

New floristic records in the Balkans: 42*

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Abstract: New chorological data are presented for 124 species and subspecies from Bulgaria (17-19, 21-23, 30, 106-114), Greece (1, 12-15, 24-29, 31-107, 115-124), and Turkey-in-Europe (2-11, 16, 20). The taxa belong to the following families: *Alliaceae* (124), *Apiaceae* (24, 32, 33, 64, 65, 96, 97), *Araceae* (58), *Asteraceae* (14, 16-18, 25, 34-45, 66-70, 98), *Boraginaceae* (46, 103), *Brassicaceae* (1, 2, 47, 48, 71-74, 99, 117), *Campanulaceae* (49, 50, 118), *Caryophyllaceae* (3, 26, 27, 119, 120), *Chenopodiaceae* (51, 52), *Cistaceae* (76), *Crassulaceae* (121), *Cucurbitaceae* (77), *Cupressaceae* (62), *Ephedraceae* (63), *Euphorbiaceae* (53, 54, 78-82), *Fabaceae* (28, 55, 83, 84, 115), *Fumariaceae* (56), *Geraniaceae* (4, 5, 85, 86, 116), *Hydrocharitaceae* (21), *Hypericaceae* (6), *Iridaceae* (29, 106-111), *Juncaceae* (11), *Lamiaceae* (19, 87), *Lythraceae* (122), *Malvaceae* (57), *Onagraceae* (7), *Orobanchaceae* (112-114), *Paeoniaceae* (104), *Pinaceae* (12, 13, 31), *Plantaginaceae* (20), *Poaceae* (15, 22, 23, 59-61, 93-95, 102), *Polygonaceae* (88) *Ranunculaceae* (89), *Resedaceae* (123), *Rosaceae* (8, 90-92), *Rubiaceae* (9, 10, 100), and *Scrophulariaceae* s.l. (101, 105).

A new taxon for science is: *Anthemis rigida* subsp. *runemarkii* (14).

New taxa for the countries are: for Bulgaria – *Ballota hispanica* (19), *Crocus randjeloviciorum* (107), *Lagarosiphon major* (21); for Turkey – *Anthemis rumelica* (16).

The publication includes contributions by: E. Axiotis, M. Axiotis & Kit Tan (1), M. Aybeke (2-11), B. Biel & Kit Tan (12-15), D. Dimitrov (16-23), K. Giannopoulos, Kit Tan & G. Vold (24-29), P. Glogov & M. L. Georgieva (30), V. Ioannidis, D. Doulkeridou & A. Strid (31-61), V. Ioannidis, D. Doulkeridou & A. Strid (62-95), K. Polymenakos & Kit Tan (96-102), Th. Samaras, G. Hatzakos & Kit Tan (103-107), K. Stoyanov, Ts. Raycheva, K. Uzundzhaliyeva, J. Marinov & Zh. Barzov (106-111), K. Stoyanov, M. Valcheva, E. Milanova & R. Stoyanova (112-114), Kit Tan & G. Kofinas (115-116), G. Zarkos, V. Christodoulou & Kit Tan (117-124).

This is an ongoing report in the 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, for Greece by Kit Tan, and for Turkey-in-Europe by M. Aybeke.

Report 1

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Brassicaceae

1. *Coronopus didymus* (L.) Sm. [syn. *Lepidium didymum* L.] (Figs. 1 & 2)

Gr Nomos Lesvou, Eparchia Mitilinis: island of Lesvos, Mitilini town, on pavement adjoining outer wall of abandoned house near the port, 0 m, 39°09'N, 26°55'E, 20.04.2020, E. & M.

Axiotis AXL041 (ATHU, herb. Axiotis).

New for Lesvos, native to S America, naturalized in Europe. Several plants (more than 10 individuals) were noted, well-established, sprawling luxuriantly on the pavement. They are easily distinguished from *C.*

squamatus (Forssk.) Asch., which also occurs on the island, by their pilose-pubescent stems, many-flowered racemes elongating in fruit and by the didymous, emarginate siliculae. In Greece, *C. didymus* occurs mainly in coastal ruderal and disturbed habitats such as waste ground near harbours.



Fig. 1. *Coronopus didymus* (photo M. Axiotis).

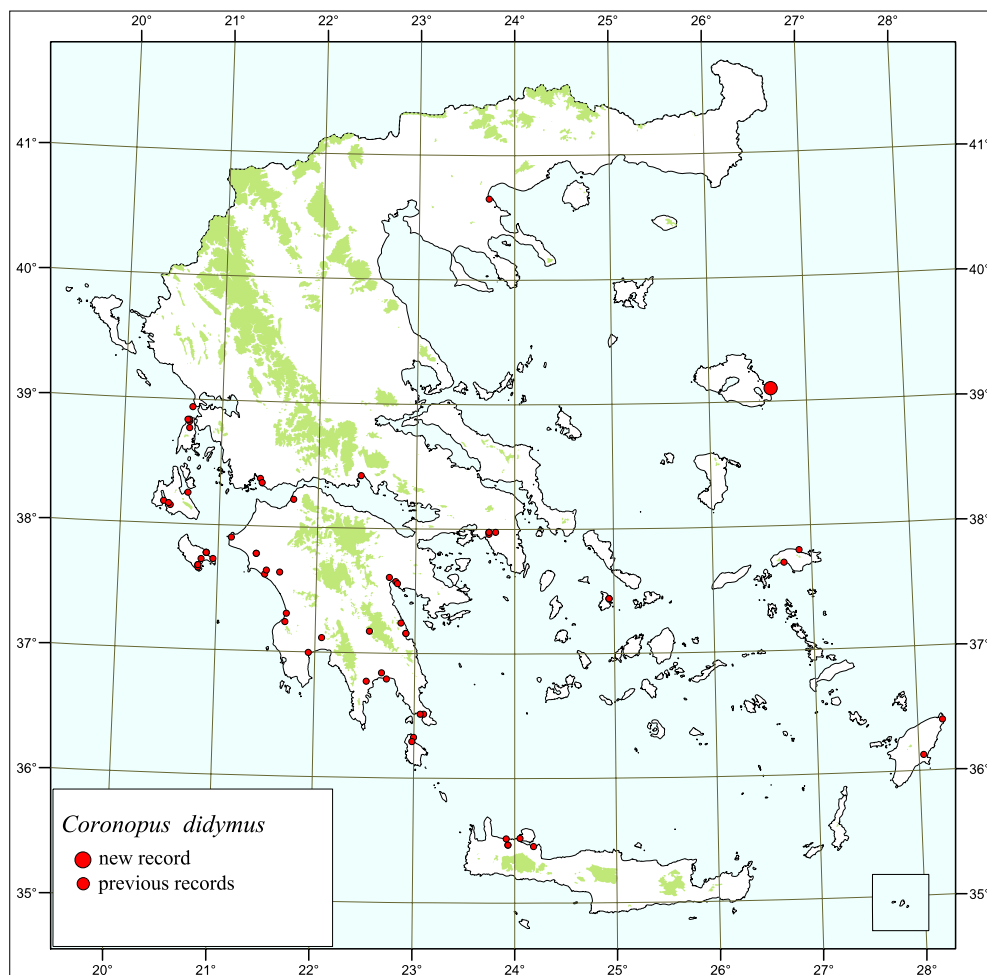


Fig. 2. Distribution of *Coronopus didymus* in Greece.

Reports 2–11

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This is a report on 10 new records from different families based on fieldwork in the period 1990–1999.

Brassicaceae

2. *Capsella bursa-pastoris* (L.) Medik.

Tu(E) A1(E): Kırklareli, the environments of Ahlatlı village, in open land, 577 m, 42°04'36"N, 27°13'36"E, 27.06.1997, coll. & det. C. Yarcı (EDTU 7144).

A new species for A1(E) Kırklareli in European Turkey. According to Hedge (1965), this taxon was found in A2(E) Istanbul.

Caryophyllaceae

3. *Sagina apetata* Ard.

Tu(E) A1(E) Kırklareli: between Topçular and Terzidere villages, 2nd km, in a forest clearing, 563 m, 42°02'29"N, 27°08'11"E, 02.07.1996, coll. & det. C. Yarcı (EDTU 7031).

A new species for A1(E) Kırklareli in European Turkey. According to Cullen (1967), this taxon was found only in A2(E) Istanbul.

Geraniaceae

4. *Geranium pyrenaicum* Burm. fil.

Tu(E) A1(E) Kırklareli: between Geçitağzı and Dereköy, 2nd km, in a *Fagus* forest, 513 m, 41°56'23"N, 27°18'56"E, 02.06.1996, coll. & det. C. Yarcı (EDTU 7047).

A new species for A1(E) Kırklareli in European Turkey. According to Davis (1967), this taxon was found in A1(E) Tekirdağ and A2(E) Istanbul.

5. *Geranium pusillum* Burm. fil.

Tu(E) A1(E) Kırklareli: Kofçaz, between Kofçaz and Ahmetler villages, 5th km, in a forest clearing, on a stony slope, 508 m, 41°56'41"N, 27°09'30"E, 27.06.1996, coll. & det. C. Yarcı (EDTU 6959).

A new species for A1(E) Kırklareli in European Turkey. According to Davis (1967), this taxon was found in A1(E) Tekirdağ and A2(E) Istanbul.

Hypericaceae

6. *Hypericum perforatum* L.

Tu(E) A1(E) Kırklareli: the environments of Ahmetler village, in a mixed forest, 764 m,

42°01'56"N, 27°13'26"E, 27.06.1997, coll. & det. C. Yarcı (EDTU 7065).

A new species for European Turkey. According to Robson (1967), this taxon was encountered in A1(A) Çanakkale.

Onagraceae

7. *Epilobium hirsutum* L.

Tu(E) A1(E) Kırklareli: the environments of Ahlatlı village, in a forest clearing, 577 m, 42°04'36"N, 27°13'36"E, 03.07.1996, coll. & det. C. Yarcı (EDTU 7002).

A new species for A1(E) Kırklareli in European Turkey. According to Chamberlain & Raven (1972), this taxon was encountered in A1(E) Tekirdağ and A2(E) Istanbul.

Rosaceae

8. *Potentilla recta* L.

Tu(E) A1(E) Kırklareli: between Tatlıpınar and Topçular villages, 2nd km, in a forest clearing, 508 m, 42°03'21"N, 27°06'13"E, 03.07.1996, coll. & det. C. Yarcı (EDTU 7017).

A new species for A1(E) Kırklareli in European Turkey. According to Peşmen (1972), this taxon was encountered only in A1(E) Tekirdağ.

Rubiaceae

9. *Galium aparine* L.

Tu(E) A1(E) Kırklareli: the environments of Ahmetler village, in a mixed forest, 764 m, 42°01'56"N, 27°13'26"E, 27.06.1997, coll. & det. C. Yarcı (EDTU 7090).

A new species for A1(E) Kırklareli in European Turkey. According to Ehrendorfer & Schönbeck-Temesy (1982), this taxon was found in A1(E) Çanakkale.

10. *Galium verum* L. subsp. *verum*

Tu(E) A1(E) Kırklareli: between Kocayazı and Kula villages, 5th km, in a mixed forest clearing, 637 m, 41°57'56"N, 27°12'19"E, 09.07.1997, coll. & det. C. Yarcı (EDTU 7147).

A new species for A1(E) Kırklareli in European Turkey. According to Ehrendorfer & Schönbeck-Temesy (1982), this taxon was found in A1(E) Edirne and A2(E) Istanbul.

Juncaceae

11. *Luzula forsteri* (Sm.) DC.

Tu(E) A1(E) Kırklareli: the environments of Ahmetler village, in a mixed forest, 764 m, 42°01'56"N, 27°13'26"E, 27.06.1997, coll. & det. C. Yarcı (EDTU 7093).

A new species for A1(E) Kırklareli in European Turkey. According to Snogerup (1985), this taxon was found in A1(E) Tekirdağ and A2(E) Istanbul.

Reports 12–15

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This is the third report of new plant-records for the island of Milos (phytogeographical region Kiklades, Nomos Kikladon, Eparchia Milou). The four records listed are new or confirmed for the island, and one is described as a new taxon, bringing the total number of new records we have found for the floristic region Kiklades (Kik) as circumscribed in *Flora Hellenica* (Strid & Tan 1997), to 69. Occurrence on the other Kikladean islands is briefly summarized.

