

New floristic records in the Balkans: 41*

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Abstract. New chorological data are presented for 70 species and subspecies from Bulgaria (49-61), Greece (9-32, 43-48), Republic of North Macedonia (33-42), and Turkey-in-Europe (1-8). The taxa belong to the following families: *Acanthaceae* (43), *Alliaceae* (47), *Amaryllidaceae* (69), *Apiaceae* (1, 44, 45, 62), *Asteraceae* (2, 3, 10-12, 33-35, 46, 50, 63), *Azollaceae* (49), *Boraginaceae* (13, 14, 64), *Brassicaceae* (15, 16, 51), *Buddlejaceae* (52), *Cactaceae* (65), *Caryophyllaceae* (4, 18, 19, 53, 54, 66, 67), *Cyperaceae* (40, 41, 58), *Dioscoreaceae* (17), *Ericaceae* (5), *Fabaceae* (20-23, 55), *Fumariaceae* (6), *Geraniaceae* (36), *Hyacinthaceae* (48, 70), *Hypericaceae* (7), *Lamiaceae* (56), *Lythraceae* (24), *Najadaceae* (57), *Ophioglossaceae* (9), *Orchidaceae* (59-61), *Poaceae* (31, 32, 42), *Primulaceae* (25), *Ranunculaceae* (26), *Rubiaceae* (8, 27, 37), *Scrophulariaceae* s.l. (38, 39), *Thymelaeaceae* (68), *Urticaceae* (28), *Veronicaceae* (29, 30).

A new taxon for science is: *Bolanthus corinthiacus* Kit Tan & al. (66).

New taxa for the countries are: Republic of North Macedonia – *Hieracium piliferum* (35), *Bromus lanceolatus* (42).

The publication includes contributions by: M. Aybeke (1-8); B. Biel & Kit Tan (9-32); D. Dimitrov & V. Vutov (33-42), G. Kofinas & Kit Tan (42-48), G. Kunev (49-58), A. Popatanasov (59-61), Kit Tan, G. Zarkos, V. Christodoulou & G. Vold (150-158).

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 and R. North Macedonia have been reviewed by V. Vladimirov, for Greece by Kit Tan, and for Turkey-in-Europe by M. Aybeke.

Reports 1–8

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Apiaceae

1. *Torillia arvensis* (Huds.) Link. subsp. *arvensis*

Tu(E) A1(E) Kırklareli: between Dereköy – Kırklareli, 5th km to Hediyeşayırı, in a mixed forest clearing, 508 m, 41°55'48"N, 27°22'14"E, 12.07.1997, coll. & det. C. Yarcı (EDTU 7208).

A new taxon for A1(E) Kırklareli in European Turkey. According to Cullen (1972), it was recorded in A1(E) Edirne.

Asteraceae

2. *Carlina corymbosa* L.

Tu(E) A1(E) Kırklareli: between villages of Kula and Geçitağzı, Yamkalar, in a forest clearing, 553 m, 42°00'16"N, 27°17'41"E, 10.07.1997, coll. & det. C. Yarcı (EDTU 7173).

A new taxon for A1(E) Kırklareli in European Turkey. According to Meusel & Kastner (1975), it was recorded only in A2(E) Istanbul.

3. *Chondrilla juncea* L. var. *juncea*

Tu(E) A1(E) Kırklareli: Kırklareli, in the environments of Çağlayık village, on rocky terrain, 508 m, 42°01'59"N, 27°20'46"E, 19.06.1996, coll. & det. C. Yarcı (EDTU 7161).

A new taxon for A1(E) Kırklareli in European Turkey. According to Matthews (1975), it was reported only from A1(E) Tekirdağ and A2(E) Istanbul.

Caryophyllaceae

4. *Moehringia trinervia* (L.) Clairv.

Tu(E) A1(E) Kırklareli: between Dereköy and Bulgarian frontier, 5th km, in a mixed forest, 508 m, 41°55'48"N, 27°22'14"E, 02.06.1996, coll. & det. C. Yarcı (EDTU 7167).

A new taxon for A1(E) Kırklareli in European Turkey. According to Cullen (1967), it was reported only from A1(E) Tekirdağ.

Ericaceae

5. *Calluna vulgaris* (L.) Hull.

Tu(E) A1(E) Kırklareli: between the villages of Kula and Geçitağzı, Yamkalar, in a forest clearing, 553 m, 42°00'16"N, 27°17'41"E, 10.07.1997, coll. & det. C. Yarcı (EDTU 7177).

