linaresii* subsp. *graeca* Bég.

Gr Amorgos: S-SE of Katapola, phrygana in ravine beside path S of Moni Ag. Georgios, 280 m, 36°48'22"N, 25°52'33"E, 18.02.2014, *Biel* 14.041. Recorded from Milos, Naxos, Sikinos and Siros.

Liliaceae**41. *Gagea peduncularis* (J. & C. Presl) Pascher (Fig. 5)**

Gr Amorgos: E of Egiali, phrygana slope at valley below Machos, 320 m, 36°53'52"N, 25°59'37"E, 16.02.2014, *Biel* 14.023; N of Hora, phrygana on saddle near chapel of Ag. Giorghis, 315 m, 36°48'22"N, 25°52'33"E, 20.02.2014, *Biel* 14.062.

Recorded from Andros, Milos, Naxos and Paros. The plant in the photo has unusually obtuse perianth segments (conf. J.M. Tison, March 2014). *Gagea rigida* Boiss. & Spruner is the only other yellow-flowered species of *Gagea* on Amorgos and differs by its very coriaceous leaves and acuminate perianth segments (Fig. 6).

Cited vouchers are provisionally kept in the private herbarium of B. Biel at H ochberg (herb. Biel).



Fig. 5. *Gagea peduncularis* (photo B. Biel).



Fig. 6. *Gagea rigida* (photo B. Biel).

Reports 42–55
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Apiaceae**42. *Orlaya daucooides* (L.) Greuter**

Bu West Frontier Mts: Mt Vlahina, above Logodash village, in calcareous grassy places near the border, FM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169764).

Asteraceae**43. *Centaurea biebersteinii* DC. subsp. *bietersteinii***

Bu Sofia Region: in the yard of Sofia Med Ltd., Gara Iskar, FN92, 25.10.2013, coll. *D. Dimitrov* (SOM 169755).

44. *Erigeron annuus* (L.) Pers.

Bu Pirin Mts (*Southern*): along the road from Pirin village to Popovi Livadi locality, GM10, 06.2008, coll. *D. Dimitrov* (SOM 169744).

This alien species has not been reported from Pirin Mts so far (Petrova & al. 2012).

45. *Leontodon cichoriaceus* (Ten.) Sanguin.

Bu West Frontier Mts: Mt Vlahina, Komatinski Skali Rocks above Brestovo village, GM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169763).

Caryophyllaceae**46. *Cerastium luridum* Guss.**

Bu West Frontier Mts: Mt Vlachina, above Logodash village, along the road to the border, FM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169760).

Cistaceae**47. *Helianthemum lasiocarpum*** Desv. & Willd.

Bu West Frontier Mts: Mt Vlachina, in calcareous places above Logodash village, near the border, FM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169753).

Crassulaceae**48. *Sempervivum marmoreum*** Griseb.

Bu Valley of River Struma (*Southern*): along the railway before Kresnensko Hanche locality, near river Oshtavska, FM82, 05.08.2013, coll. *D. Dimitrov* (SOM 169743).

Cuscutaceae**49. *Cuscuta cesatiana*** Bertol.

Bu Rhodopi Mts (*Central*): above Arda village, Smolyan district, LF09, 08.08.2012, coll. *D. Dimitrov* (SOM 169745).

Dipsacaceae**50. *Pterocephalus papposus*** Coult.

Bu West Frontier Mts: Mt Vlachina, above Logodash village, near the border, FM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169757).

Euphorbiaceae**51. *Euphorbia taurinensis*** All.

Bu West Frontier Mts: Mt Vlachina, in calcareous places, above Logodash village, near the border, FM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169754).

Fabaceae**52. *Ononis pusilla*** L.

Bu West Frontier Mts: Mt Vlachina, above Logodash village, near the border, in calcareous places, FM54, 22.05.2013, coll. *D. Dimitrov* (SOM 169751).

Lamiaceae**53. *Thymus atticus*** Čelak.

Bu Northeast Bulgaria: in dry grassy places on the Madara Plateau, NH09, 27.07.1987, coll. *V. Vutov* (SOM 169747).

— West Frontier Mts: Mt Vlachina, above Logodash village, in calcareous places, FM54, 25.05.2013, coll. *D. Dimitrov* (SOM 169748).

Scrophulariaceae**54. *Verbascum roripifolium*** (Halácsy) I.K. Ferguson

Bu West Frontier Mts: Mt Vlachina, along the road and

under the Sushitsa village to Polena village, FM52, 22.05.2013, coll. *D. Dimitrov* (SOM 169752).

Poaceae**55. *Festuca spectabilis*** Jan.

Bu Balkan Range (*Eastern*): above Byala town, Sliven district, MH32, 03.08.2010, coll. *D. Dimitrov* (SOM 169746).

Acknowledgements. The authors acknowledge the partial support of the European Project EMAP (FP7-PEOPLE-2009-IRSES) №247548.

Reports 56–82**Konstantinos Giannopoulos¹, Kit Tan² & Gert Vold³**

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Continuing a series of new plant records based on further floristic investigations in the prefecture of Iliia in western Peloponnese, and on Mt Likeo. The records listed are new for Eparchia Ilias or Olimbias, or for both eparchies in Nomos Ilias. Those reported as new for Mt Likeo have not been included in the recently published work by Baliouis (2013). The floristic regions adopted follow those circumscribed in *Flora Hellenica* (Strid & Tan 1997).

Apiaceae**56. *Peucedanum vittijugum*** Boiss.

Gr Nomos Arkadias, Eparchia Gortinias: Mt Likeo, summit of Diaforti, 1380–1409 m, 37°27'N, 21°58'E, 19.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31631 (herb. Giannopoulos).
New for Mt Likeo.

57. *Pimpinella tragium* Vill.

Gr Nomos Arkadias, Eparchia Gortinias: Mt Likeo, Diaforti, 1380–1409 m, 37°27'N, 21°58'E, 19.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31628 (herb. Giannopoulos).
New for Mt Likeo and eparchia.

Asteraceae**58. *Achillea holosericea*** Sm.

Gr Nomos Arkadias, Eparchia Gortinias: Mt Likeo, Diaforti, 1380–1409 m, 37°27'N, 21°58'E,

19.07.2013, *Kit Tan, G. Vold & Giannopoulos*
31627 (herb. Giannopoulos).

New for eparchia.

59. *Centaurea iberica* subsp. *holzmanniana* (Boiss.)
Dostál

Gr Nomos Messinias, Eparchia Trifilias: SW slopes of
Mt Likeo, near village of Ag. Sostis, 850–1120 m,
37°26'N, 21°56'E, 19.07.2013, *Kit Tan, G. Vold &*
Giannopoulos 31618 (herb. Giannopoulos).

New for Mt Likeo.

60. *Cirsium vulgare* (Savi) Ten.

Gr Nomos Ilias, Eparchia Olimbias: Andritsena
to Vasses, 900–1120 m, 37°28'N, 21°54'E,
19.07.2013, *Kit Tan, G. Vold & Giannopoulos*
31616 (herb. Giannopoulos).

New for eparchia.

61. *Onopordum illyricum* L.

Gr Nomos Messinias, Eparchia Trifilias: SW slopes of
Mt Likeo, near village of Ag. Sostis, 850–1120 m,
37°26'N, 21°56'E, 19.07.2013, *Kit Tan, G. Vold &*
Giannopoulos 31620 (herb. Giannopoulos).

New for eparchia.

62. *Pilosella leucopsilon* (Arv.-Touv.) Gottschl.

Gr Nomos Messinias, Eparchia Trifilias: Mt Likeo,
1220 m, 37°27'N, 21°57'E, 01.10.2011, *Kit Tan, G.*
Vold & Giannopoulos 31137 (herb. Giannopoulos).

New for Mt Likeo and eparchia Trifilias.

Dipsacaceae

63. *Dipsacus fullonum* L. (Fig. 7)



Fig. 7. *Dipsacus fullonum* (photo K. Giannopoulos).

Gr Nomos Messinias, Eparchia Trifilias: SW slopes of
Mt Likeo, near village of Ag. Sostis, 850–1120 m,
37°26'N, 21°56'E, 19.07.2013, *Kit Tan, G. Vold &*
Giannopoulos 31619 (herb. Giannopoulos).

New for Mt Likeo, eparchia and nomos.

Euphorbiaceae

64. *Chrozophora tinctoria* (L.) A. Juss.

Gr Nomos & Eparchia Ilias: coastal roadside at
Kalamia, near Kastro, field cultivated with melons,
2 m, 37°53'N, 21°06'E, 02.07.2013, *Kit Tan, G. Vold*
& Giannopoulos 31638 (herb. Giannopoulos).

New for eparchia and nomos Ilias.

Fumariaceae

65. *Corydalis solida* subsp. *incisa* Lidén

Gr Nomos & Eparchia Ilias: Mt Lambia, road to
plateau of Astras, 1210 m, 37°54'N, 21°47'E,
10.04.2013, *Kit Tan, G. Vold & Giannopoulos*
31602 (herb. Giannopoulos).

New for Mt Lambia, eparchia and nomos Ilias.

Lamiaceae

66. *Phlomis samia* L.

Gr Nomos Arcadias, Eparchia Gortinias: SW slopes
of Mt Likeo, 1210–1211 m, 37°27'N, 21°57'E,
19.07.2013, *Kit Tan, G. Vold & Giannopoulos*
31622 (herb. Giannopoulos).

New for eparchia.

Santalaceae

67. *Viscum album* L. subsp. *album* (Fig. 8)

Gr Nomos & Eparchia Ilias: stony slope above
Kriovrisi on S side of Mt Erimanthos (oppo-
site plateau of Astras), 1270 m, 37°55'N, 21°48'E,
23.08.2010, *Giannopoulos* obs. (photos).



Fig. 8. *Viscum album* subsp. *album* on *Crataegus* (photo K. Giannopoulos).

New for Mt Erimanthos and Nomos Ilias, second record for the Peloponnese. For the first report, see Giannopoulos & al. (2013). Hemi-parasitic in large quantities on *Crataegus*.

Viscum album subsp. *album* had not previously been reported for the Peloponnese prior to December 2013. Some amateur naturalists were unaware it was different from the more commonly occurring *Viscum album* subsp. *abietis* (Wiesb.) Abrom. which grows on *Abies*, and thus even when observed, had not noted the significance. It is quite easy to distinguish the two subspecies in fruit. In *V. album* subsp. *album* (Figs 9B & 10B) there are long mucilaginous threads in the mesocarp (between the inner and outer fruit layers). They are absent in subsp. *abietis* (Fig. 9A). The “seeds” of subsp. *abietis* (Fig. 10A) are scalene-ellipsoid and with a loosely reticulate fibrous pattern on the endocarp, those of subsp. *album* (Fig. 10B) are broadly ovoid and without reticulate fibres.