Pinaceae

12. *Pinus halepensis* Mill.

Gr Nomos Kikladon, Eparchia Milou: NE of Prof.

Ilias, *Erica-Calicotome*-phrygana with rocks and trees by dirt track, 40 m, 36°41'N, 24°24'E, 21.10.2019, *Biel* obs.; Mandrakis, phrygana with pine trees by road above harbour, 30 m, 36°44'N, 24°26'E, 09.03.2010, *Biel* obs.; W of Tripiti, rocky hill with phrygana and *Pinus* around Prof. Ilias chapel, 130 m, 36°40'N, 24°22'E, 24.10.2019, *Biel* obs.; NE outskirts of Adamas, valley with *Arundo* and ruderals near Taxiarchis cemetery, 20 m, 36°43'N, 24°27'E, 27.10.2019, *Biel* obs.

Confirming the report by Browicz (1997: 50) of a small clump of old trees at the foot of Kastro in Plaka which seems to be native.

13. *Pinus pinea* L.

Gr Nomos Kikladon, Eparchia Milou: NE of Prof.

Ilias, *Erica-Calicotome*-phrygana with rocks and trees by dirt track, 40 m, 36°41'N, 24°24'E, 21.10.2019, *Biel* obs. (photo).

Asteraceae

14. *Anthemis rigida* subsp. *runemarkii* Biel & Kit Tan, subsp. nov. (Figs. 3–4).

Gr Nomos Kikladon, Eparchia Milou: island of Milos, NW of Ag. Mamas, rocky phrygana

slopes above coast, 10 m, 36°41'N, 24°25'E, 25.02.2020, *Biel* 2020.48 (holotype C); N of Pollonia, rocky coastal area, 5 m, 36°46'N, 24°31'E, 08.03.2010, *Biel* 2010.04 (herb. Biel); S of Pollonia, field margins, phrygana, 30 m, 36°45'N, 24°32'E, 08.05.2003, *Runemark* 51628 (LD); Chivadolimni, sandy and flooded ground, 36°40'N, 24°27'E, 20.04.1967, *Runemark* & *Bentzer* 26752 (LD); *loc. ibid.*, *Runemark* & *Bentzer* 26657 (LD); Trachilas area at northern part of island, 10–50 m, 36°46'N, 24°25'E, 17.05.2008, *Trigas* & *Karetsos* 4609 (ACA).

— Nomos Kikladon, Eparchia Milou: island of Kimolos, S and SW of the harbour, 36°47'N, 24°35'E, 17.04.1967, *Runemark* & *Bentzer* 25839 (LD); Ormos Vroma, sandy shore, 36°49'N, 24°34'E, 18.04.1967, *Runemark* & *Bentzer* 26101 (LD).

— Nomos Kikladon, Eparchia Milou: island of Prasonisi, 36°49'N, 24°36'E, 18.04.1967, *Runemark* & *Bentzer* 26000 (LD).

Small, mat-forming annual with prostrate to erect-ascending, simple or once-branched, rather rigid stems 1.5–11 cm long. Stem and leaves sparsely adpressed-pubescent, indumentum denser on peduncles and phyllaries. Leaves long-petiolate, 2-pinnatisect, fleshy, pale to dark green or suffused brownish-purple; ultimate segments broad, 1.0–1.3 × 0.5–0.8 mm. Peduncles 2–3 cm long, becoming clavate and often recurved in fruit. Capitula solitary, 15–16 mm in diam.;



Fig. 3. *Anthemis rigida* subsp. *runemarkii* (photo A. Bonetti).

disc florets yellow; ligules 7–9, narrowly oblong-ovate, ca. 6×1.8 mm, obtusely 3-toothed at apex, rose-pink. Phyllaries 2–3-seriate, ovate, ca. 4×1.5 mm with narrow scarious margins, acute. Receptacular scales glabrous, oblanceolate, acute. Achenes obtusely squarish in transverse-section, subpyramidal, ca. 1.6×0.3 mm, faintly 10-ribbed, dark brown, adpressed-pubescent.

On 13 May 2006 Andreas Bonetti photographed plants of an *Anthemis* from the western part of the island of Milos and sent the images to Kit Tan with a request for identification. They were of plants similar to *Anthemis rigida* Heldr., but differing conspicuously

in having rose-pink ligules (Fig. 3). *Anthemis rigida* is usually eligulate or with white ligules and has been divided into three subspecies in Greece. The typical subspecies is eligulate (disc florets yellow, ligulate florets absent) and is abundant and widespread in the Central and South Aegean area (Crete, Kiklades and the East Aegean islands). *Anthemis rigida* subsp. *liguliflora* (Halácsy) Greuter occurs at Monemvasia in the Malea Peninsula, southern Peloponnese and on the islands of Kithira, Milos, Karpathos and Amorgos. Here the ligules are white and the disc florets white or pale pink (Karpathos) or yellow (Kithira, Amorgos,



Fig. 4. Distribution map of *Anthemis rigida* in Greece.

Karpathos, Milos). *Anthemis rigida* subsp. *ammanthiformis* (Greuter & Rech. f.) Greuter occurs only on the small island of Andikithira.

Anthemis rigida subsp. *runemarkii* occurs on rocky coastal slopes and in phrygana from sea-level to 50 m. It flowers from late-February to mid-May and is apparently restricted to Milos and the neighbouring islands of Kimolos and Prasonisi. Kalheber collected this ligulate *Anthemis* on Milos and observed that it was very similar to plants he had seen on Karpathos with pure white ligules only faintly suffused pink beneath. Although the Milos plants can be considered to be subsp. *liguliflora*, the distinctive pink colour which remains on drying and the local distribution of *A. rigida* subsp. *runemarkii* permit an easily recognizable taxon and warrants consideration at a higher than varietal rank.

Named after the late Prof. Hans Runemark (Lund) who from his annotations on herbarium sheets had already considered the plants from the Milos island group to belong to a separate subspecies.

Poaceae

15. *Poa bulbosa* L.

Gr Nomos Kikladon, Eparchia Milou: SE of Pollonia, terraced N slope of Vouidia mountain with *Juniperus* and *Pistacia* in phrygana, 40 m, 36°45'N, 24°32'E, 18.10.2019, *Biel* obs.; W of Emborios, area of Xirokambos, *Erica-Sarcopoterium*-phrygana with *Pistacia* on level slope, 220 m, 36°42'N, 24°22'E, 27.02.2020, *Biel* obs.; W of Emborios, area of Xirokambos, phrygana with *Juniperus* at S slope of Favas mountain, 240 m, 36°42'N, 24°21'E, 27.02.2020, *Biel* obs.

Confirming report in a floristic list by Raus (2012).

Reports 16–23

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Asteraceae

16. *Anthemis rumelica* (Velen.) Stoj. & Acht.

Tu In collibus arenosis circa Constantinoplem ad stationem Bijuk-Han, 14.05.1913, coll. *B. Davidov* (SOM 78448).

According to Greuter (2006 +), this species is a Bulgarian endemic. A new locality of this species.

17. *Hieracium racemosum* Waldst. & Kit.

Bu Black Sea Coast (*Northern*): near the road between Zlatni Pyasatsi and Druzhdza resort complexes, Varna district, NH78, 18.09.1969, coll. *R. Yankova*

A new locality of this Euro-Mediterranean element.

18. *Taraxacum fontanum* Hand.-Mazz.

Bu Pirin Mts (*Northern*): in graminosis alpinis Mt. Pirin, valle Golemi Kazan sub cacum. El-Tepe (Vihren), ca. 2400–2550 m, solo calcareo, 07.08.1938, coll. & det. *N. Stojanoff* (SO 79702, 79703).

A new locality of this Alpo-Carpatho-Balkan element, common for the Rila Mts.

Lamiaceae

19. *Ballota hispanica* (L.) Benth.

Bu Danubian Plain: on the riverbank, westwards from Ostrov village, Vratsa district, KJ64, 16.08.2002, coll. *V. Valchev*, det. *D. Dimitrov* (SO 102258).

First report for Bulgaria. This Apennine-Balkan element is common for Albania, Italy, Former Yugoslavia, and Sicily (World Checklist of Selected Plant Families 2010, <https://www.emplantbase.org/home.html>).

Plantaginaceae

20. *Plantago argentea* Chaix

Tu Karasakli village, Edirne district, 05.1913, coll. *Iv. Neichev*, det. *N. Stojanov* (SOM 70081).

According to Marhold (2011+), this species was not reported for the European part of Turkey, but only for its Asiatic part.

Hydrocharitaceae

21. *Lagarosiphon major* (Ridley) Moss. ex Wager

Bu Rhodopi Mts. (*Western*): Dospat Water Reservoir, on the eastern side, under the Sarnitsa Restaurant – Sarnitsa town, KG52, 04.07.2015, coll. & det. *D. Dimitrov* (SO 107726).

First report for Bulgaria. This global, invasive and alien species has been reported for West and Central Europe, South Africa, Australia and New Zealand (Wager 1928).

Poaceae

22. *Alopecurus creticus* Trin.

Bu Valley of River Struma (*Southern*): in graminosis ad rivum Struma, Petrich district ad pagum Dolna Ribnitsa (sub *A. agrestis* L. and *A. myosuroides* Huds.), FL79, 16.04.1936, coll. *N.*

Stojanov; In segetes ad pagum Samuilovo, Petrich district, FL78, 21.10.1951, coll. *B. Achtarov* (sub *A. sylvestris* L.) (SOM 3285).

Valdes & al. (2009) defined *Alopecurus thracicus* Penev & Kozuharov as heterotypic synonym of *Alopecurus creticus* Trin. This Mediterranean element is found in Bulgaria, Crete, Croatia, Greece, R. North Macedonia, and Asiatic Turkey.

23. *Sieglingia decumbens* (L.) Bernh.

Bu Mt Strandzha: in an oak forest, between Kosti and Brodilovo villages, Burgas district, NG65, 16.07.1935, coll. & det. *D. Jordanov* (SO 05547). This is a new locality of this Euro-Mediterranean element.

Reports 24–29

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Apiaceae

24. *Ferula communis* subsp. *glauca* (L.) Rouy & Camus (Fig. 5)

Gr Nomos Ilias, Eparchia Olimbias: Mt Lapithas, limestone rock and cliffs, 680 m, 37°33'N, 21°49'E, in fruit, 10.07.2020, *Kit Tan, G. Vold & Giannopoulos* obs.; *loc. ibid.*, flowering, 13.05.2020, *Giannopoulos* obs.

New for nomos and eparchia. Scattered on Ionian islands, Peloponnese, mainland and Aegean islands. *Ferula communis* subsp. *communis* occurs mainly in anthropogenic habitats in Attikis and the Aegean area whereas *F. c.* subsp. *glauca* is also chasmophytic on limestone cliffs.

Asteraceae

25. *Echinops spinosissimus* Turra (Fig. 6)

Gr Nomos Ilias, Eparchia Olimbias: Mt Koukouveros, Andritsena to Vasses, 1135 m, 37°28'N, 21°55'E, 11.07.2020, *Kit Tan, G. Vold & Giannopoulos* 33126 (herb. *Giannopoulos*).

New for nomos and eparchia; first reliable documentation for Peloponnese except for the island of Kithira. Widespread in Aegean area and on Ionian islands.



Fig. 5. *Ferula communis* subsp. *glauca* (photo K. Giannopoulos).



Fig. 6. *Echinops spinosissimus* (photo K. Giannopoulos).

Caryophyllaceae

26. *Silene gigantea* subsp. *hellenica* Greuter

Gr Nomos Ilias, Eparchia Olimbias: Mt Lapithas, limestone rocks and at roadside, 685 m, 37°33'N, 21°40'E, 10.07.2020, in fruit, *Kit Tan, G. Vold & Giannopoulos* 33127; *loc. ibid.*, flowering, 13.05.2020, *Giannopoulos* obs.

New for eparchia, reported from the Enipeas valley in eparchia Ilias. Endemic to Greece.

27. *Spergularia bocconei* (Scheele) Asch. & Graebn.

Gr Nomos Ilias, Eparchia Olimbias: coastal area of Kaiafas, 8 m, 37°28'N, 21°38'E, 14.03.2020, *Giannopoulos* obs.

New for eparchia, reported from eparchia Ilias. Widespread in coastal areas of Peloponnese, mainland and islands.