A new taxon for A1(E) Kırklareli in European Turkey. According to Stevens (1978), it was reported only from A2(E) Istanbul.

Fumariaceae

6. *Fumaria officinalis* L.

Tu(E) A1(E) Kırklareli: Demirköy, 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 7193).

A new taxon for A1(E) Kırklareli in European Turkey. According to Cullen (1965), it was reported from A1(E) Tekirdağ and A2(E) Istanbul.

Hypericaceae

7. *Hypericum perforatum* L.

Tu(E) A1(E) Kırklareli: between Kocayazı and Kula villages, in a forest clearing, 637 m, 41°57'56"N, 27°12'19"E, 09.07.1997, coll. & det. C. Yarcı (EDTU 7116).

A new taxon for A1(E) Kırklareli in European Turkey. According to Robson (1967), it was reported only from A1(E) Çanakkale and A2(E) Istanbul.

Rubiaceae

8. *Cruciata laevipes* Opiz.

Tu(E) A1(E) Kırklareli: between Ahmetler and Ahlatlı villages, 2nd km, in a *Fagus* forest clearing, 764 m, 42°01'56"N 27°13'26"E, 27.06.1997, coll. & det. C. Yarcı (EDTU 7106).

A new taxon for A1(E) Kırklareli in European Turkey. According to Ehrendorfer & Schönbeck-Temesy (1982), it was reported from A1(E) Edirne, Tekirdağ and A2(E) Istanbul.

Reports 9–32

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This is the second report of new plant-records for the island of Milos (phytogeographical region Kiklades, Nomos Kikladon, Eparchia Milou) based on field-work in February 2020. The 24 records listed are new to the island or otherwise remarkable, and four species were found to be new for the floristic region Kiklades (Kik) as circumscribed in Flora Hellenica (Strid & Tan 1997), bringing the total num-

ber of new records we have found for this area to 68. Occurrence on the other Kikladean islands is briefly summarized.

Ophioglossaceae

9. *Ophioglossum lusitanicum* L. (Fig. 1)

Gr Milos: W-SW of Adamas, phrygana in depression with small stream, 90 m, 36°43'26"N, 24°26'02"E, 15.02.2020, *Biel* 20.002.

Widespread on Milos in seasonally wet places.

Asteraceae

10. *Bellis annua* subsp. *minuta* (DC.) Meikle

Gr Milos: SW of Ag. Mamas, seasonally wet area within phrygana, 25 m, 36°41'12"N, 24°26'07"E, 23.02.2020, *Biel* 20.037.

New for Kiklades as definite records of occurrence have not been documented, only assumed.

11. *Calendula officinalis* L. (Fig. 2)

Gr Milos: S of Tripiti, pasture with olive trees and fallow field, 105 m, 36°43'54"N, 24°25'50"E, 22.02.2020, *Biel* 20.034.

Reported from Andros.

12. *Scorzonera cretica* Willd.

Gr Milos: SW of Adamas, rocky phrygana slope at coastal field road, 20 m, 36°43'24"N, 24°26'23"E, 28.02.2020, *Biel* 20.065.

Reported from Mavra, Folegandros and Thira.

Boraginaceae

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

Gr Milos: W of Emborios, rocky phrygana at summit of Mt Favas, 290 m, 36°42'49"N, 24°21'22"E, 28.02.2020, *Biel* 20.065.

Reported from Amorgos, Naxos, Paros, Thira and Thirasia.

14. *Myosotis litoralis* Steven ex Fisch.

Gr Milos: SW of Adamas, rocky phrygana at summit of Chodro Vouno, 620 m, 36°40'54"N, 24°22'15"E, 19.02.2020, *Biel* 20.024.

Widespread in Kiklades.

Brassicaceae

15. *Arabis collina* Ten. (Fig. 3)

Gr Milos: SW of Adamas, Mt Profitis Ilias, rocky phrygana with shrubs near chapel at summit, 720 m, 36°40'34"N, 24°22'56"E, 19.02.2020, *Biel* 20.023.

New for Kiklades. Atypical with few cauline leaves.



Fig. 1. *Ophioglossum lusitanicum* (photo B. Biel).



Fig. 2. *Calendula officinalis* (photo B. Biel).



Fig. 3. *Arabis collina* (photo B. Biel).