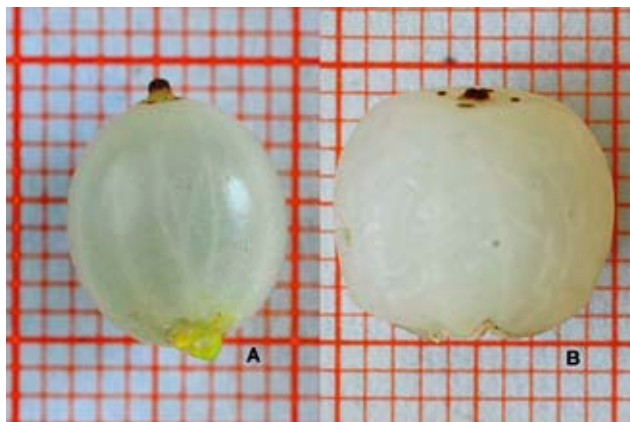


Fig. 9. Fruits of *Viscum album* subsp. *abietis* (A) and subsp. *album* (B). The brown markings at the apex are the 4 perianth scars (photo K. Giannopoulos).



Fig. 10. “Seeds” of *Viscum album* subsp. *abietis* (A, with reticulate fibrous pattern) and subsp. *album* (B, covered in mucilage) (photo K. Giannopoulos).

Saxifragaceae

68. *Saxifraga rotundifolia* L. subsp. *rotundifolia*

Gr Nomos Arcadias, Eparchia Gortinias: Lykaion Palates, S of Thisoa, 790 m, 37°28'N, 21°59'E, 09.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31591 & 31592 (herb. Giannopoulos).

New for Mt Likeo, eparchia and nomos. Southernmost occurrence in Greece.

Scrophulariaceae

69. *Bellardia latifolia* (L.) Cuatrec. (= *Parentucellia latifolia* (L.) Caruel)

Gr Nomos Ilias, Eparchia Olimbias: near village of Sekula, west of Alfios river, 80 m, 37°35'N, 21°53'E, 09.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31595 (corolla magenta), 31596 (corolla white) and 31597 (corolla magenta, plants more than 35 cm tall) (herb. Giannopoulos).

New for eparchia.

70. *Digitalis ferruginea* L.

Gr Nomos Arcadias, Eparchia Gortinias: SW slopes of Mt Likeo, 1210–1211 m, 37°27'N, 21°57'E, 19.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31623 (herb. Giannopoulos).

New for Mt Likeo.

71. *Kickxia spuria* subsp. *integrifolia* (Brot.) R. Fern.

Gr Nomos & Eparchia Ilias: coastal roadside at Kalamia, near Kastro, field cultivated with melons, 2 m, 37°53'N, 21°06'E, 2.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31636 with dark green leaves & 31637 with pale green leaves (herb. Giannopoulos).

New for eparchia.

Verbenaceae

72. *Phyla canescens* (Kunth) Greene [= *Phyla filiformis* (Schrad.) Meikle] (Fig. 11)

Gr Nomos & Eparchia Ilias: coastal roadside at Kalamia, near Kastro, 2 m, 37°53'N, 21°06'E, 2.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31605 (ATH, C, herb. Giannopoulos).

New for eparchia and nomos. Forming prostrate mats in damp places. Naturalized, native to S America. Distinguished from *P. nodiflora* by its stems ± woody at base, larger spikes, calyx lobed to halfway and lilac corolla.



Fig. 11. *Phyla canescens* (photo K. Giannopoulos).

Alliaceae

73. *Allium flavum* L. subsp. *flavum*

Gr Nomos Arkadias, Eparchia Gortinias: Mt Likeo, Diaforti, 1380–1409 m, 37°27'N, 21°58'E, 19.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31633 (herb. Giannopoulos).

New for Mt Likeo and eparchia.

74. *Allium guttatum* subsp. *tenorei* (Parl.) Soldano

Gr Nomos Arkadias, Eparchia Gortinias: Mt Likeo, Diaforti, 1380–1409 m, 37°27'N, 21°58'E, 19.07.2013, *Kit Tan, G. Vold & Giannopoulos* 31624.

New for eparchia. Seed collection only.

Araceae

75. *Arum cylindraceum* Gasp. (= *Arum alpinum* L.)

Gr Nomos & Eparchia Ilias: Mt Lamba, plateau of Astras, NW of summit, 1350–1400 m, 37°54'N, 21°47'E, 10.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31607 (herb. Giannopoulos).

New for Mt Lamba, eparchia and nomos Ilias.

Colchicaceae

76. *Colchicum graecum* K.M. Perss.

Gr Nomos & Eparchia Ilias: Mt Lamba, plateau of Astras, NW of summit, 1350–1400 m, 37°54'N, 21°47'E, 10.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31604 (living material).

New for Mt Lamba, eparchia and nomos Ilias. Not flowering, corms collected for cultivation. Distinct by its large leaves.

Hyacinthaceae

77. *Muscari commutatum* Guss.

Gr Nomos Ilias, Eparchia Olimbias: near the village of Thisoa, 590–595 m, 37°30'N, 21°58'E,

9.04.2013, *Kit Tan, G. Vold & Giannopoulos* obs. (photos).

New for eparchia Olimbias.

78. *Muscari pulchellum* Boiss. subsp. *pulchellum*

Gr Nomos Ilias, Eparchia Olimbias: cemetery near Andritsena, foothills of Mt Likeo, 843 m, 37°28'N, 21°53'E, 06.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31490 (herb. Giannopoulos); ancient Figalia, 520 m, 37°23'N, 21°50'E, 16.03.2013, *Giannopoulos* s.n. (herb. Giannopoulos); near the village of Vresto, 515 m, 37°30'N, 21°48'E, 17.03.2013, *Giannopoulos* s.n. (herb. Giannopoulos).

— Nomos Arkadias, Eparchia Gortinias: Mt Likeo, near Diaforti, 1175–1322 m, 37°27'N, 21°58'E, 06.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31521 (herb. Giannopoulos).

New for Mt Likeo, eparchia Olimbias and nomos Ilias. Occurring together with *Bellevalia dubia*.

Iridaceae

79. *Iris tuberosa* L. (= *Hermodactylus tuberosus* (L.) Mill.)

Gr Nomos Messinias, Eparchia Trifilias: S slopes of Mt Likeo, 1125–1145 m, 37°27'N, 21°56'E, 06.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31512 (herb. Giannopoulos).

New for Mt Likeo and eparchia Trifilias.

80. *Romulea bulbocodium* (L.) Sebast. & Mauri

Gr Nomos Ilias, Eparchia Olimbias: Lepreo, 430 m, 37°26'N, 21°43'E, 01.02.2014, *Giannopoulos* s.n. (herb. Giannopoulos).

— Temple of Apollo, Vasses, 1122 m, 37°25'N, 21°54'E, 23.03.2013, *Giannopoulos* s.n. (herb. Giannopoulos).

New for eparchia.

81. *Romulea linaresii* subsp. *graeca* Bég.

Gr Nomos Arkadias, Eparchia Gortinias: Mt Likeo, SW of Diaforti, 1160 m, 37°27'N, 21°57'E, 10.03.2013, *Giannopoulos* s.n. (herb. Giannopoulos).

New for Mt Likeo, eparchia Gortinias and nomos Arkadias.

Orchidaceae

82. *Ophrys reinholdii* H. Fleischm. (Fig. 12)

Gr Nomos Ilias, Eparchia Olimbias: Mt Likeo, near the village of Thisoa, 550 m, 37°30'N, 21°58'E, 09.04.2013, *Kit Tan, G. Vold & Giannopoulos* 31583 (herb. Giannopoulos).



Fig. 12. *Ophrys reinholdii* (photo K. Giannopoulos).

Reports 83–103

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Continuing a series of new plant records based on further floristic investigations in Greece. The floristic regions adopted follow those circumscribed in *Flora Hellenica* (Strid & Tan 1997).

Cystopteridaceae

83. *Cystopteris alpina* (Lam.) Desv. (Fig. 13)

Gr Nomos Fokidos, Eparchia Parnassidos: Mt Parnassos, 2.5 km SE of Fterolakka Ski resort, 2100 m, 38°33'N, 22°36'E, 30.07.2013, *Polymenakos* obs. (photos; det. Kit Tan, conf. B. Biel, February 2014).

New for Mt Parnassos, first record from Sterea Ellas. Numerous plants were found on the rocks together with *Achillea umbellata*, *Asplenium ruta-muraria*, *Campanula rupicola*, *Erigeron alpinus*, *Polystichum lonchitis*, *Saxifraga paniculata*, *Saxifraga sibthorpii*, *Sedum*

magellense subsp. *olympicum*, *Thymus leucospermus*, etc. The species has been reported in only three localities in Greece: Samothraki in the N Aegean area (Biel & Tan 2008: 293), Mt Olimbos in North Central (Stojanoff & Jordanoff 1938: 159) and Valtou Ori in S Pindos (Giannakos 2007: 68). Although rare and scattered in occurrence it is possible there have been several misidentifications with the widespread *C. fragilis*.



Fig. 13. *Cystopteris alpina* (photo K. Polymenakos).

Asteraceae

84. *Tyrimnus leucographus* (L.) Cass.

Gr Nomos & Eparchia Korinthias: Mt Gerania, forest road from Osios Patapios to Pisia, 460 m, 38°00'N, 22°57'E, 3.05.2013, *Polymenakos* obs. (photos; conf. Kit Tan, February 2014).

New for Mt Gerania, common above Loutraki. Not recorded by Constantinidis (1997).

Brassicaceae

85. *Alyssum smyrnaeum* C.A. Mey (Fig. 14)

Gr Nomos & Eparchia Attikis: Mt Parnitha, at forest road above Fili, 855 m, 38°07'N, 24°41'E, 04.02.2013, *Polymenakos* obs. (photo; conf. Kit Tan, February 2014).

New for Mt Parnitha, eparchia and nomos. A few plants in *Pinus* forest.



Fig. 14. *Alyssum smyrnaeum* (photo K. Polymenakos).

Euphorbiaceae

86. *Euphorbia platyphyllos* L. (Fig. 15)

Gr Nomos & Eparchia Attikis: Schinias, along road through wetland, 0–3 m, 38°09'N, 24°01'E, 04.11.2013, *Polymenakos* obs. (photo; det. Kit Tan, February 2014).

New for eparchia. In Nomos Attikis, recorded only from eparchia Pireos with two collections from present-day Faliro by Haussknecht (in 1885) and Heldreich (in 1889). It was found in the wetlands of Schinias together with large populations of *Bellardia viscosa*.



Fig. 15. *Euphorbia platyphyllos* (photo K. Polymenakos).

Fabaceae

87. *Lathyrus sphaericus* Retz.

Gr Nomos Attikis, Eparchia Megaridos: Mt Pateras, along forest road W of Paleochori, 465 m,

38°06'N, 23°23'E, 23.04.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Pateras, widely distributed in Greece. Not recorded by Constantinidis (1997).

88. *Lens ervoides* (Brign.) Grande

Gr Nomos Attikis, Eparchia Megaridos: Mt Pateras, along forest road NW of Mikri Kolosoura, 465 m, 38°07'N, 23°17'E, 08.06.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Pateras. Not recorded by Constantinidis (1997).

89. *Melilotus albus* Medik.

Gr Nomos & Eparchia Attikis: Mt Pendeli, Lykorema stream between Drafi and Dionis, 175 m, 38°01'N, 23°55'E, 06.01.2014, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Pendeli and eparchia Attikis. Occurring mainly in northern Greece; the only record from Attikis was by Heldreich more than a 100 years ago (at Faliro in Nomos Attikis, Eparchia Pireos).