Fabaceae

28. *Vicia sativa* subsp. *incisa* (M. Bieb.) Arcang. (Fig. 7)

Gr Nomos Ilias, Eparchia Olimbias: Mt Lapithas, roadside slopes and along path, 510 m, 37°32'N, 21°45'E, in fruit, 10.07.2020, *Kit Tan, G. Vold* & *Giannopoulos* obs.; *loc. ibid.*, 06.05.2020, flowering, *Giannopoulos* obs. (det. K. Polymenakos).

New for nomos and eparchia; scattered on mainland and islands. Distinct from a form of *Vicia laeta* with incised leaflets which was collected near Andritsena and Vasses.

Iridaceae

29. *Iris hellenica* Mermygkas, Kit Tan & Yannits.

Gr Nomos & Eparchia Ilias: W-SW slopes of Mt Erimanthos, soil pockets on limestone rock, 1650-1900 m, 13.06.2020, *Giannopoulos* obs.

Several plants in small populations occupying an area of ca. 1 km² within the geographical co-ordinates 37°56'N to 37°57'N and 21°48'E to 21°49'E. The area was far from human habitation and this rules out any possibility of an anthropogenic introduction. The similar and widely distributed *Iris germanica* L. is the result of long-established cultivation and is usually found naturalized at lower altitudes outside villages.



Fig. 7. *Vicia sativa* subsp. *incisa* (photo K. Giannopoulos).

Report 30

Plamen Glogov & Mira L. Georgieva

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Fabaceae

30. *Lupinus polyphyllus* Lindl.

Bu Vitosha region: Mt Plana, in a mesophyllous grassland of the local Richov Dol area, 42°28'53.8"N, 23°30'11.5"E, 01.07.2020, coll. & det. *P. Glogov* & *M. L. Georgieva* (SOM 177032).

So far, information concerning the localities of the Garden Lupin populations has been presented for the following floristic regions – Balkan Range (*Western*): Mt Ponor (Vassilev & Pedashenko 2009), Vitosha region: Mt Vitosha (Vladimirov 2012) and Mt Plana, Mechkata Summer Houses Area (Petrova 2018), Rila Mts (Karakiev 2019), Sredna Gora (*Western*): Mt Lozenska (Glogov & al. 2018), and Rhodopi Mts (*Western*) (Sopotlieva & al. 2012).

In the first locality, the Garden Lupin population area was about 100 m² and occupied about 5% of the total area of the meadow (Fig. 8). There were no buildings with gardens and yards near the locality. Probably, seeds of the species have been transferred and spread by the mowers in the nearby villages of Gorni and Dolni Okol. According to the locals, the species was not used for fodder and the area where its population was located has not been mowed regularly, unlike the other parts of the meadow.

Another predominant species in the area limited by the Lupine population was *Oenanthe silaifolia*. Its cover abundance amounted to 40% and rated



Fig. 8. Population of *Lupinus polyphyllus* in Richov dol, Plana Mt. (photo P. Glogov).

3 according to the scale of Braun-Blanquet (1964). Species with lower abundance were: *Poa trivialis* subsp. *sylvicola* (Guss.) H. Lindb. (1), *Lolium perenne* L. (1), *Festuca pratensis* Huds. (1), *Dactylis glomerata* L. (1), *Rumex crispus* L. (+), *Cerastium arvense* L. (+), *Potentilla reptans* L. (+), *Galium album* Mill. (+), *Vicia grandiflora* Scop. (+), *Cirsium arvense* (L.) Scop. (+), *Epilobium roseum* (Schreb.) Schreb. (+), *Achillea millefolium* L. (1), *Echinochloa crus-galli* (L.) P.Beauv. (+), and *Carex spicata* Huds. (+).

Lupinus polyphyllus is included in the most popular World and European Invasive Species data base such as CABI, NOBANIS, DAISIE, EPPO, etc. The species was not included in the list of Invasive Alien Species of Vascular Plants in Bulgaria (Petrova & al. 2013), however, due to its perception as IAS in many European countries, its uncontrolled spread as an ornamental plant in Bulgaria and the signs of expansion that are registered during different studies, it was regarded as a potentially invasive species (Glogov & al. 2019). Populations of the Garden Lupin must be regularly monitored as part of the measures for control and prevention of its spread to natural habitats.

Reports 31–61

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This is a continuation of a report published in *Phytologia Balcanica* 25(2): 211-215 (Ioannidis & al. 2019) which provides a general introduction and references. In the present report 31 species new for the regional unit of Kilkis in North Central Greece are listed. Data is based on field work by the first two authors over a period of several years. Identifications have been confirmed by the last author, based on photos of whole plants and diagnostic details.

Pinaceae

31. *Abies borisii-regis* Mattf.

Gr Nomos & Eparchia Kilkis: Mt Kerkini, high mountain vegetation, 1428 m, 41°20'9.7"N, 22°49'4.8"E, 03.04.2016, *Ioannidis* obs.

Rather common in northern Greece.

Apiaceae

32. *Cachrys cristata* DC.

Gr Nomos & Eparchia Kilkis: Kolchida, xeric mediterranean grassland and phrygana, 171 m, 40°57'6.27"N, 22°53'35.59"E, 01.06.2012, *Ioannidis* obs.

33. *Coriandrum sativum* L.

Gr Nomos Kilkis, Eparchia Paeonias: Pigi Kilkis, woodland and scrub, 408 m, 41°2'25.21"N, 22°27'34.64"E, 06.04.2014, *Ioannidis* obs.

Rather few records have been reported for Greece.

Asteraceae

34. *Artemisia absinthium* L.

Gr Nomos & Eparchia Kilkis: Ai Giorgis hill-town of Kilkis, xeric mediterranean grassland and phrygana, 302 m, 41°0'12.8"N, 22°52'11.6"E, 09.07.2017, *Ioannidis* obs.

Scattered and fairly rare in NE Greece.

35. *Cardopatum corymbosum* (L.) Pers.

Gr Nomos & Eparchia Kilkis: Lake Pikrolimni, agricultural and ruderal habitats, 44 m, 40°50'31.26"N, 22°49'9.01"E, 16.03.2014, *Ioannidis* obs.

The northernmost record in Greece.

36. *Carlina acanthifolia* All.

Gr Nomos Kilkis, Eparchia Paeonias: Livadia - Mount Paiko, high mountain vegetation, 1196 m, 40°59'48.62"N, 22°17'27.57"E, 15.04.2017, *Ioannidis* obs.

37. *Carlina lanata* L.

Gr Nomos Kilkis, Eparchia Paeonias: Evropos - Kilkis, temperate and submediterranean grassland, 145 m, 40°53'49.26"N, 22°32'25.27"E, 20.07.2014, *Ioannidis* obs.

Widespread in Greece, mainly in coastal areas in the south.

38. *Carthamus lanatus* L.

Gr Nomos Kilkis, Eparchia Paeonias: Evropos - Kilkis, temperate and submediterranean grassland, 145 m, 40°53'49.3"N, 22°32'25.27"E, 20.07.2014, *Ioannidis* obs.

Widespread in Greece.

39. *Centaurea finazzi* Adamović subsp. *finazzi*

Gr Nomos & Eparchia Kilkis: Megali Sterna, xeric mediterranean grassland and phrygana, 326 m, 41°06'58.42"N, 22°42'53.02"E, 20.05.2012, *Ioannidis* obs.

The species has been reported slightly to the west.

40. *Centaurea graeca* Griseb.

Gr Nomos Kilkis, Eparchia Paeonias: Vafiochori, cliffs, rocks and boulders in a ravine, 28 m, 41°01'15.67"N, 22°38'28.58"E, 14.09.2012, *Ioannidis* obs.

41. *Centaurea stenolepis* A. Kern.

Gr Nomos & Eparchia Kilkis: Elliniko, woodland and scrub, 785 m, 41°1'13.34"N, 23°6'17.04"E, 02.08.2014, *Ioannidis* obs.

42. *Cirsium candelabrum* Griseb.

Gr Nomos Kilkis, Eparchia Paeonias: Koupa Kilkis, woodland and scrub, 1065 m, 41°3'50.92"N, 22°19'44.87"E, 15.07.2015, *Ioannidis* obs.

43. *Cirsium eriophorum* (L.) Scop.

Gr Nomos & Eparchia Kilkis: Kato Theodoraki, woodland and scrub, 649 m, 41°8'56"N, 23°2'16.47"E, 06.07.2014, *Ioannidis* obs.

Also observed on Mts Paiko and Kerkini.

44. *Cirsium vulgare* (Savi) Ten.

Gr Nomos Kilkis, Eparchia Paeonias: Gumenissa-Paiko Kilkis, woodland and scrub, 238 m, 40°56'58.18"N, 22°26'44.85"E, 18.09.2012, *Ioannidis* obs.

45. *Galatella linosyris* (L.) Rchb. f. (Fig. 9)

Gr Nomos & Eparchia Kilkis: Megali Sterna, xeric mediterranean grassland and phrygana, 378 m, 41°07'35.92"N, 22°43'08.67"E, 06.11.2011, *Ioannidis* obs.

Rare in Greece with the nearest locality much further to the east (Xirolimni lagoon in Nomos Rodopis).

Boraginaceae

46. *Buglossoides incrassata* (Guss.) I.M. Johnst. subsp. *incrassata*

Gr Nomos Kilkis, Eparchia Paeonias: Griva Kilkis, cliffs, rocks and boulders in a ravine, 590 m, 40°56'45.41"N, 22°23'56.52"E, 13.04.2014, *Ioannidis* obs.

Brassicaceae

47. *Aurinia saxatilis* subsp. *orientalis* (Ard.) T.R. Dudley

Gr Nomos & Eparchia Kilkis: Palio Ginaikokastro, xeric mediterranean grassland and phrygana, 167 m, 40°56'27.45"N, 22°44'32.01"E, 08.04.2011, *Ioannidis* obs.

48. *Cardamine glauca* DC.

Gr Nomos & Eparchia Kilkis: S.S. (Railway Station)

Mourion, agricultural and ruderal habitats, 311 m, 41°17'10.47"N, 22°47'21.16"E, 22.03.2014, *Ioannidis* obs.

Campanulaceae

49. *Campanula erinus* L.

Gr Nomos & Eparchia Kilkis: Lake Pikrolimni, cliffs, rocks and boulders in a ravine, 80 m, 40°50'43.3"N, 22°49'22.5"E, 17.05.2014, *Ioannidis* obs.

50. *Campanula versicolor* Andrews

Gr Nomos Kilkis, Eparchia Paeonias: Mt Paiko, cliffs, rocks and boulders in a ravine, 551 m, 40°57'23.24"N, 22°23'57.91"E, 26.08.2012, *Ioannidis* obs.



Fig. 9. *Galatella linosyris* (photo V. Ioannidis).

Chenopodiaceae**51. *Camphorosma monspeliaca* L.**

Gr Nomos & Eparchia Kilkis: Pikrolimni, in freshwater habitats, 46 m, 40°50'44.82"N, 22°48'49.98"E, 02.06.2017, *Ioannidis* obs.

There are few reports in the whole of Greece, but the species may be overlooked because of its inconspicuous habit.

52. *Chenopodium vulvaria* L.

Gr Nomos & Eparchia Kilkis: Neo Gynaikokastro-Kilkis, agricultural and ruderal habitats, 65 m, 40°55'08.4"N, 22°43'01.29"E, 11.09.2012, *Ioannidis* obs.

Widespread in Greece.

Euphorbiaceae**53. *Andrachne telephioides* L.**

Gr Nomos Kilkis, Eparchia Paeonias: Griva-Kilkis, cliffs, rocks and boulders in a ravine, 566 m, 40°57'21.88"N, 22°23'58.12"E, 29.08.2014, *Ioannidis* obs.

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

Gr Nomos & Eparchia Kilkis: Pontoirakleia, agricultural and ruderal habitats, 92 m, 41°05'17.1"N, 22°36'16.35 E, 19.07.2012, *Ioannidis* obs.

Widespread in Greece but rare in the far north.

Fabaceae**55. *Astragalus sinaicus* Boiss.**

Gr Nomos & Eparchia Kilkis: Ai Giorgis hill-town of Kilkis, xeric mediterranean grassland and phrygana, 318 m, 40°59'55.48"N, 22°52'22.05"E, 19.04.2013, *Ioannidis* obs.