16. *Lobularia maritima* (L.) Desv.

Gr Milos: NW outskirts of Pollonia, waste ground behind gravelly coast, 5 m, 36°45'50"N, 24°31'15"E, 21.02.2020, *Biel* 20.033.

Reported from Amorgos, Sifnos and Siros.

Dioscoreaceae**17. *Tamus communis* L.**

Gr Milos: SE of Ag. Marina, small stream gorge above road, 190 m, 36°41'09"N, 24°24'16"E, 24.02.2020, *Biel* 20.041.

Widespread in Kiklades.

Caryophyllaceae**18. *Arenaria serpyllifolia* L.**

Gr Milos: Tripiti, rocky slope above village, 160 m, 36°44'15"N, 24°25'38"E, 16.02.2020, *Biel* 20.012.

Reported from Amorgos and Kea.

19. *Sagina procumbens* L. (Fig. 4)

Gr Milos: Plaka, grooves between cobble stones at southern part of village, 150 m, 36°44'29"N, 24°25'25"E, 16.02.2020, *Biel* 20.011.

Reported from Amorgos as field note, now confirmed for Kiklades with specimen.

Fabaceae**20. *Lathyrus ochrus* (L.) DC.**

Gr Milos: Kipos, waste places and road margins, 110 m, 36°40'01"N, 24°25'50"E, 17.02.2020, *Biel* 20.014.

Widespread in Kiklades. Also noted on coastal slope W of Adamas.

21. *Lathyrus saxatilis* (Vent.) Vis.

Gr Milos: NW of Ag. Mamas, rocky phrygana above coast, with seasonal wet areas, 10 m, 36°41'33"N, 24°25'43"E, 25.02.2020, *Biel* 20.049.

Widespread in Kiklades.



Fig. 4. *Sagina procumbens* (photo B. Biel).

22. *Pisum sativum* subsp. *biflorum* (Raf.) Soldano

Gr Milos: E-SE of Adamas, fallow field and adjacent phrygana, 50 m, 36°43'19"N, 24°28'30"E, 26.02.2020, *Biel* 20.059.

New for Kiklades. *Pisum sativum* subsp. *sativum* has traditionally been grown on some Kikladean islands but this practice has long been abandoned.

23. *Retama monosperma* (L.) Boiss. (Figs. 5 & 5a)

Gr Milos: NW of Adamas, phrygana and waste ground by dirt road, 30 m, 36°43'41"N, 24°26'38"E, 15.02.2020, *Biel* 20.006.

Reported from Anafi and Kithnos. Also on coastal slope W of Adamas.

Lythraceae**24. *Lythrum tribracteatum* Spreng.**

Gr Milos: N of Provatas, seasonally wet field near farm, 20 m, 36°40'37"N, 24°26'31"E, 17.02.2020, *Biel* 20.017.



Fig. 5. *Retama monosperma* (photo B. Biel).



Fig. 5a. *Retama monosperma* inflorescences (photo B. Biel).

Reported from Amorgos, Astipalea, Mikonos and Rinia. Also noted S of Zefyria.

Primulaceae

25. *Anagallis foemina* Mill.

Gr Milos: SE of Ag. Marina, phrygana at reservoir, below saddle, 230 m, 36°40'55"N, 24°25'07"E, 23.02.2020, *Biel* 20.036.

Widespread in Kiklades. Also noted in several other localities on island.

Ranunculaceae

26. *Ranunculus peltatus* Schrank subsp. *peltatus* (Fig. 6)

Gr Milos: N of Provatas, seasonally wet field near farm, 20 m, 36°40'37"N, 24°26'31"E, 17.02.2020, *Biel* 20.015; W of Kato Komia, gravel pit with water, 100 m, 36°43'16"N, 24°31'18"E, 17.02.2020, *Biel* 20.015.

Reported from Amorgos, Mikonos, Naxos, Paros and Tinos.



Fig. 6. *Ranunculus peltatus* Schrank subsp. *peltatus* (photo B. Biel).

Rubiaceae

27. *Galium spurium* L.

Gr Milos: Adamas, road margins, waste places in village, 15 m, 36°43'29"N, 24°26'41"E, 15.02.2020, *Biel* 20.007; *loc. ibid.*, 26.02.2020, *Biel* 20.060.

Widespread in Kiklades.

Urticaceae

28. *Urtica membranacea* Poir.