Lamiaceae

90. *Calamintha incana* (Sm.) Boiss.

Gr Nomos Attikis, Eparchia Megaridos: archaeological site at Eleusinas, 10 m, 38°02'N, 23°32'E, 5.01.2014, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

Confirming report by Stojanov & Jordanov (1938: 156) from the same locality. The plants were not flowering but quite unmistakable.

91. *Teucrium chamaedrys* L.

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, 1345 m, 38°11'N, 23°15'E, 25.06.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Kitheronas. Not recorded by Constantinidis (1997). A few plants found *ca.* 0.3 km east of summit, also independently noted 2 km west of summit by A. Zografidis from Athens.

Polygalaceae

92. *Polygala monspeliaca* L.

Gr Nomos & Eparchia Attikis: Mt Parnitha, roadside from Metochi to Ag. Triada, 600 m, 38°08'N, 23°43'E, 07.05.2009, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Parnitha. In Nomos Attikis, also recorded from Mt Pendeli.

Rubiaceae**93. *Rubia peregrina* L.**

Gr Nomos & Eparchia Attikis: Mt Hymettus, N of Ag. Paraskevi, 420 m, 37°59'N, 23°49'E, 22.04.2010, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Imittos, recorded from Mt Parnitha. A few plants scrambling along a forest road.

94. *Theligonum cynocrambe* L.

Gr Nomos & Eparchia Attikis: Mt Hymettus, stony slopes SE of Ag. Ioannis Monastery at Ag. Paraskevi, 375 m, 38°00'N, 23°50'E, 13.03.2011, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Imittos, widely distributed in the W and S Aegean area.

Santalaceae**95. *Thesium divaricatum* Mert. & W.D.J. Koch (Fig. 16)**

Fig. 16. *Thesium divaricatum* (photo K. Polymenakos).

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, stony slope SW of summit Profitis Ilias, 1240 m, 38°10'N, 23°14'E, 4.06.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Nomos Attikis and first report of the genus from Mt Kitheronas. Not recorded by Constantinidis (1997).

96. *Viscum album* L. subsp. *album*

Gr Nomos & Eparchia Ilias: stony slope above

Kriovrisi on S side of Mt Erimanthos, 1270 m, 37°55'N, 21°48'E, 23.08.2010, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Erimanthos and Nomos Ilias. Hemiparasitic on *Crataegus*.

Scrophulariaceae**97. *Bellardia viscosa* (L.) Fisch. & C.A. Mey. (= *Parentucellia viscosa* (L.) Caruel)**

Gr Nomos & Eparchia Attikis: Mt Pendeli, roadside north of Lake Rapendosa, 160 m, 38°06'N, 23°55'E, 29.04.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014); Mt Parnitha, wet meadow S of Katsimidi, 635 m, 38°10'N, 23°47'E, 28.05.2012, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014); Schinias, along road through wetland, 0–3 m, 38°09'N, 24°01'E, 4.11.2013, *Polymenakos* obs. (photo; conf. Kit Tan, February 2014).

New for Mts Parnitha and Pendeli, and also eparchia Attikis. A large population occurs at Schinias together with *Juncus* and *Euphorbia platyphyllos*.

98. *Linaria triphylla* (L.) Mill. (Fig. 17)

Fig. 17. *Linaria triphylla* (photo K. Polymenakos).

Gr Nomos Attikis, Eparchia Megaridos: foothills of Mt Pateras, 1.5 km NW of Mandra, uncultivated field, 140 m, 38°05'N, 23°29'E, 02.03.2014, *Polymenakos* & *Kofinas* obs. (photo; conf. Kit Tan, March 2014); 7 km W of Paleokoundoura, cultivated cereal field, 485 m, 38°07'N, 23°20'E, 02.03.2014, *Polymenakos* & *Kofinas* obs.

Numerous plants, together with a spring flora of *Bellevalia dubia*, *Calendula arvensis*, *Eruca vesicaria* and *Muscari neglectum*, etc. Confirming the old record, Flora Attika pr. Paleokundura, 24.04.1874, *Holzmann* s.n. (ATHU). A single plant has also been noted on Pateras by A. Zografidis: Elefsina – Thives Old National Road, roadside, 350 m, 38°06'N, 23°25'E, 04.03.2014, *Zografidis* obs. (photo; conf. Kit Tan, March 2014). No other records from Pateras have been cited by Constantinidis (1997) except the one by Holzmann.

Liliaceae s.l.

99. *Allium chamaespathum* Boiss.

Gr Nomos & Eparchia Korinthias: Mt Gerania, 385 m, 37°57'N, 23°06'E, 13.12.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Gerania, not recorded by Constantinidis (1997). Numerous dried-up plants on stony slope above Ag. Theodori.

100. *Gagea villosa* (M. Bieb.) Sweet

Gr Nomos Attikis, Eparchia Megaridos: Mt Pateras, cultivated cereal fields, 730 m, 38°06'N, 23°17'E, 02.03.2014, *Polymenakos* & *Kofinas* obs. (photos; det. J.-M. Tison, March 2014); near village of Oenoe, 300 m, 38°09'N, 23°25'E, 02.03.2014, *Polymenakos* & *Kofinas* obs.

Common in the fields of Pateras and around the village Oenoe, together with *Bellevalia* spp., *Ceratocephala falcata*, *Leontice leontopetalum*, *Ranunculus ficaria*, etc. Not recorded by Constantinidis (1997).

101. *Ornithogalum narbonense* L.

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, stony slope SW of summit Profitis Ilias, 1260 m, 38°10'N, 23°14'E, 25.05.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

Confirming a 110-year old record by Halácsy (1904: 231); Constantinidis (1997) reported it in his thesis based on the same source and did not cite any other collections. Several plants were found on the slope, together with *Thesium divaricatum* which is also new for Mt Kitheronas.

Orchidaceae

102. *Epipactis microphylla* (Ehrh.) Sw.

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, W of Tris Korifes, 1300 m, 38°10'N, 23°16'E, 25.06.2013, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Kitheronas, not recorded by Constantinidis (1997). A few plants in dense *Abies* forest.

Poaceae

103. *Saccharum ravennae* (L.) Murray (≡ *Tripidium ravennae* (L.) H. Scholz)

Gr Nomos & Eparchia Attikis: Mt Pendeli, Lykorema stream between Drafi and Dioni, 175 m, 38°01'N, 23°55'E, 06.01.2014, *Polymenakos* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Pendeli. Several plants occurring at the edge of stream. From Nomos Attikis it has been reported only once, more than a 100 years ago by Orphanides, “ad Cephissum” north of Athens.

Reports 104–106

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Orchidaceae

104. *Epipactis exilis* P. Delforge (Fig. 18)



Fig. 18. *Epipactis exilis* (photo A. Popatanasov).

Bu Mt Sredna Gora (*Western*): Mt Lozenska, in a *Fagus sylvatica* forest, on a north facing slope near a small depression, inclination *ca.* 5 degrees, 960 m, 42°34'50"N, 23°30'43"E, 27.07.2013, A. Popatanasov obs.

New for Mt Sredna Gora (*Western*), according to Assyov & Petrova (2012). Three plants were found two weeks earlier but only one survived until blossoming, and therefore, it was not collected. Other species from this family found in this forest are *E. helleborine*, *E. microphylla* and *Neottia nidus-avis*. Additionally, *E. pontica* was reported to grow on the neighbouring peak (Petrova & Venkova 2006) but was not found in this forest. As a self-pollinating plant, it got pollinated before the flowers opened.

105. *Epipactis microphylla* (Ehrh.) Sw. (Fig. 19)



Fig. 19. *Epipactis microphylla* (photo A. Popatanasov).

Bu Pirin Mts (*Southern*): on the east slopes of peak Orelek (2098 m), in a mixed closed forest, on an east facing steep slope, 100 m from the trail to peak Orelek, 1540 m, GM10, with flowers, 15.07.2013, coll. A. Popatanasov (SO 107571).

New for the Pirin Mts (*Southern*), according to Assyov & Petrova (2012). Twelve plants were found on an area of 2 ha under the trail to peak Orelek. The plants are with narrower leaves and have stronger fragrance than in the northern areas of the country. Other species from this family found in this forest are *E. helleborine*, *Cephalanthera rubra*, *C. damasonium* and *Neottia nidus-avis*.

106. *Epipactis purpurata* Sm. (Fig. 20)

Bu Vitosha Region: Mt Lyulin, in an old *Populus tremula* forest, on a northeast facing slope, near a dirt road, *ca.* 1000 m, 42°39'15"N, 23°10'55"E, with flowers and fruits, 03.09.2013, coll. A. Popatanasov (SO 107572).



Fig. 20. *Epipactis purpurata* (photo A. Popatanasov).

So far in Bulgaria, *E. purpurata* has been found in beech forests on steep slopes, with single aerial stems (Petrova & al. 2002). This population grows in an old *Populus tremula* forest, with inclination of 3–10 degrees; there were two plants with multiple aerial stems. Besides them, several other plants had stems over 80 cm tall, which exceeded the reported height of 20–70 cm by Petrova (2012). The plants in this population flower from early August till early October (with a peak at the end of August). Thirty-six plants were counted on an area of over 2 ha. Other species from this family found in this forest are: *E. helleborine*, *Cephalanthera damasonium* and *Neottia nidus-avis*.

The finding that *E. purpurata* can grow in different from beech or hornbeam forests (Delforge 2006; Petrova & al. 2002) may extend the areas of search for this very rare and endangered species, of which only six low-numbered populations have been reported so far in the country (Petrova & al. 2002).

Reports 107–112

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Asteraceae

107. *Carduus hamulosus* Ehrh.

Bu Danubian Plain: valley of river Studena, SE of Hadzhidimitrovo village, Svishtov district, E of the fish ponds at Hadzhidimitrovo, in loess steppe grasslands, 60 m, LJ71, 43.49243°N, 25.47931°E, with flowers, 19.05.2010, coll. S. Stoyanov & V. Goranova (SOM 169809).

So far this species has been known from Northeast Bulgaria and Sofia Region and has been of uncertain distribution in the Danubian Plain (Delipavlov 2003). Its occurrence in the Danubian Plain is now confirmed.

108. *Senecio macrophyllus* M. Bieb. (Fig. 21)

Bu Danubian Plain: NW of Nedan village, Pavlikeni district, in grassy places between a dirt road and agricultural land, near the left-hand bank of river Lomya (right-hand tributary of river Osam), 80 m, LH59, 43.31843°N, 25.24446°E, with flow-

ers and fruits, 17.08.2013, coll. S. Stoyanov & V. Goranova (SOM 169773–169776).

According to Vladimirov (2012a), this species occurs at the Black Sea Coast (*Northern*) and Northeast Bulgaria. Only two specimens of *S. macrophyllus* are kept in the Bulgarian Herbaria (SOM 81189, 81190) collected by B. Davidov from Osman Faku (today Kozloduytsi village, Dobrich district).



Fig. 21. *Senecio macrophyllus* (photo S. Stoyanov).