Scattered in Greece.

Fumariaceae**56. *Corydalis cava* (L.) Schweigg. & Körte**

Gr Nomos Kilkis, Eparchia Paeonias: Kotsa dere Axioupoli Kilkis, xeric mediterranean grassland and phrygana, 94 m, 41°02'48.2"N, 22°31'30.67"E, 14.03.2011, *Ioannidis* obs.

Malvaceae**57. *Alcea heldreichii* (Boiss.) Boiss.**

Gr Nomos & Eparchia Kilkis: Ai Giorgis hill-town of Kilkis, cliffs, rocks and boulders in a ravine, 330 m, 41°00'06.63"N, 22°52'37.75"E, 21.06.2011, *Ioannidis* obs.

Araceae**58. *Arum italicum* Mill.**

Gr Nomos Kilkis, Eparchia Paeonias: Gorgopi, freshwater habitats, 72 m, 40°57'49.66"N, 22°30'44.45"E, 19.10.2013, *Ioannidis* obs.

Scattered in most of Greece.

Poaceae**59. *Arundo donax* L.**

Gr Nomos & Eparchia Kilkis: Pontoiraklia, freshwater habitats, 107 m, 41°5'16.39"N, 22°37'37.63"E, 30.04.2016, *Ioannidis* obs.

Common in Greece, mainly in coastal areas.

60. *Briza minor* L.

Gr Nomos Kilkis, Eparchia Paeonias: Mt Paiko - Megala livadia, high mountain vegetation, 1156 m, 40°59'25.89"N, 22°18'58.41"E, 06.07.2013, *Ioannidis* obs.

61. *Bromus japonicus* Thunb.

Gr Nomos Kilkis, Eparchia Paeonias: Karpi, woodland and scrub, 526 m, 40°59'28.37"N, 22°24'41.75"E, 13.07.2014, *Ioannidis* obs.

Reports 62–95**Vasilis Ioannidis¹, Despina Doulkeridou¹ & Arne Strid²**

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This is the third report of species new for the prefecture of Kilkis in NE Greece. Previous contributions appeared in *Phytologia Balcanica* 25(2): 211-215 (Ioannidis & al. 2019) and this issue. Field work has been carried out by the first two authors. Identifications have been confirmed by the last author, based on photographs of whole plants and diagnostic details. Unless otherwise indicated, all specimens and photographs are currently in the private collection of the first author.

Cupressaceae**62. *Juniperus excelsa* M. Bieb.**

Gr Nomos Kilkis, Eparchia Paeonias: Koupa Kilkis. Woodland and scrub, 864 m, 41°02'49"N, 22°22'32"E, 11.05.2020, *Ioannidis* obs.

Scattered in N Greece with the nearest localities in the foothills of Mt Voras.

Ephedraceae**63. *Ephedra foeminea* Forssk.**

Gr Nomos Kilkis, Eparchia Paeonias: Vafiochori. Xeric mediterranean phrygana and grassland, 24 m, 41°00'09.5"N, 22°38'13.07"E, 24.09.2012, *Ioannidis* obs.

Common in S Greece, scattered in the interior north.

Apiaceae**64. *Echinophora tenuifolia* subsp. *sibthorpiana* (Guss.) Holmboe**

Gr Nomos & Eparchia Kilkis: Neo Agioneri. Agricultural and ruderal habitats, 71 m, 40°50'21.43"N, 22°43'47.99"E, 25.09.2011, *Ioannidis* obs.

A characteristic, late-flowering species of harvested fields, scattered in E Greece and SW Asia; subsp. *tenuifolia* in Italy.

65. *Foeniculum vulgare* Mill.

Gr Nomos & Eparchia Kilkis: Ai Giorgis hill of Kilkis. Temperate and submediterranean grasslands, 300 m, 41°00'10.3"N, 22°52'15.1"E, 08.07.2011, *Ioannidis* obs.

Common on roadsides in most of Greece.

Asteraceae**66. *Crepis zacintha* (L.) Loisel.**

Gr Nomos Kilkis, Eparchia Paeonias: village of Skra. Cliffs, rocks, boulders, ravines, 374 m, 41°06'00"N, 22°23'56"E, 11.10.2020, *Ioannidis* obs.

A widespread Mediterranean species.

67. *Doronicum hungaricum* Rchb. f.

Gr Nomos & Eparchia Kilkis: Mouries. Woodland and scrub, 399 m, 41°18'7.78"N, 22°50'15.07"E, 03.04.2014, *Ioannidis* obs.

A species of east central Europe, just extending to NE Greece.

68. *Echinops bannaticus* Schrad.

Gr Nomos & Eparchia Kilkis: K. Theodoraki. Woodland and scrub, 639 m, 41°9'0.51"N, 23°02'25.07"E, 06.07.2014, *Ioannidis* obs.

A species of SE Europe with few previous localities in N Greece.

69. *Echinops sphaerocephalus* subsp. *albidus* (Boiss. & Spruner) Maire & Petitm.

Gr Nomos & Eparchia Kilkis: Doiran memorial. Xeric mediterranean phrygana and grassland, 215 m, 41°10'04"N, 22°45'52"E, 18.06.2019, *Ioannidis* obs.

Scattered throughout the Greek mainland and Peloponnisos.

70. *Inula viscosa* L.

Gr Nomos Kilkis, Eparchia Paeonias: Vafiochori. Agricultural and ruderal habitats, 28 m, 41°01'4.94"N, 22°38'12.53"E, 24.09.2012, *Ioannidis* obs.

Common on roadsides in most of Greece but rare in the interior north.

Brassicaceae**71. *Diplotaxis tenuifolia* (L.) DC.**

Gr Nomos Kilkis, Eparchia Paeonias: Eidomeni. Agricultural and ruderal habitats, 47 m, 41°07'07.97"N, 22°31'01.92" E, 21.10.2011, *Ioannidis* obs.

A slight extension of the range. The species occurs in C & E Europe and SW Asia.

72. *Erysimum drenowskii* Degen

Gr Nomos & Eparchia Kilkis: Mt Kerkini (Belles), High mountain vegetation, 1489 m, 41°20'04"N, 22°49'28"E, 14.05.2020, *Ioannidis* obs.

A Balkan endemic, scattered in Greece and SW Bulgaria.

73. *Fibigia clypeata* (L.) Medik.

Gr Nomos Kilkis, Eparchia Paeonias: Village of Skra. Agricultural and ruderal habitats, 518 m, 41°06'09"N, 22°22'55"E, 11.05.2020, *Ioannidis* obs.

Extending the Greek range of the species slightly to the northeast.

74. *Hesperis sylvestris* Crantz subsp. *sylvestris*

Gr Nomos & Eparchia Kilkis: Mt Kerkini (Belles). High mountain vegetation, 960 m, 41°19'8"N, 22°48'24"E, 24.05.2020, *Ioannidis* obs.

This species was omitted in Flora Hellenica (Tan & Suda 2003 [dated 2002]), as it was based on a literature report (Voliotis 1981: 254) "Im Petrinosis (Paternik-) Gebiet des Voras-Gebirges" which had not been confirmed by any other Greek material. The collections from Allchar cited by Voliotis are north of the border. Voliotis observed: "Die Art war auf der jugoslawischen Seite dieser Gebirgskette bereits bekannt. Sie wird von Degen & Dörfler (1897: 706) 'in locis graminosis ad Allchar. Sole arsenicoso; 30. Mai et 12. Jun. 1893' und von Bornmüller (1925: 345) von 'Nidže-Gebirge: bei Alšar, 800 m (2. Mai und 5. Aug. 1918; Scheer)' angegeben". A later collection from the prefecture of Dramas was identified by Schuler

as *H. theophrasti*, and corrected by Th. Raus to *H. sylvestris* subsp. *sylvestris*.

Caryophyllaceae

75. *Stellaria holostea* L.

Gr Nomos & Eparchia Kilkis: Mt Kerkini (Belles).
High mountain vegetation, 1470 m, 41°20'06"N,
22°49'15"E, 24.05.2020, *Ioannidis* obs.

A widespread Euro-Siberian species with rather few and scattered localities in Greece.

Cistaceae

76. *Fumana thymifolia* (L.) Webb

Gr Nomos Kilkis, Eparchia Paeonias:
Gerakona. Cliffs, rocks, boulders, ravines,
293 m, 40°54'24.56"N, 22°27'0.89" E, 22.05.2013,
Ioannidis obs.

Widespread in Greece, but rare in the interior north.

Cucurbitaceae

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

Gr Nomos & Eparchia Kilkis: Chorigi. Agricultural
and ruderal habitats, 113 m, 40°59'39.9"N,
22°45'00"E, 27.09.2015, *Ioannidis* obs.

Common in S Greece, scattered in the interior north.

Euphorbiaceae

78. *Euphorbia chamaesyce* L.

Gr Nomos & Eparchia Kilkis: Ai Giorgis hill
of Kilkis. Temperate and submediterranean
grassland, 279 m, 40°59'33.86"N, 22°52'9.71"E,
07.10.2011, *Ioannidis* obs.

An alien of North American origin, now widespread
in roadside gravel.

79. *Euphorbia esula* subsp. *tommasiniana* (Bertol.) Kuzmanov

Gr Nomos Kilkis, Eparchia Paeonias: village of
Skra. Agricultural and ruderal habitats, 518 m,
41°06'10"N, 22°22'54"E, 11.05.2020, *Ioannidis*
obs.

Few reported localities in Greece, all in the far
northeast. The taxonomy is unsettled. According to
Reichert & al. (2018), the correct name for the taxon
of E Europe is *E. saratoi* Ard. at species level and *E.*
esula subsp. *saratoi* (Ard.) P. Fourn. at subspecies level,
whereas *E. tommasiniana* Bertol. s. str. is endemic to
the karstic area around Trieste in NE Italy and W
Slovenia.

80. *Euphorbia maculata* L.

Gr Nomos Kilkis, Eparchia Paeonias: Pontoiraklia-

Kilkis. Agricultural and ruderal habitats, 92 m,
41°05'17"N, 22°36'16.35"E, 19.07.2012, *Ioannidis* obs.
An alien of North American origin, scattered through-
out Greece.

81. *Euphorbia oblongata* Griseb.

Gr Nomos Kilkis, Eparchia Paeonias: Fanos-Kilkis.
Woodland and scrub, 310 m, 41°03'56.26"N,
22°29'34.63"E, 3.06.2011, *Ioannidis* obs.

Scattered in the C & S Balkan Peninsula and NW Turkey.

82. *Euphorbia salicifolia* Host

Gr Nomos & Eparchia Kilkis: Efkarpi-
Kilkis. Agricultural and ruderal habitats,
267 m, 41°03'08.27"N, 22°53'15.27"E, 10.05.2012,
Ioannidis obs.

C & SE Europe, few previous records from north east
Greece.

Fabaceae

83. *Genista sericea* Wulfen

Gr Nomos Kilkis, Eparchia Paeonias: Karpi. Cliffs,
rocks, boulders, ravines, 639 m, 40°59'57.86"N,
22°24'3.46"E, 21.04.2012, *Ioannidis* obs.

Rare in Greece but few previous records in the central
and north central parts.

84. *Gleditsia triacanthos* L.

Gr Nomos & Eparchia Kilkis: near Lake Doirani.
Agricultural and ruderal habitats, 149 m,
41°11'05.99"N, 22°46'11.17" E, 06.09.2014,
Ioannidis obs.

Native to N America and planted in S Europe, doubt-
fully naturalized.

Geraniaceae

85. *Geranium asphodeloides* Burm. f.

Gr Nomos Kilkis, Eparchia Paeonias: Kastaneri.
Woodland and scrub, 677 m, 40°57'50.74"N,
22°23'32"E, 29.05.2017, *Ioannidis* obs.

Most of mainland Greece but fairly rare in the north east.

86. *Geranium reflexum* L.

Gr Nomos Kilkis, Eparchia Paeonias: Mt Paiko. High
mountain vegetation, 1332 m, 41°00'39.61"N,
22°18'16.77"E, 29.5.2010, *Ioannidis* obs.

Scattered in damp, shady places on the Greek mainland.

Lamiaceae

87. *Glechoma hederacea* L.