Gr Milos: Adamas, road margins, waste ground in village, 15 m, 36°43'29"N, 24°26'41"E, 15.02.2020, *Biel* 20.008.

Reported from Amorgos, Andros, Mikonos, Siros and Tinos.

Veronicaceae

29. *Veronica agrestis* L.

Gr Milos: N of Adamas, waste ground at sulphur spring, at crossing of dirt roads, 20 m, 36°43'51"N, 24°26'53"E, 15.02.2020, *Biel* 20.009.

New for Kiklades.

30. *Veronica verna* L.

Gr Milos: S-SW of Kato Komia, pasture with *Sarcopoterium* by dirt road, 115 m, 36°42'51"N, 24°31'31"E, 18.02.2020, *Biel* 20.020.

Reported from Naxos.

Poaceae

31. *Bromus chrysopogon* Viv.

Gr Milos: SW of Adamas, brackish swamp, 1 m, 36°43'13"N, 24°26'13"E, 25.02.2020, *Biel* 20.052.

Reported from Amorgos and Paros.

32. *Hordeum vulgare* L.

Gr Milos: N of Milos airport, embankment of main road by Aliki beach, 3 m, 36°42'03"N, 24°28'06"E, 17.10.2019, *Biel* 19.018.

Reported from Amorgos, Naxos, Sifnos and Thira. Probably a casual escape from nearby fields.

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

Reports 33–42

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Asteraceae

33. *Achillea fraasii* Schultz

Mk Mt Jablanica: peak Pupoljak, 1840 m a.s.l., on limestone rocks, 17.08.1948, coll. *B. Kitanov* (SOM 176377); Mt Bistra: over the village of Lazaropole, 20.07.1999, coll. *S. Stoyanov*, det. *D. Dimitrov* (SO 101005); Mt Deshat: rocky places on the northern slope of the peak Krchin, 2200 m a.s.l., 08.08.1948, coll. & det. *B. Kitanov* (SO 102187).

This Balkan-Anatolian element occurs in Albania, Montenegro, Greece, R North Macedonia, Kosovo, Serbia, and West Anatolia: Mt. Ida (Greuter 2006+). Recently reported from the valley of river Pchinja – Pchinja village, on dolomite marble (Avramovic & al. 2008) and near Pantelejmon, above a quarry (Matevski & al. 2015).

34. *Centaurea deusta* Ten.

Mk In graminosis Dobro Pole, 07.07.1913, coll. J. Mrkvicka (sub *C. splendens* subsp. *sterilis*), rev. D. Dimitrov (SOM 85033).

This species occurs in the Apennine and Balkan Peninsulas (Greuter 2006+).

35. *Hieracium piliferum* Hoppe

Mk Mt Jablanica: in grassy places by lake Podgorechko, 2000 m a.s.l., 14.08.1947, coll. B. Kitanov (SOM 176348).

According to Greuter (2006+), this European element is new for the flora of the R North Macedonia.

Geraniaceae**36. *Geranium molle* L.**

Mk Mt Jablanica: in dry stony places, northwards of Labunishta village, 14.07.1948, coll. B. Kitanov (SOM 176248).

So far not reported from this area (cf. Micevski 2005).

Rubiaceae**37. *Asperula doerfleri* Wettst.**

Mk Mt Jablanica: at peak Kamenjar, 1980 m a.s.l., 15.08.1947, with flowers, coll. B. Kitanov (SOM 176250), det. D. Dimitrov

Accompanying species is *Cystopteris fragilis* subsp. *alpina* (Lam.) Hartm. This is a new locality for this Illyro-Scardo-Pindic element.

Scrophulariaceae**38. *Verbascum longifolium* Ten.**

Mk Mt Jablanica: on the slope of peak Strizhak, 1800 m a.s.l., 23.08.1947, coll. B. Kitanov (SOM 176330).

This Euro-Mediterranean element is known for the flora of R North Macedonia, e.g. from Mt Osogovska (Melovska 2015). However, according to Marhold (2011), the species is missing from the Flora of R North Macedonia.

39. *Verbascum phlomoides* L.

Mk Lukovo village, Struga Municipality, 24.08.1947, coll. B. Kitanov (SOM 176331).

According to Marhold (2011), the species is missing from the Flora of R North Macedonia. However, it actually is widespread in that particular country.