Fabaceae

109. *Caragana frutex* (L.) K. Koch

Bu Northeast Bulgaria: E of Stan village, Novi Pazar district, on the two open chalky hillocks near the cemetery of Stan, NH29, northern hillock – 210 m, 43.34037°N, 27.26617°E, southern hillock – 200 m, 43.33832°N, 27.26699°E, 16.08.2013, coll. S. Stoyanov & V. Goranova (SOM 169777, 169778).

Caragana frutex occurs along the ridge and on the southern slopes of the two small hillocks. The subpopulation on the northern hillock is located on the ridge, at an area of about 50 m² and numbers about 50 individuals. That on the southern hillock is evenly distributed on the southern slope and among the sparse *Paliurus spina-christi* scrubs located at the foot of the hillock; it covers an area of 0.1 ha and numbers about 300 individuals. The species takes part in steppe communities, along with *Astragalus vesicarius*, *Bothriochloa ischaemum*, *Carlina acanthifolia*, *Echinops ritro*, *Festuca valesiaca*, *Genista sessilifolia*, *Haplophyllum suaveolens*, *Inula ensifolia*, *Jurinea stoechadifolia*, *Linum tauricum*, *Taraxacum serotinum*, *Teucrium chamaedrys*, *T. polium*, etc. Its com-

munities belong to the rare habitat '40C0* Ponto-Sarmatic deciduous thickets', listed under Annex I of the EU Habitats Directive, 92/43/EEC. The locality is vulnerable and threatened by destruction, firstly, because of its small size and, secondly, because of its proximity to urban areas and farmland. Inclusion of this place in a protected area or site of Natura 2000 is recommended.

A new locality of this rare species in Northeast Bulgaria. According to Meshinev (2012), *C. frutex* occurs locally in the Danubian Plain and Northeast Bulgaria.

Geraniaceae

110. *Geranium tuberosum* L. (Fig. 22)

Bu Valley of River Struma (*Southern*): N of Ilindentsi village, Strumyani district, in dry grassy places, on sandy soil, 360 m, FM81, 41.65271°N, 23.23170°E, with flowers, 21.04.2010, coll. S. Stoyanov & V. Goranova (SOM 169810, 169811).



Fig. 22. *Geranium tuberosum* (photo S. Stoyanov).

According to Petrova and Kožuharov (1979), *G. tuberosum* is known from the Black Sea Coast (*Southern*), Rhodopi Mts (*Eastern*), Thracian Lowland, and Tundzha Hilly Country floristic regions. Subsequently, this species has been reported from the Znepole Region (Dimitrov 1994), Black Sea Coast (*Northern*) and Valley of River Struma (*Northern*) (Velčev & Vassilev 2002).

Orchidaceae

111. *Ophrys apifera* Huds. (Fig. 23)

Bu Valley of River Struma (*Northern*): W of Boboshevo town, Kyustendil district, in dry grassy places, on calcareous soil, 530 m, FM66, 42.14948°N, 22.99209°E, with flowers, 02.06.2010, coll. S. Stoyanov & V. Goranova (SOM 169808).

According to Cheshmedzhiev (2003), *Ophrys apifera* is known from the Black Sea Coast (*Southern*), Northeast Bulgaria, Sofia Region, Rhodopi Mts (*Eastern*), and Mt Strandzha floristic regions. Subsequently, this species has been reported from the Forebalkan (*Western*) (Vladimirov 2006), Balkan Range (*Western*) (Tashev & al. 2006), Thracian Lowland (Grozeva 2006), Znepole Region (Apostolova-Stoyanova & Stoyanov 2007; Asenov 2010), and Mt Sredna Gora (*Western*) (Pedashenko 2010).



Fig. 23. *Ophrys apifera* (photo S. Stoyanov).

Poaceae

112. *Corynephorus divaricatus* (Pourr.) Breistr.

Bu Valley of River Struma (*Southern*): E of Marino Pole village, Petrich district, on a dry grassy sandy terrain, along with sparse *Juniperus oxycedrus* communities, 140 m, FL98, 41.41378°N, 23.35783°E, 03.06.2010, coll. S. Stoyanov & V. Goranova (SOM 169779, 169780).

This is a new locality of this rare species in the Valley of River Struma. Until recently, it has been known only from the vicinities of Kulata village, Petrich district (Kartaletsa hill) (Velchev & Bondev 1961). *Corynephorus divaricatus* is a target species in the project 'A pilot network of small protected sites for plant species in Bulgaria using the plant micro-reserve model'. Within this project, the locality of Kartaletsa Hill was declared a protected area in 2013.

Acknowledgements. The authors are grateful to the European Commission's Life+ Programme for the financial support of the project LIFE08 NAT/BG/000279.

Reports 113–121

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Asteraceae

113. *Artemisia pontica* L.

Bu Northeast Bulgaria: 3 km SE of Sokolnik village, Dobrich district, valley of river Batova Reka, in calcareous dry grassy places, 260 m, NJ70, 43.42512°N, 27.91191°E, 01.09.2011, coll. S. Stoyanov (SOM 169818, 169819).

According to Gussev (2012), this species occurs at the Black Sea Coast (*Southern*), Danubian Plain, Forebalkan (*Western*), Balkan Range (*Western*), Sofia Region, Znepole Region, Vitosha Region, and Mt Sredna Gora (*Western*) floristic regions.

114. *Cota macrantha* (Heuff.) Boiss.

Bu Znepole region: Mt Milevska, 1.5 km SW of Pobit Kamak village, Treklyano district, in mountain meadows, 1460 m, FN11, 42.58366°N, 22.44524°E, with flowers, 16.07.2013, coll. S. Stoyanov (SOM 169765, 169766); Mt Milevska, FN11, 17.07.1960, coll. D. Jordanov & A. Yanev (SO 96654–96656, 102126, sub *Anthemis triumfettii* (L.) All.).

Until recently, this species has been known only from the West Frontier Mts (Mt Osogovska) and Rila Mts (Kuzmanov & Gussev 2012). It is listed in the Red Data Book of Bulgaria as Endangered (Vladimirov 2012b, sub *Anthemis macrantha* Heuff.).

115. *Picnomon acarna* (L.) Cass.

Bu Northeast Bulgaria: 2.5 km NE of Katselovo village, Ruse district, in calcareous dry grassy places, 290 m, MJ22, 43.54405°N, 26.09696°E, with fruits, 28.09.2009, coll. I. Kolev (SOM 169836); between the villages of Byala (today Byala town) and Manastiritsa (today Borovo town), Ruse district, MJ01, 24.07.1901, coll. A. Yavashov (SOM 86588); Kozludza village (today Suvorovo town), Varna district, NH49, 16.07.1901, coll. A. Yavashov (SOM 86592); Deli Orman, ad pagum Kozludza (today Suvorovo town), Varna district, NH49, 22.07.1904, coll. B. Davidov (SOM 83048); in stony places at Devnya town, Varna district,

NH48, 08.08.1924, coll. D. Jordanov (SO 77468, 77469, sub *Cirsium acarna* (L.) Moench).

According to Delipavlov (2003), this species occurs at the Black Sea Coast, Danubian Plain, Forebalkan, Znepole Region, Valley of River Struma, Valley of River Mesta, Rhodopi Mts (*Eastern* and *Central*), Thracian Lowland, and Tundzha Hilly Country floristic regions.

Caryophyllaceae

116. *Silene asterias* Griseb.

Bu Znepole Region: Mt Milevska, 1.5 km SW of Pobit Kamak village, Treklyano district, along a mountain spring, 1470 m, FN11, 42.58303°N, 22.44363°E, 16.07.2013, coll. S. Stoyanov (SOM 169767, 169768).

Until recently, this Balkan endemic species has been known from the Balkan Range (*Western*), Vitosha Region, West Frontier Mts, and Rila Mts (Jordanov & Panov 1966).

Fabaceae

117. *Onobrychis viciifolia* Scop.

Bu Northeast Bulgaria: on the slopes of right-hand bank of river Cherni Lom, between the villages of Katselovo, Ruse district and Garchinovo, Targovishte district, in calcareous dry grassy places, 140 m, MJ21, 25.05.2010, coll. I. Kolev (SOM 169837).

So far this species is known from the Danubian Plain, Forebalkan, Balkan Range (*Eastern*), Sofia Region, Znepole Region, Mt Sredna Gora (*Western*), Rhodopi Mts (*Western*), and Thracian Lowland floristic regions (Terziyski 2003).

Geraniaceae

118. *Geranium purpureum* Vill.

Bu Northeast Bulgaria: valley of Cherni Lom river, SW of Krepcha village, Targovishte district, Kalakach Dere locality, dry grassy places, 200 m, MJ21, 21.05.2013, coll. I. Kolev (SOM 169982).

A new species for this floristic region.

Rosaceae

119. *Spiraea chamaedryfolia* L.

Bu Forebalkan (*Western*): above Granichak village, Belogradchik district, on the northern slope of peak Vedernik, in chasmophytic shrubby communities, FP23, 28.04.2008, coll. S. Stoyanov (SOM 164890).

— Znepole Region: Mt Ruy, on the eastern slope of peak Ruy, in stony grassy places above the

upper forest line, 1640 m, FN24, 42.86271°N, 22.57819°E, with fruits, 15.07.2013, coll. S. Stoyanov (SOM 169769, 169770); Mt Ruy, SW of peak Malak Ruy, in a humid forested hollow, 1100 m, FN34, 13.07.1961, coll. D. Jordanov & A. Yanev (SO 92622, sub *S. ulmifolia* Scop.); Mt Rudina, supra Bobovski Dol locality, prope pagum Gorni Koriten, Kyustendil district, FN20, 26.05.1939, coll. B. Achtarov (SOM 36382).

Markova (1973) had maintained that the species occurs on Mt Rudina, but by mistake had referred that locality to the West Frontier Mts floristic region. In fact, Mt Rudina falls within the range of Znepole Region. This error has been repeated in all later botanical guides. There are no specimens of this species from West Frontier Mts in the Bulgarian herbaria.

Thymelaeaceae

120. *Daphne oleoides* Schreb.

Bu Znepole Region: Mt Ruy, on the southeastern slope of peak Orlovets, in calcareous stony places, near the Bulgarian-Serbian border, 1580 m, FN24, 42.86930°N, 22.57378°E, 15.07.2013, coll. S. Stoyanov (SOM 169771, 169772).

According to Delipavlov (2003), this species occurs in the Forebalkan, Balkan Range (*Central*), Mt Belasitsa, Mt Slavyanka, Pirin and Rila Mts, and Rhodopi Mts (*Central*) floristic regions.

Liliaceae

121. *Ornithogalum refractum* Schldl.

Bu Northeast Bulgaria: 2 km E of Katselovo village, Ruse district, Golyamoto Selishte locality, 200 m, MJ22, 17.04.2009, coll. I. Kolev (SOM 169817).

According to Popova (2003), this species occurs at the Black Sea Coast, Danubian Plain, Valley of River Struma, Mt Belasitsa, Mt Slavyanka, Valley of River Mesta, and Rhodopi Mts floristic regions.