Gr Nomos & Eparchia Kilkis: village of Tripotamos.
Freshwater habitats, 675 m, 41°10'33.7"N,
22°56'53.62"E, 17.4.2016, *Ioannidis* obs.

Common in most of Europe but rare in Greece with a few localities in the north.

Polygonaceae

88. *Fallopia dumetorum* (L.) Holub

Gr Nomos & Eparchia Kilkis: Melissourgeio. Freshwater habitats, 344 m, 41°04'47.11"N, 23°02'51.47"E, 08.09.2013, *Ioannidis* obs.

Scattered in N Greece.

Ranunculaceae

89. *Actaea spicata* L.

Gr Nomos & Eparchia Kilkis: Mt Kerkini (Belles). High mountain vegetation, 1416 m, 41°20'10"N, 22°49'00"E, 24.05.2020, *Ioannidis* obs.

A C European woodland species, fairly rare and scattered in Greece.

Rosaceae

90. *Aphanes minutiflora* (Azn.) Holub

Gr Nomos & Eparchia Kilkis: village of Elevtherochori. Xeric mediterranean phrygana and grassland, 92 m, 41°04'17"N, 22°45'44"E, 03.05.2020, *Ioannidis* obs.

Fairly rare and scattered in Greece, but can be confused with the more common *A. arvensis*.

91. *Cydonia oblonga* Mill.

Gr Nomos & Eparchia Kilkis: village of Tripotamos. Woodland and scrub, 454 m, 41°10'41.44"N, 22°55'41.52"E, 17.04.2016, *Ioannidis* obs.

Naturalized, scattered throughout Greece.

92. *Rosa spinosissima* L.

Gr Nomos & Eparchia Kilkis: Mt Kerkini (Belles). High mountain vegetation, 1458 m, 41°20'04"N, 22°49'15"E, 24.05.2020, *Ioannidis* obs.

A widespread Euro-Siberian species with scattered localities in the mountains of N Greece.

Poaceae

93. *Crypsis alopecuroides* (Piller & Mitterp.) Schrad.

Gr Nomos Kilkis, Eparchia Paeonias: village of Vakoufi. Freshwater habitats, 68 m, 40°54'52.05"N, 22°42'28.61" E, 11.10.2014, *Ioannidis* obs.

Scattered throughout the Greek mainland, generally in mud by vernal pools, etc.

94. *Eleusine indica* (L.) Gaertn.

Gr Nomos & Eparchia Kilkis: near Lake Doirani. Freshwater habitats, 140 m, 41°11'1.36"N, 22°45'32"E, 19.09.2013, *Ioannidis* obs.

Scattered in damp, ruderal habitats throughout Greece.

95. *Elytrigia intermedia* (Host) Nevski

Gr Nomos Kilkis, Eparchia Paeonias: village of Vakoufi. Agricultural and ruderal habitats, 46 m, 40°54'03.5"N, 22°43'28.7"E, 06.10.2013, *Ioannidis* obs.

Scattered in N and C Greece.

Reports 96–102

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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).

Apiaceae

96. *Ammoides pusilla* (Brot.) Breistr.

Gr Nomos Viotias, Eparchia Thivon: Mt Elikonas, 3.15 km E of village Evaggelistria on way to Mazi, clearings in *Quercus coccifera* scrub, limestone, 550 m, 38°20'N, 23°03'E, 20.06.2020, *Polymenakos & Pantavos* 1022 (ATH).



Fig. 10. *Bifora radians* (photo K. Polymenakos).

New for eparchia, recorded for eparchia Levadias. Mt Elikonas is situated in both Levadias and Thivon. In Greece it is common on the western mainland but more scattered in the east.

97. *Bifora radians* M. Bieb. (Figs. 10 & 11)

Gr Nomos Viotias, Eparchia Levadias: Mt Elikonas, 1 km N-NW of Agia Anna, in cereal field, clay, 665 m, 38°19'N, 22°53'E, 30.05.2020, Polymenakos & Pantavos 999 (ATH).

New for phytogeographical region Sterea Ellas. Growing together with the more common and widespread *Bifora testiculata* (L.) Spreng.

Asteraceae

98. *Scolymus maculatus* L.

Gr Nomos Evvias, Eparchia Chalkidos: east edge of Lake Paralimni, abandoned olive grove and fallow fields, limestone, 55 m, 38°28'N, 23°24'E, 13.06.2020, Polymenakos & Pantavos 1017 (ATH).

New for eparchia, reported from eparchia Karistias at the southern tip of Evvia.

Brassicaceae

99. *Rorippa sylvestris* (L.) Besser

Gr Nomos Viotias, Eparchia Thivon: east side of Lake Iliki, 2 km W of village Mouriki, muddy

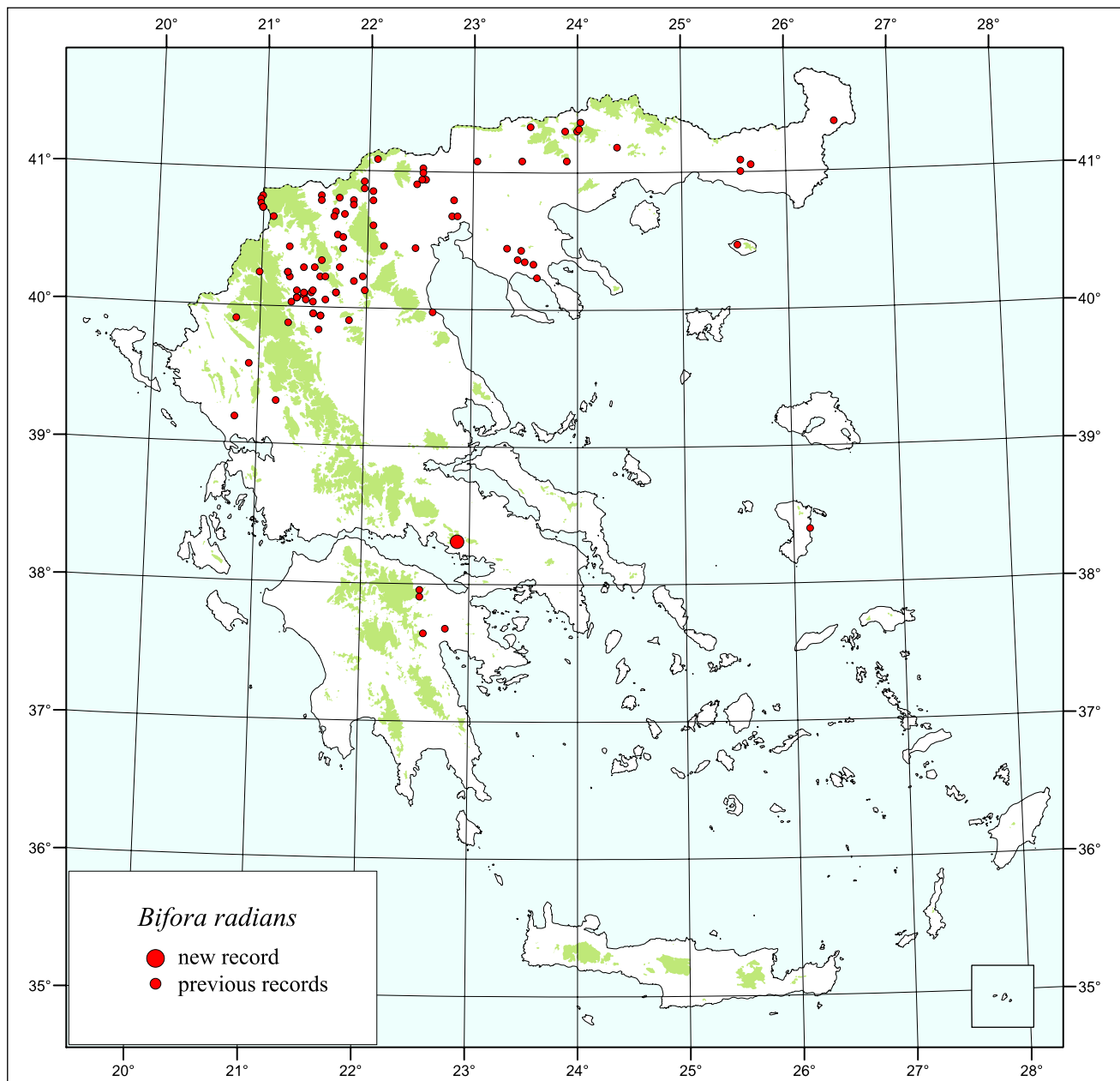


Fig. 11. Distribution of *Bifora radians* in Greece.

spots at lake shore, limestone, 80 m, 38°25'N, 23°19'E, 13.06.2020, *Polymenakos & Pantavos* 1018 (ATH).

New for eparchia, reported from eparchia Levadias. A widespread species in northern and central Greece.

Rubiaceae

100. *Galium corinthiacum* Strid & Kit Tan (Fig. 12)

Gr Nomos & Eparchia Korinthias: Cape Melangavi, rocks above the small church of Agios Ioannis, 20 m, 38°01'N, 22°51'E, 08.05.2011, *Polymenakos* obs.; *loc. ibid.*, 08.07.2020, *Kit Tan & G. Vold* 33123.



Fig. 12. *Galium corinthiacum* (photo K. Polymenakos).

This is a second locality for the species which was discovered on the rocky limestone slopes and cliffs by the monastery of Osios Patapios, 2 km N of Loutraki on the road to Perahora. It was described as recently as August 2019 (Strid & Tan 2019) and is a Greek endemic.

Scrophulariaceae (Veronicaceae)

101. *Linaria genistifolia* (L.) Mill.

Gr Nomos Viotias, Eparchia Thivon: Mt Elikonas, 3.65 km W of village Evaggelistria on way to Koronia. Edge of *Quercus frainetto* woodland, limestone, 650 m, 38°20'N, 22°58'E, 20.06.2020, *Polymenakos & Pantavos* 1021 (ATH).

New for nomos and eparchia, southernmost occurrence in Greece.

Poaceae

102. *Cenchrus orientalis* (Rich.) Morrone (Fig. 13)

Gr Nomos Viotias, Eparchia Thivon: 3.65 km NE of village Ipaton. On serpentine rocks by dried-up stream, 330 m, 38°23'N, 23°23'E, 13.06.2020, *Polymenakos & Pantavos* 1016 (ATH).

New for mainland Greece, so far reported only from Chalkidos in NE Evvia (W Aegean islands). Occurring in SW Asia, N and NE Africa. Five other species of *Cenchrus* have so far been reported for Greece.

Acknowledgements. K. Polymenakos thanks Vassilis Pantavos for kindly accompanying him on his botanical excursions.

Reports 103–107

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Boraginaceae

103. *Alkanna tinctoria* Tausch

Gr Nomos Attikis, Eparchia Idrias: island of Hydra, near village of Kamenia, 37°21'N, 23°31'E, 07.06.2020, *anon.* obs.; *loc. ibid.*, 28.04.1968, *Post* 2332 (ATH).

The observation by herb-gatherers in the village of a bright blue-flowered *Alkanna* must surely refer to *A. tinctoria* which would be a new record for the island.



Fig. 13. *Cenchrus orientalis* (photo K. Polymenakos).

Paeoniaceae

104. *Paeonia mascula* subsp. *hellenica* Tzanoud.
(Figs. 14-16)

Gr Nomos Lakonias, Eparchia Lakedemonas: Mt Taigetos, along E4 path to EOS refuge, 1300 m, 36°53'N, 22°22'E, 10.05.2020, Th. Samaras &



Fig. 14. *Paeonia mascula* subsp. *hellenica* from Mt Taigetos, habit (photo Th. Samaras).



Fig. 15. *Paeonia mascula* subsp. *hellenica* from Mt Taigetos, flower (photo Th. Samaras).