Cyperac1.8eae**40. *Carex bigelowii* Schweinitz subsp. *bigelowii***

Mk Mt Jablanica: under peak Strizhak, 1600 m a.s.l., 23.08.1947, coll. B. Kitanov (SOM 176305).

This is a new locality for this Arctic-Alpine species.

41. *Carex foetida* All.

Mk Mt Deshat: in damp places near a snowbank under peak Velivar, 2000 m a.s.l., 07.08.1948, coll. B. Kitanov (SOM 176245).

This species is recorded for the flora of R North Macedonia from Mt Shar (Jimenes-Mejias & Luceno 2011).

Poaceae**42. *Bromus lanceolatus* Roth**

Mk In grassy places, below Labunishta village, 700 m a.s.l., 14.07.1948, coll. B. Kitanov (SOM 176302).

This Euro-Asiatic element is new for the flora of R North Macedonia (cf. Valdes & Scholz 2009).

Reports 43–48**Giannis Kofinas¹ & Kit Tan²**

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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).

Acanthaceae**43. *Acanthus greuterianus* Snogerup & al.**

(Figs. 7 & 8)

Gr Nomos Kozanis, Eparchia Voiou: Mt Siniatsiko, at edge of cultivated field NE of Galatini on route to Askio, 1000 m, 40°19'N, 21°33'E, 07.08.2019, Kofinas obs. (photo confirmed by A. Strid); Siatista, 1138 m, 40°17'N, 21°32'E, 11.08.2017, Kofinas obs.; Mt Vourinos, 750 m, 40°13'N, 21°35'E, 09.06.2014, Kofinas obs.

New for Mts Siniatsiko and Vourinos, and eparchia Voiou. Differing from typical plants by the purplish bracts and longer, denser indumentum. So far, reported from N Pindos (*Willing* 100963, B) and NC floristic regions and also on the Albanian side of Prespa, so no longer endemic to Greece. The type which has greenish-yellow bracts was collected from eparchia Eordeas, SE of Lake Vegoritis.

Apiaceae**44. *Carum appuanum* subsp. *bulgaricum* (Hartvig)**

Bechi & Garbari

Gr Nomos & Eparchia Florinis: Mt Kajmakčalan (Voras), in alpine meadow along dirt road above



Fig. 7. *Acanthus greuterianus* (photo G. Kofinas).

ski slope, 2390 m, 40°55'N, 21°47'E, 20.08.2019, Kofinas obs.

Second record for Voras. *Dichoropetalum lavrentiadis* was also noted on the way to summit.

45. *Peucedanum arenarium* subsp. *neumayeri* (Vis.) Stoj. & Stef.

Gr Nomos Kilkis, Eparchia Peonias: near village of Skyra on slope of Mt Paiko, c. 4 km from border with North Macedonia, 354 m, 41°05'N, 22°24'E, 13.08.2019, Kofinas obs.

New for Mt Paiko, nomos and eparchia. Second report for NC floristic region; it was reported by Goulimis (1960: 131) from Mt Vourinos (Nomos Kozanis, Eparchia Voiou) as subsp. *serpentina* (Andras. & Jav.) Hay.

Asteraceae

46. *Anthemis brachmannii* Boiss. & Heldr. (Fig. 9)

Gr Nomos Achaïas, Eparchia Kalavriton: foothills of Mt Chelmos, hard limestone rock, 805 m, 38°04'N, 22°14'E, 09.05.2015, Kofinas obs.; Vouraikos gorge, along railway track, 505 m, 48°08'N, 22°11'E, 05.04.2014, Kofinas obs.