Reports 122–130

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Apiaceae

122. *Stefanoffia daucooides* (Boiss.) H. Wolff

Bu Valley of River Struma (*Southern*): 1 km SE of Razhdak village, Petrich district, in dry grassy places in sparse bushes and open woodlands of *Carpinus orientalis*, *Paliurus spina-christi* and *Quercus pubescens*, 270 m, FL88, 41.39428°N, 23.24950°E, 23.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169781, 169782); 3 km E of Razhdak village, SE of the abandoned Razhdak frontier post, near the Bulgarian-Greek border, in dry grassy places in sparse bushes of *Paliurus spina-christi*, 300 m, FL98, 41.40007°N, 23.27725°E, with flowers, 25.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169783, 169784).

So far this species has been known from the Rhodopi Mts (*Eastern*), Thracian Lowland and Tundzha Hilly Country floristic regions (Assenov 1982).

Fabaceae

123. *Vicia barbazitae* Ten. & Guss. [Syn. *Vicia laeta* Ces.]

Bu Mt Belasitsa: E of Belasitsa village, Petrich district, along the forest road between the Hristinkina and Lilyankina water fountains, 720 m, FL88, 41.36355°N, 23.16397°E, with flowers, 23.04.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169785, 169786); above Kolarovo village, Petrich district, in dry stony places, 900 m, FL78, 03.05.1998, coll. P. Zhelev & G. Gogushev (SOM 154044, sub *V. laeta*).

The species was reported for the first time from Mt Belasitsa by Stojanov (1921). However, due to lack of herbarium specimens, distribution of this plant in M Belasitsa remained uncertain. Its occurrence in that floristic region is confirmed now.

Rosaceae

124. *Crataegus heldreichii* Boiss.

Bu Valley of River Struma (*Southern*): 3 km E of Razhdak village, Petrich district, SE of the abandoned Razhdak frontier post, near the Bulgarian-Greek border, in sparse shrublands, 270 m, FL98, 41.40140°N, 23.27690°E, with young fruits, 25.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169787, 169788).

A second locality of this rare Balkan endemic is in the Valley of River Struma (*Southern*) floristic region. The first one is near Yanovo village, Sandanski district.

Crataegus heldreichii occurs in Mt Slavyanka (above Petrovo village) and Rhodopi Mts (*Eastern*) (between Ivaylovgrad town and Mandritsa village) too (Assyov & Petrova 2012).

125. *Sorbus borbasii* Jáv. (Fig. 24)

Bu Mt Belasitsa: Kongura Reserve, E of peak Kongur, near the Bulgarian-Greek border, at the upper forest line of *Fagus sylvatica* forests, FL87, 1660 m, 41.32262°N, 23.19127°E & 1370 m, 41.33083°N, 23.21390°E, with flowers, 25.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169789, 169790).



Fig. 24. *Sorbus borbasii* (photo S. Stoyanov).

The two localities are at a distance of about 2.5 km away from each other. The first one consists of 15 stems, mostly sprouts deriving from no more than five specimens. There are two plants in the second locality. The species was reported for the first time from Bulgaria by Gramatikov (1975), with occurrence in the Balkan Range (*Central*), Mt Sredna Gora (*Eastern*), and Rhodopi Mts (*Central*) floristic regions.

Scrophulariaceae

126. *Lathraea rhodopea* Dingler (Fig. 25)

Bu Mt Belasitsa: E of Belasitsa village, Petrich district, parasitises on the roots of *Salix caprea*, *Corylus avellana*, *Castanea sativa*, *Fagus sylvatica*, *Ostrya carpinifolia*, FL88, near Lilyankina water fountain, 720 m, 41.36418°N, 23.16506°E & 250 meters E from Lilyankina water fountain, 730 m, 41.36525°N, 23.16778°E, with flowers and fruits, 23.04.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169791).

Three hundred and fifty flower-bearing stems were counted in the locality above Belasitsa village. The biggest group consisted of 160 flower-bearing stems.

According to Delipavlov (1995), this species is known from Mt Slavyanka, Rhodopi Mts and Thracian Lowland floristic regions. Subsequently, *L. rhodopea* was reported from the Valley of River Struma (*Southern*) (Vladimirov & al. 2006).



Fig. 25. *Lathraea rhodopea* (photo S. Stoyanov).

Thymelaeaceae

127. *Daphne kosaninii* (Stoj.) Stoj. [Syn. *Daphne oleoides* var. *kosaninii* Stoj.] (Fig. 26)



Fig. 26. *Daphne kosaninii* (photo S. Stoyanov).

Bu Mt Belasitsa: in stony places on the mountain ridge of Belasitsa, Ambaro locality, 1770 m, FL77, 41.33263°N, 23.03444°E, with flowers, 20.06.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169792).

This is a new record for the territory of Mt Belasitsa. The species is included in the *Red Data Book of People's Republic of Bulgaria* (Markova 1984) as 'Rare'. So far the species has been known only from the Pirin Mts and Mt Slavyanka.

Initially, Stojanov (1924) described this taxon as *D. oleoides* var. *kosaninii* Stoj. Subsequently, the same author assigned it a species rank (Stojanov 1928). In the *Flora of Bulgaria* (Markova & Cherneva 1979) the taxon was again considered as a variety of *D. oleoides*.

Today *D. kosaninii* remains with uncertain taxonomic position which is most probably the reason for its neglect in the last edition of *Key to the Plants of Bulgaria* (Delipavlov & Cheshmedzhiev 2003). Besides its controversial status, the species clearly differs morphologically from *D. oleoides* with its pink perianth lobes, as well as with the smooth reddish branches and glabrous leaves (the leaves of *D. oleoides* are adpressed pubescent beneath), characteristics indicated by Stojanov in the species diagnosis. Furthermore, another feature of its branches should be pointed out. The bark of *D. kosaninii* is with vertical fissures, whereas the bark of *D. oleoides* is with horizontal fissures and seldom with mixed vertical and horizontal fissures. Another difference in the Belasitsa locality is related to the phenology of this species. There were also individuals of *D. oleoides* in the locality of *D. kosaninii*. The first plant was in the phase of full flowering, whereas the second one was at the beginning of the flowering.

Cyperaceae

128. *Carex pendula* Huds.

- Bu** Forebalkan (*Eastern*): near Sevlievo town, Gabrovo district, LH46, 1902–1903, coll. I. Neychev, (SOM 9992–9995, 9997, 79635).
 — Znepole Region: Mt Konyavska, N of peak Bandera (today peak Viden), in wet places in a humid forested hollow, FM59, 21.07.1957, coll. D. Jordanov & A. Yanev (SO 91704, sub *C. maxima* Scop.).
 — Mt Belasitsa: SE of Belasitsa village, Petrich district, along a small forest stream, 700 m, FL78,

41.35254°N, 23.15517°E, with fruits, 26.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169793, 169794).

- Rhodopi Mts (*Central*): W of Asenovgrad, in a forested shady hollow, LG25, 20.06.1955, coll. S. Kožuharov & B. Kuzmanov (SOM 105975).

A new species for these floristic regions. So far this species has been known from the Black Sea Coast, Northeast Bulgaria, Danubian Plain, Balkan Range, Pirin Mts (*Southern*), Mt Sredna Gora (*Western*), Tundzha Hilly Country, and Mt Strandzha (Assyov & Petrova 2012).

Liliaceae s.l.

129. *Asphodelus albus* Mill.

- Bu** Mt Belasitsa: Kongura Reserve, 4 km E of peak Kongur, near the Bulgarian-Greek border, at the upper forest line of a *Fagus sylvatica* forest, 1390 m, FL87, 41.32927°N, 23.21218°E, with flowers, 25.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169795).

According to Popova (2003), this species occurs in the Balkan Range (*Western* and *Eastern*), Sofia Region, Znepole Region, Vitosha Region, West Frontier Mts, and Rila Mts floristic regions.

Poaceae

130. *Briza maxima* L.

- Bu** Valley of River Struma (*Southern*): 3 km E of Razhdak village, Petrich district, SE of the abandoned Razhdak frontier post, near the Bulgarian-Greek border, in *Carpinus orientalis* communities, 290 m, FL98, 41.39978°N, 23.27716°E, 25.05.2013, coll. S. Stoyanov & L. Topalova-Rzerzycha (SOM 169796, 169797); between the villages of Drangovo and Topolnitsa, Petrich district, near the Bulgarian-Greek border, in dry grassy places, FL98, 14.05.1981, coll. P. Panov (SOM 142573).

So far this species has been known from the Black Sea Coast (*Southern*), Rhodopi Mts (*Eastern*), Tundzha Hilly Country, and Mt Strandzha floristic regions (Delipavlov 2003).

Acknowledgements. This new chorological data and remarks were made in the framework of the project Development of a Management Plan of Belasitsa Nature Park, funded by the EU and the Republic of Bulgaria through the Environment Operational Programme 2007–2013.

Report 131

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Concerning a brief investigation of a *Crocus* from Mt Parnitha (Sterea Ellas, Nomos & Eparchia Attikis) long misidentified as *C. olivieri*. The floristic region adopted is as circumscribed in *Flora Hellenica* (Strid & Tan 1997).

Iridaceae

131. *Crocus flavus* Weston subsp. *atticus* Kit Tan, Zografidis & Mermvgykas, subsp. nov. (Figs 27 & 28)

Style obscurely divided into 3 short branches, each usually expanded at the apex
..... subsp. *flavus* (mainland Greece N of 39°N)

Style distinctly divided into 6 short branches, each expanded at the apex
..... subsp. *atticus* (Mt Parnitha)

Gr Nomos & Eparchia Attikis: Mt Parnitha, Dhekelia to Ag. Merkourios, NW of Hani Katsimidou, 600 m, 38°08'N, 23°45'E, 08.02.1969, *Stamatiadou* 4405 (**holotype** ATH!); Mt Parnitha, eastern slopes, ca. 650 m, 38°12'N, 23°47'E, 02.03.2014, flowering, *Zografidis* s.n. (ATH!, C!, LD!).

On 10.02.2014, a large population of yellow-flowered *Crocus* was observed by the amateur orchidologist Panagiotis Koubetsos on the eastern slopes of Mt Parnitha. He noted that the flowers seemed different to those of *Crocus olivieri* J. Gay subsp. *olivieri* which was the only yellow-flowered *Crocus* reported from the mountain. Although the latter was also in the same population it had finished peak flowering approximately a month earlier. The unfamiliar *Crocus* differed from *C. olivieri* by its corm with old, persistent sheathing cataphylls, by the style length (much shorter than the stamens), the degree of division of style branches, and by its bracteole which is absent or very small, unequal in size to the bract. He posted his observation and the locality of his observation online and this was noticed and further investigated by Kostas Polymenakos and Aris Zografidis, two amateur botanists residing in Athens. They independently sent photographs and plants to Kit Tan who originally identified it as *C. flavus* Weston.

Crocus flavus subsp. *flavus* occurs in the Central Balkans and W Turkey. It is characterized by a corm with a persistent, long brown neck of old sheathing leaves (the cataphylls, as in Fig. 27B) and a small linear bracteole enclosed and almost hidden by the much larger bract (as in Fig. 27D). Thus the bract and bracteole are very unequal, and in this feature differs conspicuously from the equal bracts and bracteoles of *C. olivieri*. The style in *C. flavus* subsp. *flavus* is obscurely divided into three short branches, each usually expanded at the apex. The flowers are reported as fragrant, flowering in March to April, thus a little later than *C. olivieri* subsp. *olivieri* which has its peak in January to early February.