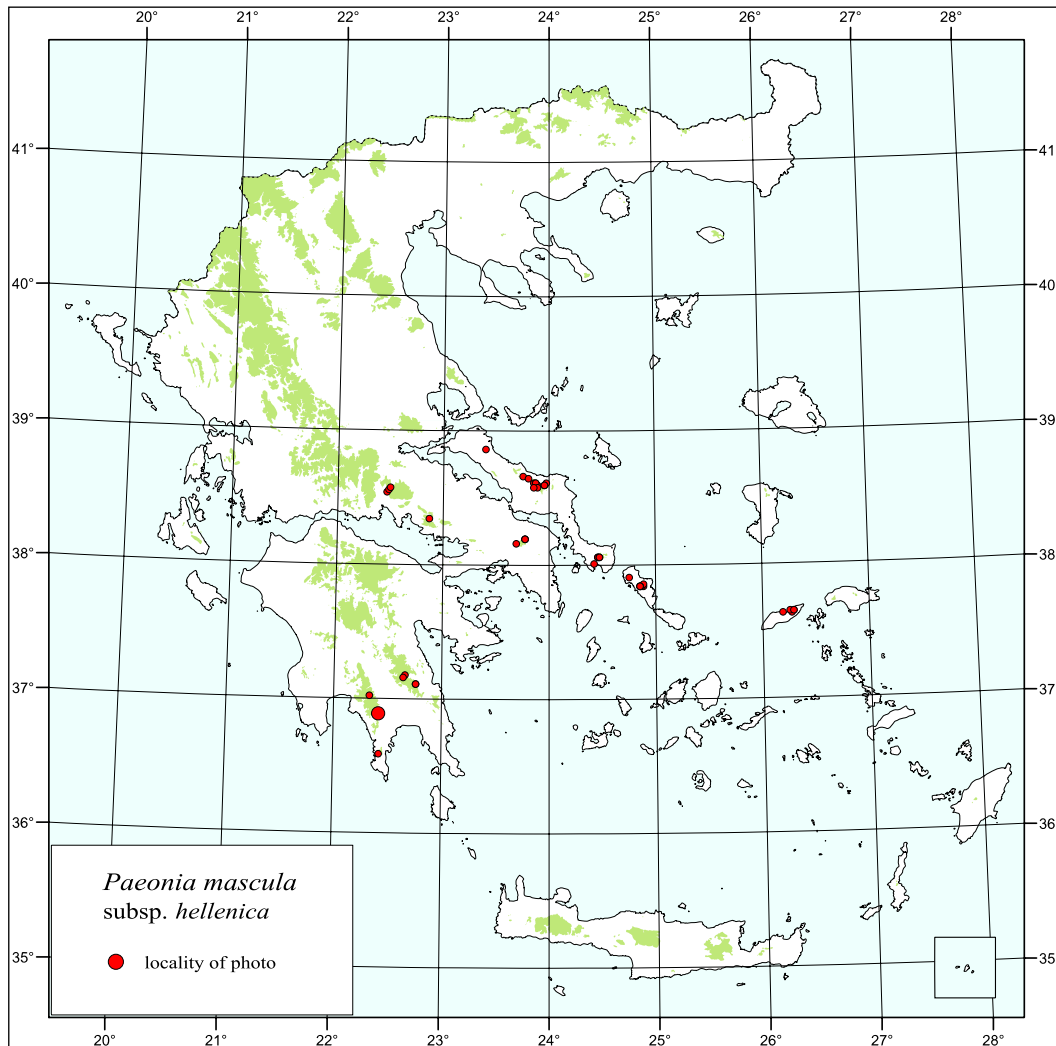


Fig. 16. Distribution map of *Paeonia mascula* subsp. *hellenica* in Greece.

al. obs.; NW of Arna, 1125–1350 m, 36°54'N, 22°23'E, 21.05.1964, *Runemark & Snogerup* 20635 (LD); Mt Taigetos, Neraidovouno, 37°02'N, 22°19'E, 29.08.1898, *Heldreich* s.n. (WU); in regione abietinis montis Taigetos, supra pagum Spartia, 1300 m, 36°54'N, 22°25'E, 19.05.1976, *Tzanoudakis* 2347 (UPA); *loc. ibid.*, 08.05.1974, *Tzanoudakis* 1268 (UPA).

Paeonia mascula subsp. *hellenica* was first collected by Orphanides in April 1865 from Mt Dirfis on the island of Evvia. It is rare in the Peloponnese and Sterea Ellas. Although collected on Mt Taigetos in the Peloponnese by Heldreich in August 1898, i.e., more than 120 years ago, there have been few recent records from Taigetos and our record represents the first for the 21st century. We document its occurrence on Mt Taigetos with photos, in a slightly different locality than the other collections cited, together with a map showing the locality where the photo was taken. The petals of this subspecies are usually white, pinkish-white or with a pinkish base but many plants in the population had dark purplish-pink flowers (Fig. 15).

We thank Lia Liakou, Eleni Iliopoulou and Voula Angelaki (Sparta) for their kind help and pleasant company.

Scrophulariaceae

105. *Cymbalaria muralis* G. Gaertn., B. Mey. & Scherb.

Gr Nomos & Eparchia Attikis: island of Hydra, on stone walls in narrow alleys near the port, 37°35'N, 23°46'E, 07.06.2020, *Th. Samaras* obs.

New for Hydra. A widespread species with scattered records except for interior central and the far north; however, documentation of this species in Greece is still very incomplete. The glabrous capsules and flowers, with the spur equalling calyx, distinguish it readily from other trailing and mat-forming *Cymbalaria* species occurring in crevices of rocks and stone walls. Native to southern Europe, naturalized elsewhere and even becoming invasive.

Reports 106–111

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Iridaceae

106. *Crocus danubensis* Kernd. Pasche, N. Randelović & V. Randelović

Bu Danubian Plain: Western bank of river Rusenski Lom, SW of Besarbovo village, in a grassy terrain overgrown with *Paliurus spina-christi* and *Crataegus monogyna*. 43.761258°N, 25.949016°E, MJ14, 77 m, 02.03.2020, coll. *J. Marinov* (SOA 062788). The species has been collected in the same locality by Ljubisavljević & Raca (2020); Mechka village, 43.702324°N, 25.791768°E, 52 m, *J. Marinov* obs.

These are new data for Bulgaria.

107. *Crocus randjeloviciorum* Kernd., Pasche, Harpke & Raca

Bu Balkan Range (*Western*): Petrohan Pass, in the forest under peak Shilni, 43.01154°N, 23.12118°E, FN76, 1005 m, on limestone terrain, 12.03.2020, coll. *Ts. Raycheva, K. Stoyanov & K. Uzundzhaliyeva* (SOA 062856).

This is first record for Bulgaria (Fig. 17a). Formerly known as *C. adamii* Gay, the species is described as new for the flora of Serbia, in the region of Nis, according to morphological and molecular investigations (Harpke & al. 2017). It can be recognized by the following characteristics: intermediate corm tunics between membranous to coriaceous, and dividing basal mostly smooth-edged rings, rarely with tiny teeth (Fig. 17b). Perygon throat yellow, smooth; internal tepals pale-blue to intense violet-blue, without dark stripes outside; external tepals with a various number of brownish-violet stripes outside, occasional unclear shading to the tips. Filaments slightly papillose; anthers with deeply sharp-pointed lobes at the base; connective broad, conspicuous, colourless (Fig. 17c). Stigma orange to red, trifid, in most cases of the same height as the anthers.

108. *Crocus tommasinianus* Herb.

Bu Forebalkan (*Western*): Darkov Dol, eastwards of Kireevo village, on wet terrain in a forest of *Quercus cerris*, 43.78833°N, 22.41325°E, FP14, FP15, 478 m, 13.03.2020, *Ts. Raycheva*,



Fig. 17. *Crocus randjeloviciorum*: A. Plant; B. Flower with details; C. Corm (photos K. Stoyanov, Ts. Raycheva).

K. Stoyanov & K. Uzundzhalieva, obs.;
 Vagleshtarnika locality, northwards of
 Kireevo village, on wet terrain in a *Quercus*
 forest, 43.80896°N, 22.39386°E, FP34, 377 m,
 13.03.2020, *Ts. Raycheva, K. Stoyanov & K.*
Uzundzhalieva, obs.; Mirkovets locality, in
 a forest of *Quercus cerris*, westwards of
 Shishmanovo village, 43.76685°N, 22.61655°E,
 199 m (8 km westwards of SO 107829),
 13.03.2020, *Ts. Raycheva, K. Stoyanov & K.*
Uzundzhalieva, obs.

These data confirm the known distribution and add new coordinates of populations (Fig. 20) near the localities described by Vladimirov (2015) and Kunev (2018). The species is protected, evaluated as Vulnerable (Vladimirov 2009, 2015) and listed in Annex III of the Bulgarian Biodiversity Act.

109. *Crocus variegatus* Hoppe & Hornsch.

Bu Balkan Range (*Western*): along the tourist trail between Lakatnik and Radzhitsa village, 43.093778°N, 23.386458°E, FN97, 738 m, 29.02.2020. coll. *Zh. Barzov* (SOA 062857).



Fig. 18. *Crocus danubensis* (photo J. Marinov).

The species is reported by Harpke & al. (2014) for the province of Vratsa (GAT 25829!). According to the latest taxonomic works based on morphological and molecular data, the polyphyletic group of *C. reticulatus* s.l. consists of several separate species (Harpke & al. 2014). Both *C. danubensis* and *C. variegatus* have been determined before as *C. reticulatus*. *Crocus danubensis* is distributed along the Danube River, on the territory of Serbia, Bulgaria and Romania. The distribution area of *C. variegatus* is the Pannonian Plain – from Hungary, southwards



Fig. 19. *Crocus variegatus* (photo Zh. Barzov).

to Italy and the Western Balkans (Ljubisavljević & Raca 2020). Both species have reticulate tunics, but the flower of *C. danubensis* is white to pale-blue inside, with white to pale-yellow throat (Fig. 18), and that of *C. variegatus* is light-blue to violet inside, with yellow throat (Fig. 19).

110. *Gladiolus illyricus* Koch

Bu Balkan Range (*Eastern*): Near peak Kanska Chuka, Dyulinski Pass, 42.804278°N, 27.609173°E, NH43, 178 m, 21.05.2020, coll. Zh. Barzov, det. Ts. Raycheva & K. Stoyanov (SOA 062751).

This record confirms the so far unconfirmed region. The species is known for the regions: Western Frontier Mts, Valley of River Struma, Mt Belasitsa, Mt Slavyanka, Valley of River Mesta, and Rhodope Mts (Assyov & Petrova 2012).

111. *Gladiolus italicus* Mill.

Bu Tundzha Hilly Country: Northwards of peak Gola Mogila, near Mramor village. 42.043351°N, 26.421015°E, MG55, 203 m, 18.05.2020, coll. Zh. Barzov, det. Ts. Raycheva & K. Stoyanov (SOA 062757).

The species is new for this floristic region. It is reported for the Black Sea Coast, Northeast Bulgaria, Danubian Plain, Valley of River Struma, Rhodopi Mts (*Western*), Thracian Lowland, and Mt Strandzha (Assyov & Petrova 2012).

Acknowledgements. This work was financially supported by the National Science Fund, Ministry of Education and Science, Bulgaria, project “Biodiversity and taxonomic structure of *Iridaceae* Juss. in Bulgarian flora” (KP-06-N31/5).

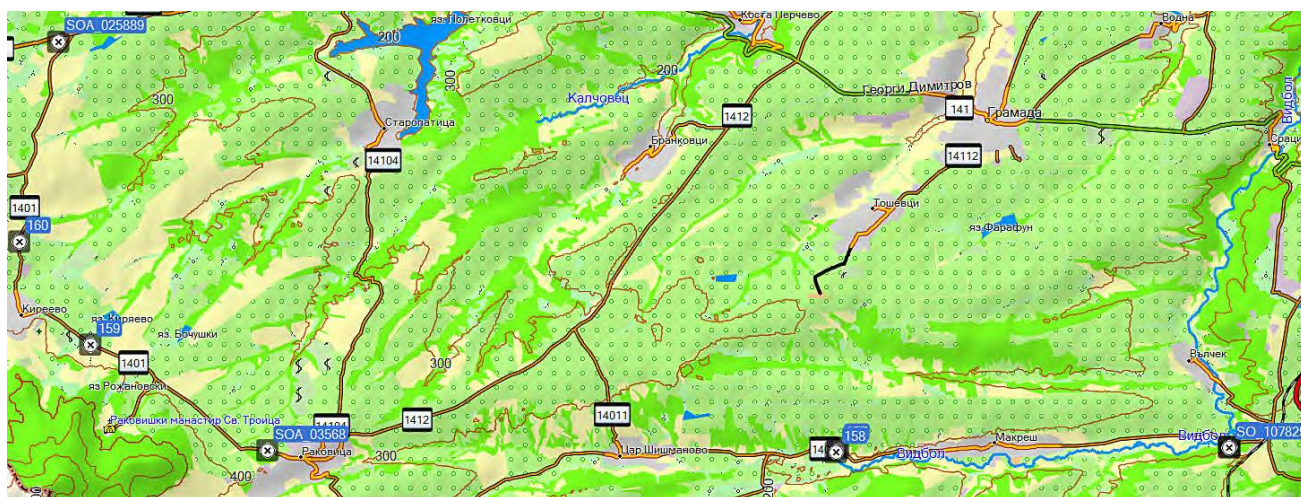


Fig. 20. Localities of *Crocus tommasinianus*: 157-160 – observations described in the text; SO 107829 – locality reported by Kunev (2018); SOA – localities in SOA herbarium. Topographic map from bgmountains.org.

Reports 112–114

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Orobanchaceae

112. *Orobanche centaurina* Bertol. [syn.: *Orobanche kochii* F. W. Schultz; *O. elatior* auct. bulg, non Sutton]

Bu Black Sea Coast (*Southern*): In the dunes of Kavatsite (Smokinya Camping Site), in proximity to *Jurinea kilaea* Azn. and *Pancratium maritimum* L. (Fig. 21), NG59, 5 m, 26.05.2020, coll. M. Valcheva (SOA 062747); Sozopol, in the dunes of the southern beach, host plant *Centaurea* (sub *O. elatior* Sutton), NG59, 2 m, 11.06.2004, coll. K. Stoyanov (SOA 059335); in the dunes of Arkutino, near the outflow of river Ropotamo



Fig. 21. *Orobanche centaurina* (photo M. Valcheva).

(sub *O. elatior*), NG68, 20 m, 11.06.2004, coll. K. Stoyanov (SOA 059330).

The species is known in the Bulgarian flora as *Orobanche elatior* Sutton (Delipavlov 1995), previously reported as *O. major* L. Description of the taxon *O. major* is unclear (Turland & Rumsey 1997), based on wrongly deposited type specimens. The unclear description has led to wrong determination keys. For example, the determination key of Delipavlov (1995) mentions *O. crenata* instead of *O. elatior*. The research of Zázvorka (2010) and Zázvorka & al. (2019) revised the herbarium materials from Bulgaria stored in PRC, and described the distribution of *O. centaurina* for the Black Sea Coast (*Northern*), Balkan Range (*Eastern*), Znepole region, and Rhodopi Mts. The species has been also reported from the Republic of North Macedonia (Nikolov 2019). The Bulgarian herbaria contain many specimens determined as *O. elatior* and *O. major*, and most of them are badly damaged. A revision of the collections would provide clearer data on this species.

113. *Orobanche hederæ* Duby

Bu Forebalkan (*Eastern*): Along the eco-trail to Hotnitsa Waterfalls, LH-77, pl. nutr. *Hedera helix* L., 28.06.2020, Ralitsa Stoyanova, obs. (Fig. 22).

This is the second record of *O. hederæ* in Bulgaria. The species is usually neglected because of its similarity to *O. minor* Reut. and *O. pubescens* D'Urv. but it can be easily distinguished from the other members of subsection *Minores*. The corolla is swollen at the base and gradually narrows towards the opening. So far, this species has been known only from the region of Rhodopi Mts (*Central*) (Stoyanov 2013).

114. *Orobanche lutea* Baumg.

Bu Balkan Range (*Western*): Reketo locality, near Shuma village, FN76, 780 m (Fig. 23), in proximity to *Medicago* spp., 29.05.2020, coll. E. Milanova (SOA 062741).

The species is reported for the Black Sea Coast, Northeast Bulgaria, Danubian Plain, Forebalkan (*Eastern*), Balkan Range (*Central*), Sofia region, Vitosha region, Rila Mts, Rhodopi Mts (*Western*, *Central*), Thracian Lowland, and Tundzha Hilly Country (Assyov & Petrova 2012; Stoyanov 2012). The species is also indicated for the Forebalkan and Balkan Range (*Eastern*) without evidence (Delipavlov 1995; Cheschmedzhiev 2003; Assyov & Petrova 2012).



Fig. 22. *Orobanche hederae* (photos R. Stoyanova).



Fig. 23. *Orobanche lutea* (photo E. Milanova).

Reports 115–116

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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).

Fabaceae

115. *Onobrychis citrina* Kit Tan, Stevanović & G. Vold (Figs. 24–25)

Gr Nomos Serron, Eparchia Sintikis: Siderokastro to Ahladohori near the Greek-Bulgarian border, with *Stachys recta* abundant, May 2000, Kit Tan & G. Vold s.n.; 3 km N-NE of Siderokastro, 167 m, 08.06.2020, Kofinas obs. (photo).

Lectotype designated here: Greece, Nomos Serron, Eparchia Sintikis: 3 km N-NE of Siderokastro, rocky limestone outcrops, 200–250 m, 41°16'N, 23°25'E, 03.06.2001, Strid & al. 52775 (lectotype G; isolectotype LD).



Fig. 24. *Onobrychis citrina*, drawn by the late Bent Johnsen, based on the Siderokastro plant.

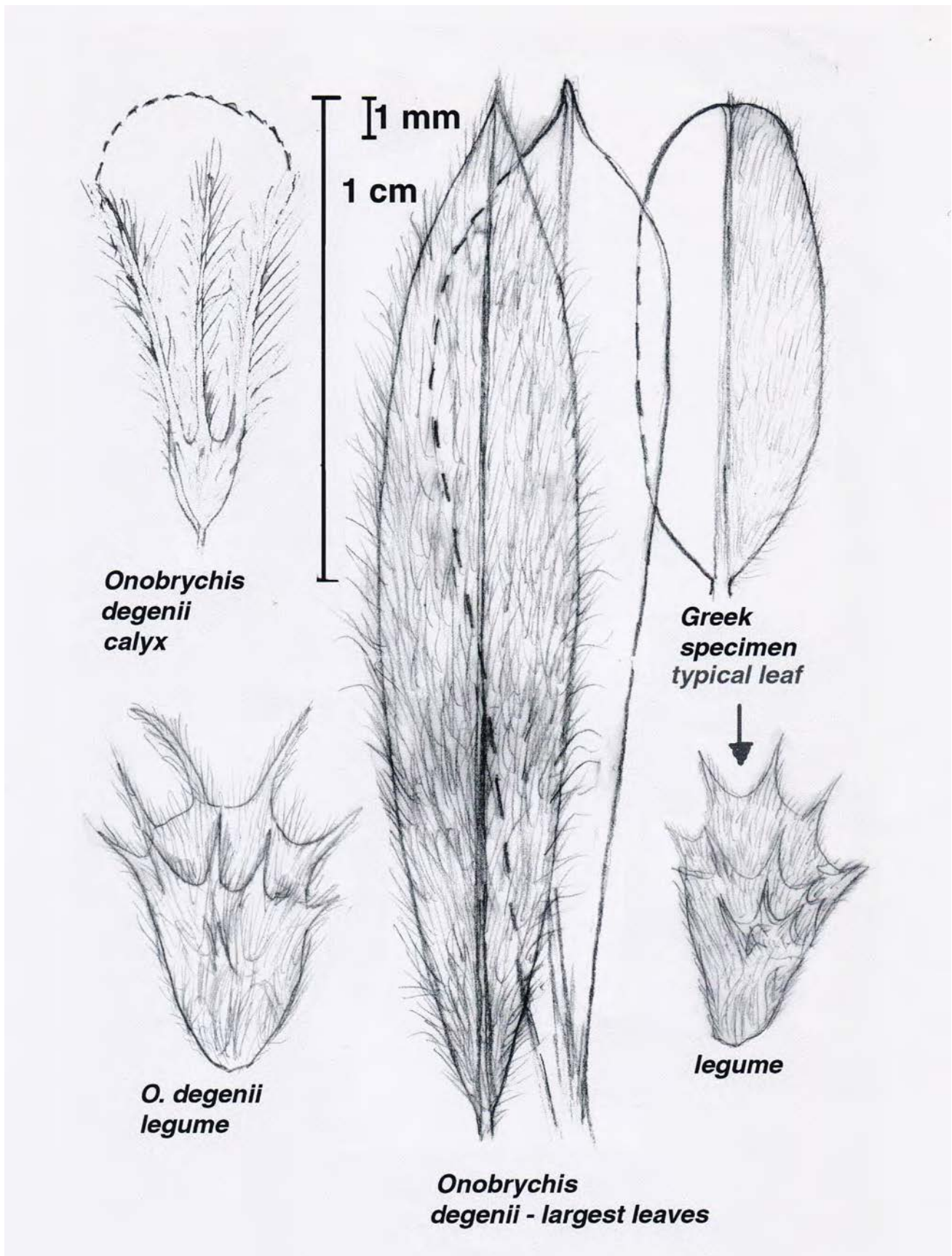


Fig. 25. Comparison between *Onobrychis citrina* and *O. degenii*, drawn by Vladimir Stevanović.

A photograph of an *Onobrychis* from Siderokastro in northeastern Greece was sent by G. Kofinas to Kit Tan for identification and this highlighted an incongruity. There had been an erroneous selection of a specimen of *Onobrychis alba* (Waldst. & Kit.) Desv. from Mt Siniatsiko to represent the type of *O. citrina* (Tan & Vold 2016). This necessitates a re-designation of type. Thus a specimen from Siderokastro is now selected as lectotype. Kit Tan and G. Vold first collected this plant in Serron in May 2000, on the way from Siderokastro to Ahladohori near the Greek-Bulgarian border. It was used by the late Bent Johnsen, the well-known Copenhagen botanical artist, to prepare an illustration of *O. citrina* in 2003 (Fig. 24) and this illustration can even be considered an iconotype. Material was also sent to Vladimir Stevanović (Beograd) for a comparison with *O. degenii* Dörfel. Publication of the new species was originally scheduled for the third volume of *Flora Hellenica* which comprises the families *Rosaceae* and *Fabaceae*.

The original description of *O. citrina* was based almost completely and correctly on the Siderokastro plant but supplemented by some features of the Siniatsiko plant. It is possible *O. citrina* also occurs on Siniatsiko. To avoid ambiguity an amended description is provided here.

Caespitose perennial 25–35 (–40) cm tall, with slender woody stock ca. 0.5 cm diam. Flowering stems short, erect to suberect, patent-hairy. Lower leaves 6–10 cm, with 8–16 pairs of leaflets. Leaflets elliptic-oblong to elliptic-linear, 7–10 × 1.5–2.5 mm, obtusely mucronulate; lower surface white to grey sericeous, upper white adpressed-pilose. Peduncles erect, ascending to procumbent, 10–22 cm, much longer than subtending leaves, striate, patent-hairy. Racemes at anthesis short, 1.5–3 cm, moderately dense. Calyx tube 1.5–3 mm, green; teeth linear-filiform to setaceous, 3–5 mm, patent villous, green or tinged blackish-purple at tips. Standard lemon yellow or pale lemon yellow, veined pink, 9–10 mm, ± equaling keel; wings and keel yellow. Legume white-villous, obliquely obovoid, 4–5 mm excluding 3–5 outer marginal spines 2–2.5 mm long, with shorter spines on lateral ridges. Flowering end of May to June.

Onobrychis citrina is distinguished by its white-villous legumes, lemon yellow corolla, short racemes and narrowly elliptic-oblong to elliptic-linear leaves. Unlike some white or cream-flowered plants of *Onobrychis alba* (Waldst. & Kit.) Desv. (ochroleuca-type), the standard is always a clear yellow. Plants of this species have previously been identified

as *Onobrychis degenii*. The latter was described from the vicinity of Allchar (Alšar), SE of Prilep in North Macedonia, and is quite different in leaf shape, dense silvery-grey villous indumentum, and much larger fruits 8–10 mm long (see Fig. 25). The material of *O. degenii* with which our plant was compared, was collected in August 1921 by N. Košanin in the *locus classicus* of Alšar, and revised by G. Širjaev in 1928 so there is no doubt as to its correct identity.

Geraniaceae

116. *Erodium absinthoides* subsp. *guicciardii*

(Heldr.) Maire & Petitm. × *E. hartvigianum* Strid & Kit Tan (Fig. 26)

Gr Nomos Kozanis, Eparchia Voiou: Mt Siniatsiko, 1396–1427 m, 40°22'N, 21°33'E, 01.06.2019, Kofinas obs. (photo).