The Parnitha plant has a few peculiarities, differing from typical *C. flavus*. First, there is the frequent absence of the linear bracteole; indeed, it was only observed by Zografidis in one out of forty randomly selected plants in a population. Presumably, the small bracteole no longer has a function, the protective task adequately taken over by the bract which is very well-developed. Secondly, the Parnitha plant differs in having the style further divided; each of the 3 branches is divided so that there is a total of 6 short branches, each expanded at the apex (Fig. 27C). A few individuals were noted to retain *C. flavus* subsp. *flavus*-like styles, i.e. seemingly with only 3 branches but closer examination reveals there are always more than 3 branches. Thirdly, the flowers are not scented, or at least not noticeably fragrant as in *C. flavus* and *C. olivieri*.

With this distinguishing syndrome of characters, one can justifiably treat the Parnitha *Crocus* as a subspecies of *C. flavus* with a well-defined, narrow geographical distribution in Attikis, south-central Greece, and we propose the name *Crocus flavus* subsp. *atticus*. Goulimis (1956: 20) reported *C. aureus* Sm. from Mt Parnitha, this name is currently an accepted synonym of *C. flavus* subsp. *flavus*. Through the kindness of Kiki Dimas and Dionysis Mermvgykas from the Goulandris Natural History Museum in Kifissia, it was noted that the style in the Goulimis' specimen is multifid (with 6 branches), the bract and bracteole equal in size and the corm without a neck of old, persistent sheathing leaves. These features are characteristic of *C. olivieri* so we know that Goulimis' specimen (Parnitha, Katsimidhi, 18.02.1956, *Goulimis* 11468, ATH!) is not *C. flavus* although its synonym was cited. Thus, Goulimis was not the first to report *C. flavus* on Mt Parnitha (sub nom *C. aureus*). Brian Mathew (1982: 94) in his classic work

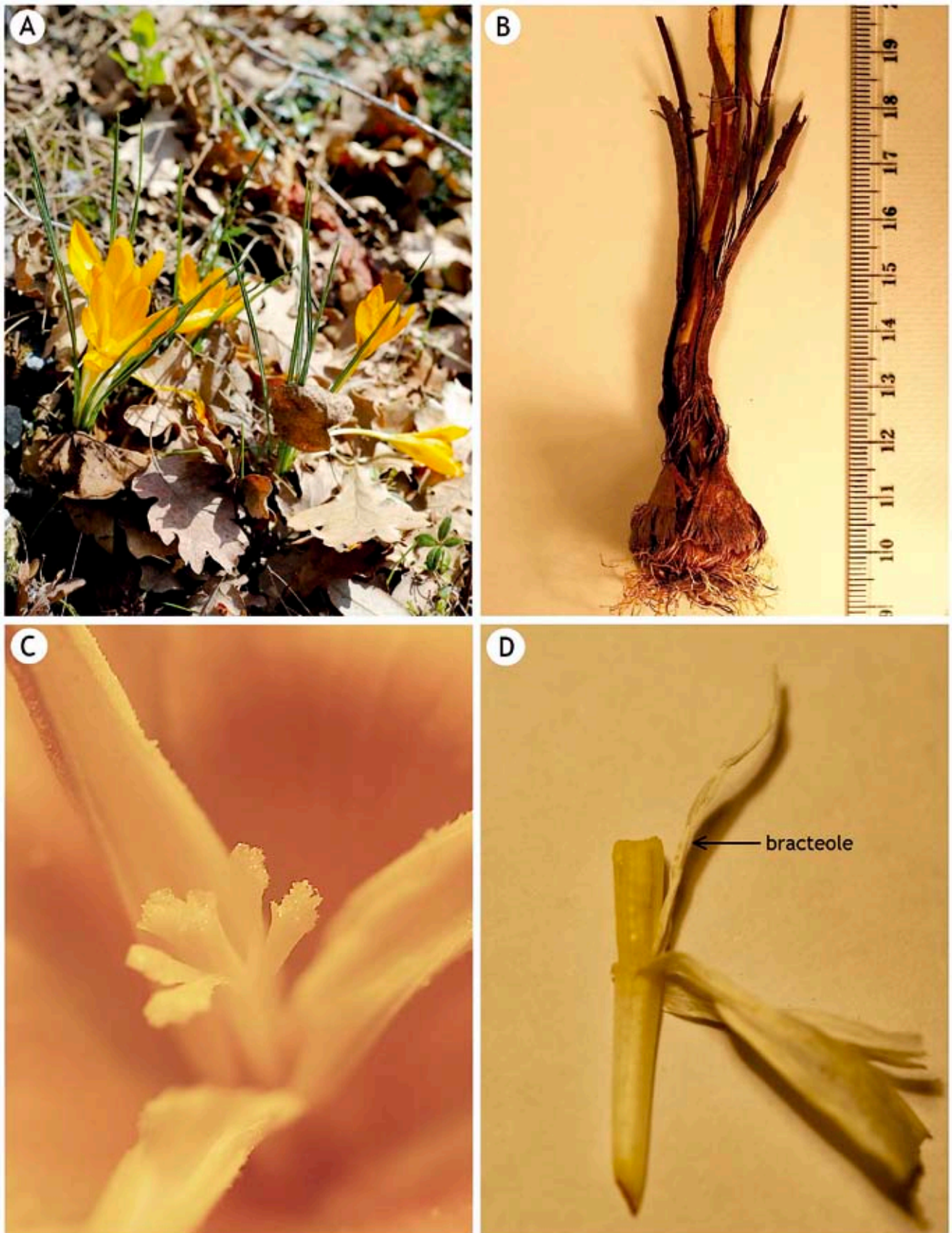


Fig. 27. *Crocus flavus* subsp. *atticus*: A, habitat; B, corm with remains of old sheathing leaves; C, style with 6-fid apex; D, large bract and small bracteole (photos A. Zografidis).

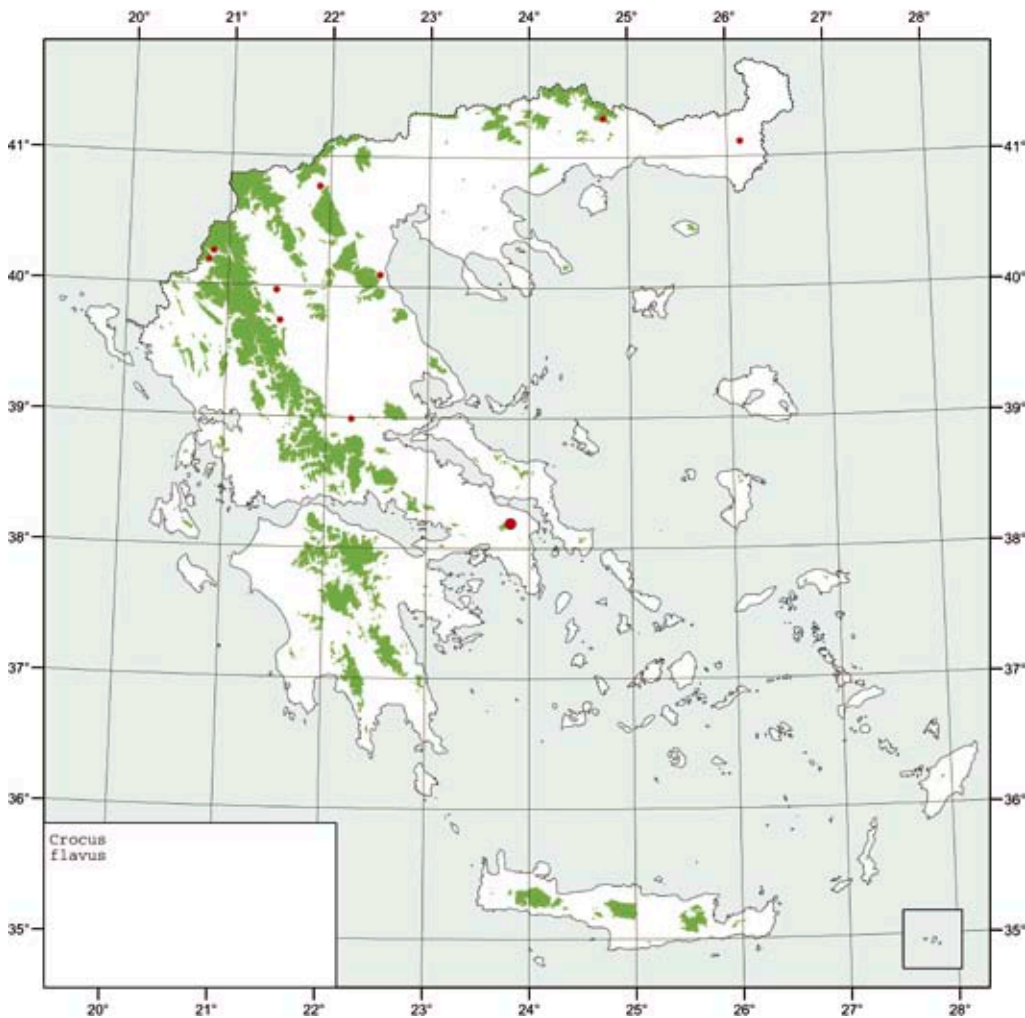


Fig. 28. Map showing distribution of *C. flavus* (the occurrence on Mt Parnitha is indicated by the larger red dot).

on the *Crocus* writes, “I have seen material collected by S.C. Atchley (1938), author of the beautiful *Wild Flowers of Attica*, from near Athens and these represent a mixed gathering of *C. olivieri* and *C. flavus* ... and it is not unusual to come across herbarium sheets consisting of a mixture.” It would appear that Mathew was the first to record an observation of *C. flavus* as occurring near Athens but he did not cite any specimens as vouchers or any specific locality. Our present contribution is thus the first documentation of the presence of two yellow-flowered species of *Crocus* on Mt Parnitha (*C. olivieri* and *C. flavus*) substantiated by voucher specimens, as well as the assignment of the latter to subspecies rank. Although Parnitha was not specifically mentioned as the locality “from near Athens”, there is no doubt it refers to this mountain as it was (and still is), a well-known botanical paradise. The *Crocus* had also not been mentioned in a recent study on the flora and vegetation of Parnitha (Aplada & al. 2007) and it would be interesting to carry out a cytological investigation.

Reports 132–136

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Asteraceae

132. *Cynara cardunculus* L. (Figs 29 & 30)

Gr Nomos & Eparchia Thessalonikis: Aristotle

University Farm, site near Pylaia beach, – 0.5 m,

40°32'N, 22°58'E, 14.05.2013 & 15.02.2014, Tsialtas obs. (photos; conf. Kit Tan, February 2014).

New for eparchia and nomos and first report from NE Greece. Several well-established plants were noted on inorganic, saline soil derived from marshes reclaimed in the 1930's. The site is near drainage channels and a

salt lake, the latter serving as a winter refuge for migratory birds. The dominant species on the channel embankments is the halophytic *Halimione portulacoides*. In the reclaimed marsh, *C. cardunculus* occurs together with *Lolium* and *Avena sterilis*, as well as *Sinapis arvensis* and *Silybum marianum*. *Beta vulgaris* subsp. *maritima* thrives in soil pockets but several areas are without any vegetation on account of the high salinity. According to A. Gagianas (retired, now Prof. Emeritus at the University), *C. cardunculus* has never been introduced to the area either as a crop or for agricultural trials as far as he can recall back to the 1950's.