Hybrids are present only in the highest populations of *Erodium* on Mt Siniatsiko where both parent species occur on slopes by the road. *E. absinthoides* subsp. *guicciardii* is common at lower altitude at Galatini at 1000 m and *E. hartvigianum* at 1125 m.



Fig. 26. *Erodium absinthoides* subsp. *guicciardii* × *E. hartvigianum* (photo G. Kofinas).

Reports 117–124

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The following are new plant records based on floristic investigations in the prefecture of Korinthias in north Peloponnese.

Brassicaceae**117. *Coronopus squamatus*** (Forssk.) Asch.[syn. *Lepidium coronopus* (L.) Al-Shehbaz]

Gr Nomos & Eparchia Korinthias: NE of Korfos village, seasonally flooded lake, 375 m, 37°46'N, 23°09'E, 13.04.2020, *Zarkos* obs.

New for nomos and eparchia. Distinguished from *C. didymus*, the other species occurring in Greece, by its glabrous stems and apiculate siliculae. The latter has, so far, not been noted in Korinthias.

Campanulaceae**118. *Campanula asperuloides*** (Boiss. & Orph.) Engl. (Fig. 27)

Gr Nomos & Eparchia Korinthias: Mougosto forest, crevices of vertical limestone rock, 931 m, 38°00'N, 22°35'E, 08.07.2020, *Zarkos* & *Christodoulou* obs.

Restricted to the Peloponnese.

Caryophyllaceae**119. *Bolanthus thymifolius*** (Sm.) Phitos (Fig. 28)

Gr Nomos & Eparchia Korinthias: Mougosto forest,

crevices of vertical limestone rock, 921 m, 37°59'N, 22°35'E, 08.07.2020, *Zarkos* & *Christodoulou* obs.

Only two other records are known from the Peloponnese – from the summit of Dourdouvana where the petals are white with a transverse purple stripe, and below the summit of Simeo on Mt Killini where the petals are mostly white but with a few flowers having white and transversely striped-purple petals. They are both at high altitudes of 2000–2050 m.

120. *Moenchia graeca* Boiss. & Heldr.

Gr Nomos & Eparchia Korinthias: Mt Killini, Mikri Ziria, W of Killini village, mountain meadow, 1369 m, 37°53'N, 22°27'E, 27.04.2020, *Zarkos* obs.

New for Mt Killini. In Korinthias, *M. graeca* was reported N of Feneos village and SW of Tarsos village (*Zarkos* & al. 2019: 233) but not from Mt Killini itself.

Crassulaceae**121. *Crassula alata*** (Viv.) A. Berger (Figs. 29 & 30)

Gr Nomos & Eparchia Korinthias: N of Kalentzi village, road margins, 330 m, 37°53'N, 22°46'E, 16.04.2020, *Zarkos* obs.



Fig. 27. *Campanula asperuloides* (photo G. Zarkos).



Fig. 28. *Bolanthus thymifolius* (photo V. Christodoulou).



Fig. 29. *Crassula alata* (photo G. Zarkos).

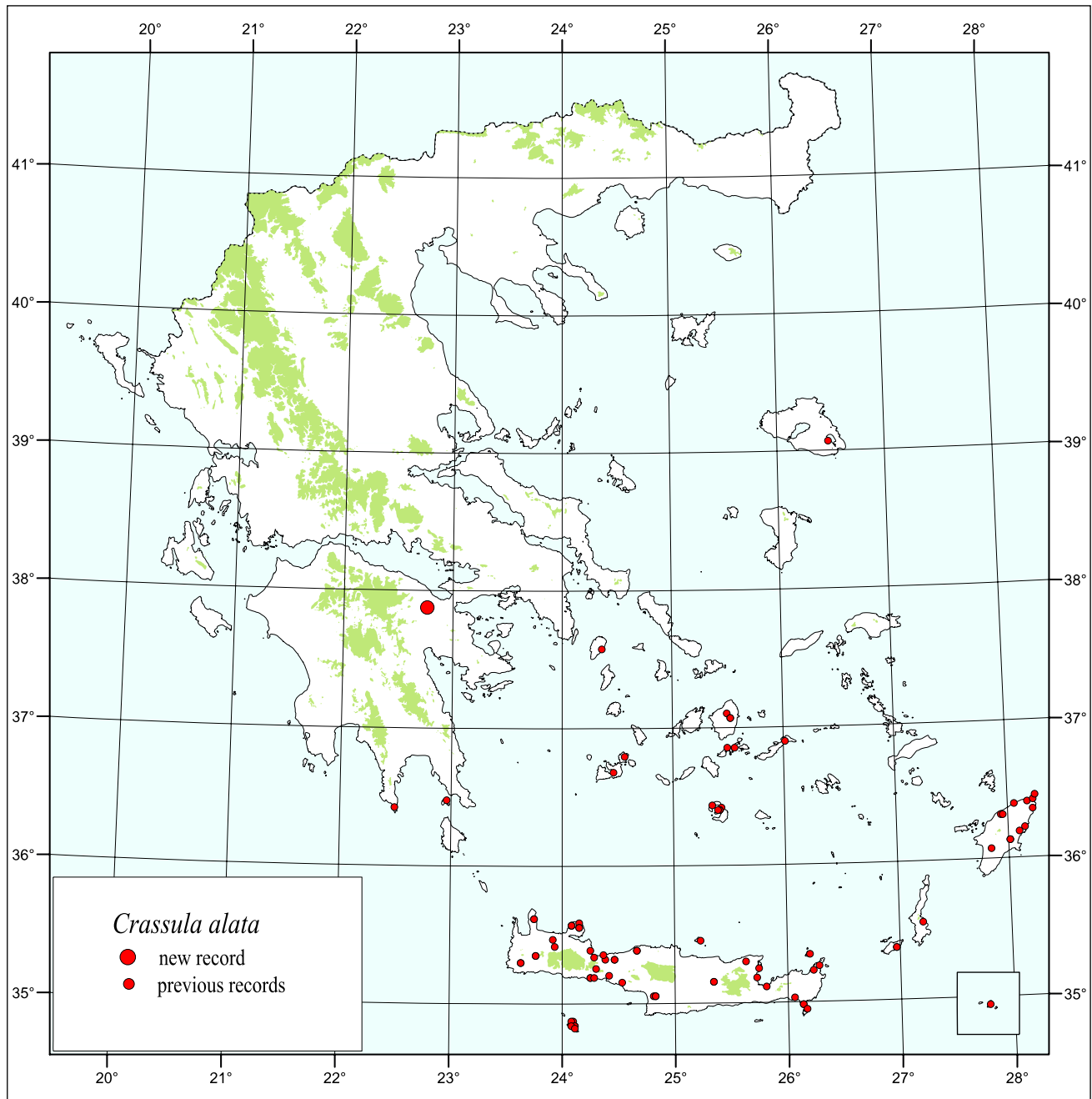


Fig. 30. Distribution of *Crassula alata* in Greece.

New for nomos and eparchia; occurring in Central and South Aegean area. Second record for the Peloponnese excluding one from the island of Elafonisos in the south-east of the peninsula (see Polymenakos & Tan 2017: 302).

Lythraceae

122. *Lythrum hyssopifolia* L.

Gr Nomos & Eparchia Korinthias: E of Sofiko village, seasonally flooded lake, 375 m, 37°48'N, 23°05'E, 13.04.2020, Zarkos obs.

In Nomos Korinthias, this has been reported only from damp meadows and reed swamps at Lake Stymfalia (Stamatiadou 12332 & Strid & al. 39759) but not elsewhere in the prefecture.

Resedaceae

123. *Reseda luteola* L. (Figs. 31 & 32)

Gr Nomos & Eparchia Korinthias: Lake Stymfalia, 600 m, 37°51'N, 22°26'E, 17.05.2020, Zarkos & Christodoulou obs.



Fig. 31. *Reseda luteola* (photo V. Christodoulou).

New for nomos and eparchia, north central and north east Peloponnese.

Alliaceae

124. *Allium nigrum* L.

Gr Nomos & Eparchia Korinthias: E of Sofiko village, in a wheat field, 375 m, 37°48'N, 23°05'E, 13.04.2020, Zarkos obs.

Complementing the first report from Nomos Korinthias which was from a cultivated area near Lake Stymfalia (*Coulot* 8327). A weed of traditional agriculture.

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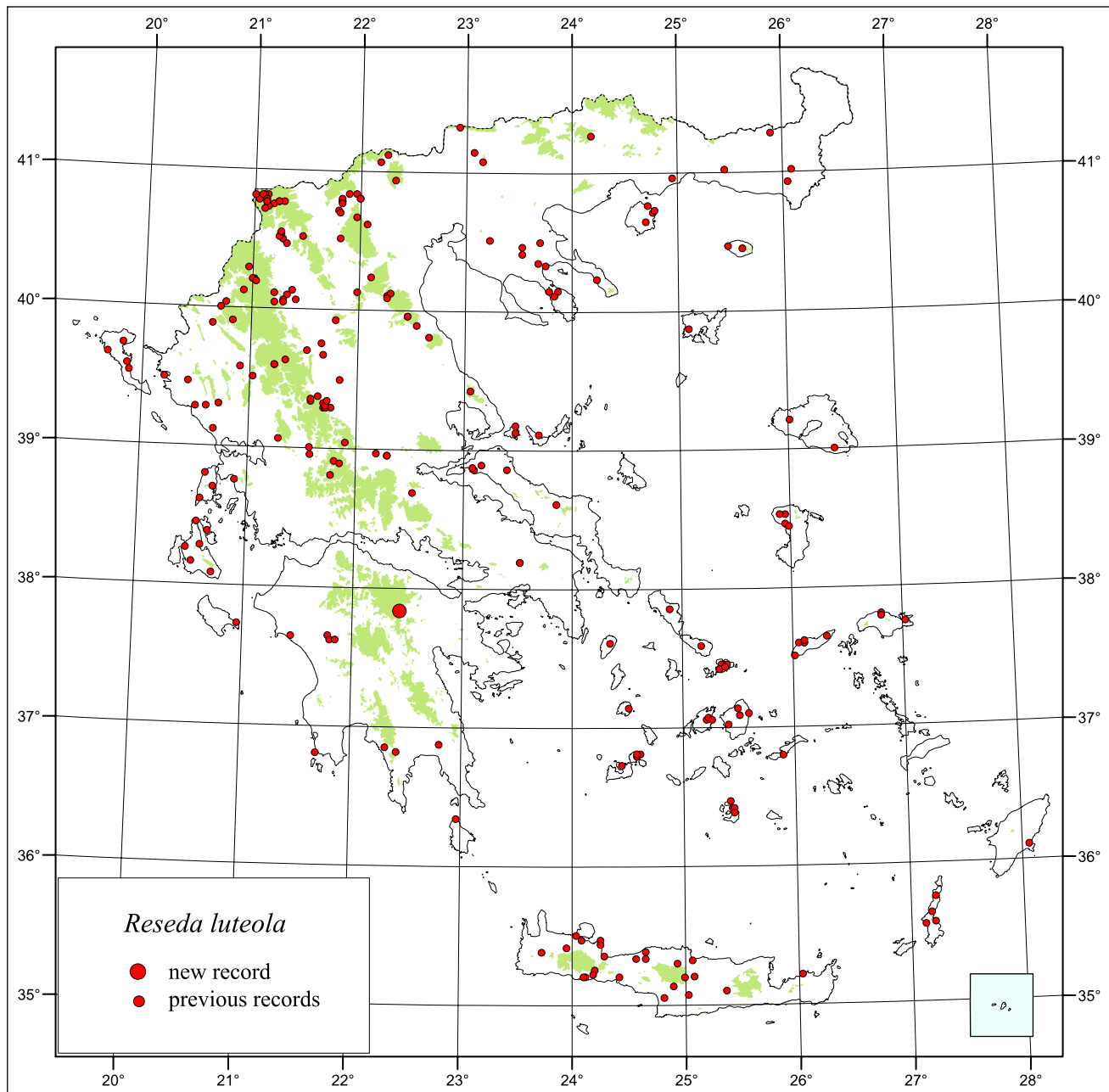


Fig. 32. Distribution of *Reseda luteola* in Greece.

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