Fig. 29. *Cynara cardunculus* – leaf rosette (photo I. Tsialtas).



Fig. 30. *Cynara cardunculus* – flowering plant (photo I. Tsialtas).

133. *Xanthium orientale* subsp. *italicum* (Moretti)

Greuter (= *Xanthium strumarium* subsp. *cavanillesii* (Schouw) D. Löve & Dans. (Fig. 31)

Gr Nomos & Eparchia Larisis: Vounaina, vineyard of Karipidis Estate, 190 m, 39°48'N, 22°27'E, 13.09.2006, *Tsialtas* obs. (photo; conf. Kit Tan, March 2014).

New for eparchia. Several plants were found on an uncultivated plateau belonging to the vineyard, adjacent to the Larisa–Karditsa National Road. The deep loamy soils are on terraces and alluvial fans. Co-existing with *Xanthium strumarium* (dominant) and *Abutilon theophrastii*, which are very common weeds in the spring crops of cotton, sugar beet, corn and tomato grown in the area.



Fig. 31. *Xanthium orientale* subsp. *italicum* (photo I. Tsialtas).

Caryophyllaceae

134. *Saponaria officinalis* L.

Gr Nomos Ioanninon, Eparchia Pogoniou: SW of Aetopetra, banks of Voidomatis river, ca. 500 m, 40°01'N, 20°37'E, 31.07.2013, *Kit Tan & G. Vold* 31655a (seed collection).

New for eparchia. Large populations on gravelly alluvial banks and river sand of islands emerging and drying out in summer.

Gentianaceae

135. *Centaurium serpentinicola* Carlström

Gr Nomos Lesvou, Eparchia Mitilimis: Pine forest clearing and phrygana on serpentine, ca. 3 km NE of Ermogenes, 300–500 m, 39°02'N, 26°35'E, 01.06.1988, *Hansen & Nielsen* 4135 (C; det. Kit Tan, February 2014); Nomos Lesvou, Eparchia Plomariou: ca. 2 km SW of Ambelikon, dry habitats (pastures, macchie, pine forest), on serpentine, 300–500 m, 39°03'N, 26°18'E, 03.06.1988, *Hansen & Nielsen* 4346 (C, LD; det. Kit Tan, February 2014).

New for the E Aegean island of Lesvos. Both specimens from Lesvos were filed as *Centaurium* sp. in the listed herbaria. *Centaurium serpentinicola* was omitted in the recently published checklist of the Greek flora (Dimopoulos & al. 2013) although Zeltner (1991:93)

had already reported it from the E Aegean island of Rodos. It occurs on the E Aegean islands, S Anatolia and Cyprus and was first described by Carlström based on material from the Datça Peninsula in SW Anatolia. The Lesvos material differs from the type collection in some aspects; this may have prompted Nielsen to be wary of committing himself to an identification: cauline leaves and bracts not scabridulous (as opposed to scabridulous), flowers pedicellate to 2 mm, (as opposed to \pm sessile), anthers *ca.* 1 mm long (as opposed to 2–2.5 mm), corolla lobes lanceolate, 4–6 mm long (vs. narrowly elliptic to oblong, 7–9 mm long).

Violaceae

136. *Viola parvula* Tineo

Gr Nomos Kavallas, Eparchia Thasou: Mt Ipsario, summit area, 1200 m, 40°43'N, 24°40'E, 15.05.1987, *Petersen* 87-64 (C; det. Kit Tan, February 2014).

New for the N Aegean island of Thasos. Distinguished from *V. kitaibeliana* with which it had been misidentified, by the long white-villous indumentum at base of petioles and lower part of stem.

Reports 137–141

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Asteraceae

137. *Ambrosia artemisiifolia* L.

Bu Thracian Lowland: at the railway station in Haskovo town, LG74, LG84, 41.93293°N, 25.58654°E, 23.06.2011, *V. Vladimirov*, *Ts. Raycheva* & *K. Stoyanov*, obs.

The species has been already reported and mapped (UTM grid 10 × 10 km) for the Thracian Lowland exactly on the basis of the above mentioned observation (Vladimirov 2012a; Petrova & al. 2013a). However, since no herbarium specimen has been collected, the exact locality and date of the observation is provided now.

138. *Senecio inaequidens* DC.

Bu Sofia Region: Sofia, Druzhba Residential Area in the lanes between blocks of flats, FN92, 42.67143°N, 23.39349°E, with flowers and frutis, 15.11.2013, *V. Vladimirov* obs.

This South African species was first reported for Bulgaria from the Sofia Region by Vladimirov & Petrova (2009). However, so far the species has been recorded only along railways. Three flowering and fruiting plants were observed in a lane that was not close to any railway, and is *ca.* 10–15 m apart from a road. It is very likely that the species is spread across Sofia by winds, from the already established subpopulations along the railways in the city.

Geraniaceae

139. *Geranium pratense* L. (Fig. 32)

Bu Znepole Region: along the road Breznik – Tran *ca.* 1.5 km after Filipovtsi village, *ca.* 740 m, FN44, 42.82944°N, 22.71376°E, 02.06.2010, *V. Vladimirov* obs.; along the road Breznik – Tran *ca.* 600 m before the road-fork to Bankya village, FN34, 42.84094°N, 22.68199°E, 02.06.2010, *V. Vladimirov* obs.; along the road to Lyalintsi village, near the road-fork from the road Breznik – Tran, FN43, 42.78856°N, 22.77204°E, *V. Vladimirov* obs. (photo – Fig. 32).



Fig. 32. *Geranium pratense* (photo V. Vladimirov).

This confirms the occurrence of the species in this floristic region. So far the species has been reported from the Balkan Range (*Western, Central*), Vitosha Region, Rila Mts and Rhodopi Mts (*Western*) (Petrova & Kožuharov 1979) and Rhodopi Mts (*Eastern*) (Delipavlov 2011;

Assyov & Petrova 2012). The species was already reported for the Znepole Region by Stojanov & Stefanov (1948) and Stojanov & Ganchev (1950). However, due to lack of herbarium specimens these reports have not been taken into account in the later literature sources for the Bulgarian flora.

Lamiaceae

140. *Lavandula angustifolia* Mill.

Bu Forebalkan (*Eastern*): in dry grassland on a hill NW of Kakrina village, Lovech district, 470–480 m, LH27, 43.13581°N, 24.87529°E, 27.06.2012, V. Vladimirov obs. (photo).

This is a new species for this floristic region. So far it has been reported from the Balkan Range, Sofia Region, Znepole Region, West Frontier Mts (Assyov & Petrova 2012), and the Forebalkan (*Western*) (Petrova & al. 2013b).

Orchidaceae

141. *Ophrys apifera* Huds. (Fig. 33)

Bu Valley of River Struma (*Southern*): ca. 300 m above Novo Hodzhovo village, along the road to Dolno Spanchevo village, GL08, 41.40987°N, 23.39613°E, 04.05.2010, V. Vladimirov obs. (photo – Fig. 33).



Fig. 33. *Ophrys apifera* (photo V. Vladimirov).

This is its first report for this floristic region. So far it has been recorded from the Black Sea Coast (*Southern*), Northeast Bulgaria, Forebalkan (*Western*), Balkan Range (*Western, Eastern*), Sofia Region, Znepole Region, Mt. Sredna Gora (*Western*), Rhodopi Mts (*Eastern*), Thracian Lowland, and Mt Strandzha (Assyov & Petrova 2012).

Reports 142–148

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Continuing a series of new plant records based on floristic investigations in the prefecture of Korinthias in north central Peloponnese. New and surprising discoveries of Greek endemics however, still emerge; in this case, a new species of *Cirsium* from Mt Killini.

Asteraceae

142. *Cirsium zarkosii* Kit Tan, G. Vold & Christodoulou, **sp. nov.** (Figs 34–36)

Spiny perennial herb 40–80 (–100) cm tall. Stems erect, simple or sparingly branched above, single or tufted, unwinged, sulcate with stramineous longitudinal ridges, white arachnoid-pilose, leafy throughout. Leaves alternate, 20–25 × 10–12 cm, deeply pinnatisect, with strong marginal spines and pungent, rigid setae on upper leaf surface, densely white arachnoid-tomentose to greenish-subglabrous beneath. Lower cauline leaves ± sessile, spiny-dentate at base, lanceolate in outline, 6–25 × 5–7 cm, lobes triangular-lanceolate. Subtending leaves adpressed spiny-setose, more than twice exceeding capitulum. Capitula numerous, erect, in clusters of 1–3 at ends of branches, forming a corymbose panicle. Involucre pedunculate, broadly depressed-campanulate, 1.3–2.8 cm wide (excl. appendages), greenish-yellow, arachnoid-tomentose. Phyllaries numerous, 6–9-seriate, imbricate, linear-lanceolate, spinose-acuminate, apical spine becoming erecto-patent in late anthesis, dorsal vittae absent; middle phyllaries greenish-yellow, less than 1 mm wide in upper part, ciliate-denticulate;



Fig. 34. *Cirsium zarkosii* and *C. hypopsilum*: habit and part of inflorescence (photos G. Zarkos).



Fig. 35. *Cirsium zarkosii*: holotype (Kit Tan, G. Vold & Zarkos 31643).

appendage purplish-magenta, lanceolate, narrowing into 2–4 mm apical spine. Receptacle pitted, densely bristly-setose. Florets tubular, all hermaphrodite, marginal florets absent; corolla 5-fid to *ca.* halfway, lobes *ca.* 5 mm long, equalling or slightly longer than tubular base, cream or greenish-yellow tipped deep magenta-pink. Achenes immature.

Gr Nomos & Eparchia Korinthias: Mt Killini, dry meadow overlying limestone, 1500 m, 37°57'N, 22°25'E, 27.07.2013 (beginning of flowering), *Kit Tan, G. Vold & Zarkos* 31643 (**holotype** C; **isotypes** ATH, LD, herb. Strid).



Fig. 36. *Cirsium zarkosii*: capitula, viewed from above and with insect-visitor (photo G. Zarkos).

Habitat and ecology: Fairly rare in dry meadows on plateau and at roadsides, on limestone, together with *Astragalus thracicus* subsp. *cylleneus*, *Carduus tmoleus*, *Cirsium hypopsilum*, *Crataegus pycnoloba*, *Eryngium amethystinum*, scattered *Juniperus oxycedrus* subsp. *deltoides* with *Prunus cocomilia*, and *Verbascum speciosum*, all at altitudes of 1450 to 1550 m. Flowering late July to late August, coming in-

to full bloom later than *C. hypopsilum*. Insect-visitors include butterflies, bees, beetles, shield bugs (hemiptera) and ants.

Taxonomic affinities: *Cirsium zarkosii* is an interesting species of *Cirsium* sect. *Epitrachys* DC., a grouping defined, among other characters, by the coriaceous, deeply pinnatisect leaves with rigid pungent spines on their upper surface. The most arresting feature is the pale greenish-yellow colour of the whole plant, reminiscent of *C. candelabrum* Griseb. which, however, belongs to a different section. A second notable feature is the inflorescence comprising numerous, rather small capitula occupying almost half the plant. The closest affinities are with *C. hypopsilum* Boiss. & Heldr. which grows in the same locality but flowers a few weeks earlier, and in Fig. 34 we depict this species growing together with *C. zarkosii*, both species were photographed on the same visit. *Cirsium hypopsilum* has fewer capitula per stem (1–5 at the ends of short branches), larger, green, ovoid-globose involucre and purplish-pink florets. The appendages are obtrullate-denticulate and abruptly contracted into a short, apical, *ca.* 3 mm long spine. Mature achenes of *C. zarkosii* have not been collected but seed must have set as there are several small populations of the plant on the plateau and along roadsides. We had wondered if *C. zarkosii* might be a species of hybrid origin, with introgression from *C. hypopsilum*; if so, it is a very stabilized hybrid, firmly established on Mt Killini since first noted in 2010, three years ago.

Eponymy: Named after George Zarkos (high school teacher of mathematics) who, together with Vasilis Christodoulou (high school teacher of physics), had enthusiastically botanized on Mt Killini and in the prefecture of Korinthias, this work resulting in several new and interesting discoveries including *Sagina stridii* Kit Tan, Zarkos & Christodoulou and *Aethionema saxatile* subsp. *corinthiacum* Kit Tan, G. Vold, Zarkos & Christodoulou.

Scrophulariaceae

143. *Bellardia viscosa* (L.) Fisch. & C.A. Mey.

(Fig. 37)

Gr Nomos & Eparchia Korinthias: near Kesari village, 740 m, 37°55'N, 22°33'E, 06.06.2012, *Zarkos & Christodoulou* obs. (several photos; conf. Kit Tan, February 2014).

In Nomos Korinthias, so far only reported from Mt Killini.



Fig. 37. *Bellardia viscosa* (photo G. Zarkos).

144. *Lathraea squamaria* L. (Fig. 38)

Gr Nomos & Eparchia Korinthias: near the small church of Ag. Triada, 1020 m, 37°58'N, 22°33'E, 02.03.2014, Zarkos & Christodoulou obs. (several photos; conf. Kit Tan, March 2014).



Fig. 38. *Lathraea squamaria* (photo V. Christodoulou).

New for eparchia and nomos, apparently a first record for the Peloponnese. The nearest reported occurrence is on Mt Dirfis (island of Evvia), ca. 133 km distant as the crow flies. Other localities in Sterea Ellas and S Pindos are in Etolias-Akarnanias (Akarnanika Ori and near the village of Vrouviana) where it is parasitic on *Ostrya*. Elsewhere in central and northern Greece, it has been recorded from the North East (Athos, Nestos river), North Central (Mts Paiko, Olimbos, Kato Olimbos), East Central (Mt Ossa) and N Pindos (Timfi area). Host plants include *Alnus*, *Corylus*, *Fagus*, *Ostrya*, *Quercus* and *Ulmus*. The plant was noted to be parasitic on the roots of a large *Platanus orientalis* (planted in the distant past) which seems to be a previously unreported host. In the same habi-

tat were *Anemone apennina* subsp. *blanda*, *Colchicum graecum*, *Crocus olivieri*, *Scilla bifolia* and *Symphytum bulbosum*. *Lathraea squamaria* is not rare in Greece but because it remains underground most of the year, it avoids notice. The generic name *Lathraea* derives from the Greek word 'lathraios', meaning *secret*, referring to the fact much of its life is spent hidden underground.

Solanaceae

145. *Physalis ixocarpa* Hornem. (Fig. 39)

Gr Nomos & Eparchia Korinthias: edge of cultivated fields near Lake Stymfalia, 611 m, 37°51'N, 22°27'E, 23.08.2013 & 20.10.2013, Zarkos & Christodoulou obs. (photos; conf. Kit Tan, February 2014).

New for eparchia and nomos. Naturalized, occurring mainly in W mainland Greece. It has rarely been recorded in the Peloponnese, there being only two other reports, near habitation (in Nomi Lakonias, Stamatiadou 4360, ATH) and along roadsides (in Nomos Ilias, Kit Tan & G. Vold 31111, herb. Kit).



Fig. 39. *Physalis ixocarpa*: flower and fruit (photo V. Christodoulou).

Violaceae

146. *Viola hymettia* Boiss. & Heldr. (Fig. 40)

Gr Nomos & Eparchia Korinthias: near village of Sofiko, 235 m, 37°47'N, 23°07'E, 15.03.2011 & 25.02.2014, Zarkos & Christodoulou obs. (photo; conf. Kit Tan, February 2014).

New for eparchia and nomos. Several plants were found in openings of *Pinus halepensis* woodland, together with *Alkanna methanaea*, *Calendula arvensis*, *Iris attica*, *Muscari commutatum* and *Ranunculus ficaria*. *Viola hymettia* has not been widely reported in the Peloponnese, probably due to confusion with other small yellow-flowered species of *Viola*.



Fig. 40. *Viola hymettia* (photo G. Zarkos).

Iridaceae

147. *Iris attica* Boiss. & Heldr.

Gr Nomos & Eparchia Korinthias: near village of Sofiko, 275 m, 37°47'N, 23°05'E, 25.02.2014, Zarkos & Christodoulou obs. (photo, flowering; conf. Kit Tan, February 2014); *loc. ibid.*, 17.11.2013, earth-pockets and crevices of limestone rock, Kit Tan, G. Vold, Zarkos & Christodoulou 31665a (vegetative state).

Also reported from Korinthias by Willing (material at B, *n.v.*). A few rhizomes were collected for cultivation. The plants, flowering in February, were very attractively dwarfed, with a short scape and top-heavy, single large flower.

Orchidaceae

148. *Ophrys bombyliflora* Link (Fig. 41)



Fig. 41. *Ophrys bombyliflora* (photo G. Zarkos).

Gr Nomos & Eparchia Korinthias: near Akrokorinthos, 236 m, 37°53'N, 22°51'E, 11.03.2010, Zarkos & Christodoulou obs. (photo; conf. Kit Tan, February 2014); *loc. ibid.*, 2.04.2011 & 12.03.2013, Zarkos & Christodoulou obs.

Only verified record from Nomos Korinthias; confirming a dot in the distribution map of Hölzinger & al. (1985: 48) which indicates approximately the same area.

Reports 149–155

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Continuing a series of new plant records based on further floristic investigations in Nomos Attikis, Eparchia Megaridos in Sterea Ellas, Greece. The floristic regions adopted follow those circumscribed in *Flora Hellenica* (Strid & Tan 1997). The taxa from Mts Pastra, Pateras and Kitheronas have been omitted by Constantinidis (1997) in his thesis.

Asteraceae

149. *Ptilostemon gnaphaloides* subsp.

pseudofruticosus (Pamp.) Greuter

Gr Nomos Attikis, Eparchia Megaridos: foot of cliff on coastal road from Aegirouses to Mavrolimni, ca. 10 m, 38°03'N, 23°07'E, 04.09.2013, Zografidis obs. (photo; conf. Kit Tan, January 2014).

New for Eparchia Megaridos. A report from Mt Parnitha (nomos & eparchia Attikis) by Aplada & al. (2007: 193) is unlikely and probably refers to *P. chamaepeuce* which occurs on the mountain. Approximately 20 plants were seen together with *Scabiosa hymettia*, *Salvia pomifera* and *Euphorbia dendroides*, on a substrate of limestone and conglomerate in *Pinus halepensis* woodland.

Berberidaceae

150. *Berberis cretica* L.

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, ca. 2 km west of summit, 950 m, 38°11'N, 23°13'E, 08.09.2013, Zografidis obs. (photo; conf. Kit Tan, January 2014).

New for Mt Kitheronas. Only two plants were seen.

151. *Leontice leontopetalum* L. subsp. *leontopetalum*

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, open fields, ca. 380 m, 38°12'N, 23°16'E, 04.03.2014, Zografidis obs. (photo; conf. Kit Tan, March 2014).

New for Mt Kitheronas. Conspicuous in large numbers in the fields along the road to Plataies (more than 500 individuals in full flower).

Lamiaceae

152. *Teucrium chamaedrys* L.

Gr Nomos Attikis, Eparchia Megaridos: Mt Kitheronas, ca. 2 km west of summit, 1000 m, 38°11'N, 23°13'E, 08.09.2013, *Zografidis* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Kitheronas. Approximately 10 plants were found growing together on the limestone ridge near the summit.

Amaryllidaceae

153. *Narcissus tazetta* L. (Fig. 42)

Gr Nomos Attikis, Eparchia Megaridos: Mt Pastra, near the Monastery of Hosios Meletios, 500 m, 38°11'N, 23°27'E, 23.01.2014, *Zografidis* obs. (photo; conf. Kit Tan, January 2014).

New for Mt Pastra (and Kitheronas). A few plants were noted on bare limestone in *Phlomis fruticosa*–*Euphorbia acanthothamnus* phrygana.



Fig. 42. *Narcissus tazetta* (photo A. Zografidis).

Hyacinthaceae

154. *Hyacinthella leucophaea* subsp. *atchleyi* (A.K. Jacks. & Turrill) K.M. & Jim. Perss. (Fig. 43)

Gr Nomos Attikis, Eparchia Megaridos: Mt Pastra, ca. 3 km NW of the Monastery of Hosios Meletios, limestone slope, 880 m, 38°12'N, 23°25'E, 04.03.2014, *Zografidis* obs. (photo; conf. Kit Tan, March 2014).

New for Mt Pastra. Reported from Kitheronas. Approximately 500 plants were noted in full flower on the degraded *Quercus coccifera* slope.



Fig. 43. *Hyacinthella leucophaea* subsp. *atchleyi* (photo A. Zografidis).

155. *Muscari pulchellum* Boiss. subsp. *pulchellum* (Fig. 44)

Gr Nomos Attikis, Eparchia Megaridos: Mt Pastra, near the Monastery of Hosios Meletios, 500 m, 38°11'N, 23°27'E, 23.01.2014, *Zografidis* obs. (photo; conf. Kit Tan, January 2014); Mt Kitheronas, 600 m, 38°10'N, 23°19'E, 07.02.2014, *Zografidis* obs. (photo; conf. Kit Tan, February 2014); Mt Pateras, 730 m, 38°07'N, 23°18'E, 07.02.2014, *Zografidis* obs. (photo; conf. Kit Tan, February 2014).

New for Mts Pastra, Pateras and Kitheronas. Constantinidis (1997) reports only the presence of *M. neglectum* on these mountains although *M. pulchellum* occurs in large quantities. The latter flowers approximately a month earlier and is quite distinct *in vivo*; Fig. 44 shows the differences between

the two species clearly (see also the excellent account by Karlén 1984). *M. pulchellum* is an endemic species with two subspecies, one common in southeastern Greece (Peloponnese and Sterea Ellas) from sea level to ca. 1300 m, the other, *M. p.* subsp. *clepsydroides* is restricted to the Kiklades.



Fig. 44. *Muscari pulchellum* and *M. neglectum* (photo A. Zografidis).

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