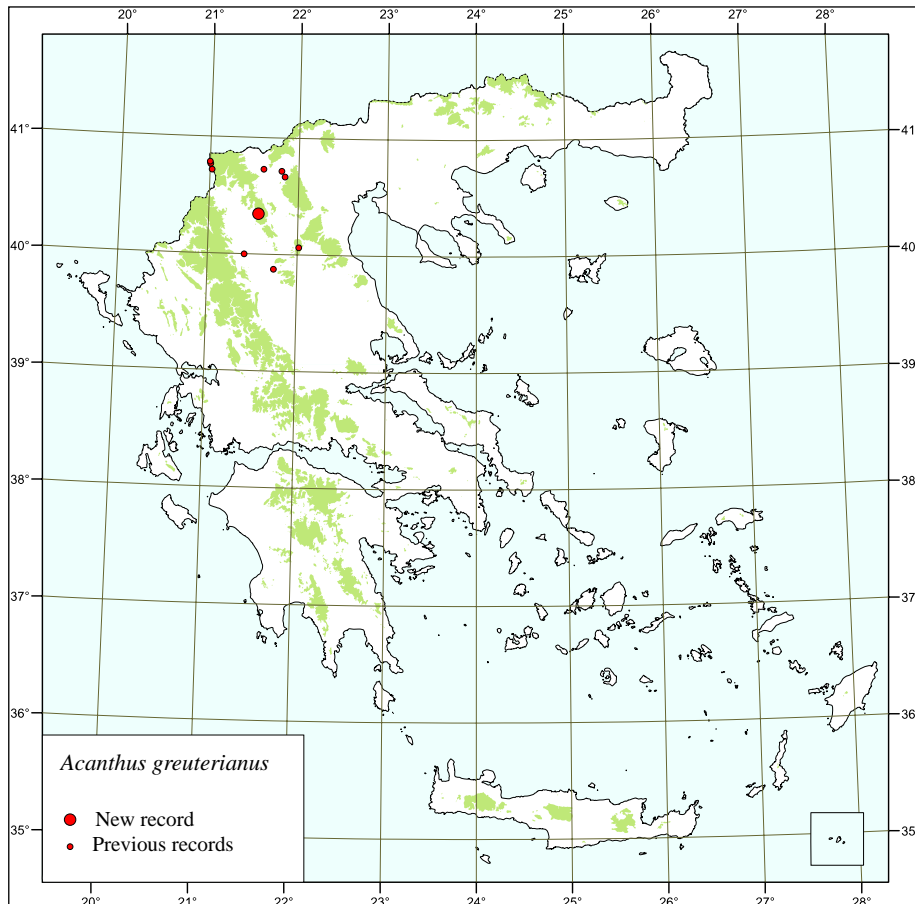


Fig. 8. Distribution of *Acanthus greuterianus* in Greece.



Fig. 9. *Anthemis brachmannii* (photo G. Kofinas).

New for Mt Chelmos. Rarely collected, only a few plants were noted at the site. It has been reported from Megaspileo (Nomos Achaïas) by Heldreich (Halácsy 1902).

Alliaceae

47. *Allium rhodopeum* Velen. subsp. *rhodopeum* (Fig. 10)

Gr Nomos Kozanis, Eparchia Voiou: Mt Siniatsiko, stony and rocky limestone meadow with small dolines, road from Galatini plateau to summit Askio, 1000 m, 40°22'N, 21°35'E, 07.08.2019, Kofinas obs.

New for Mt Siniatsiko, nomos and eparchia. In NC floristic region reported so far from Mt Vourinos (Nomos & Eparchia Grevenon) by Babalonas (1989) and from the Prespa National Park (Nomos & Eparchia Florinis) by A. Strid (unpubl. data). *Scabiosa triniifolia* was also observed in the same locality on Siniatsiko.



Fig. 10. *Allium rhodopeum* subsp. *rhodopeum* (photo G. Kofinas).

Hyacinthaceae

48. *Muscari armeniacum* Leichtlin ex Baker (Fig. 11)

Gr Nomos Pellis, Eparchia Almopias: Mt Kajmakčalan (Voras), alpine meadow with *Armeria* and *Vaccinium*, near road to ski slopes, 1870 m, 40°54'N, 21°49'E, 05.04.2013, Kofinas obs.

Second report for Mt Voras, the first being a bulb collection by A. Strid from Dobro Polje near the border with North Macedonia.



Fig. 11. *Muscari armeniacum* (photo G. Kofinas).

Reports 49–58

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Azollaceae

49. *Azolla filiculoides* Lam. (Fig. 12)

Bu Thracian Lowland: NW from Tsalapitsa, Plovdiv district, in an irrigation canal, next to the motorway, abundant, 200 m, 42°12'19.79"N, 24°31'6.09"E, 30.10.2018, coll. G. Kunev (SO 107 996); Belozem, Plovdiv district, next to the Kisimovi Dupki wetland, in an irrigation canal, 140 m, 42°11'22.09"N, 25°01'39.29"E, 30.10.2018,

G. Kunev obs.; in a small pond, on the right side of the road from Belozem to Chalakovi, 140 m, 42°10'52.59"N, 25°01'50.38"E, 01.10.2019, *G. Kunev* obs.

This is a new species for this floristic region (see Assyov & Petrova 2012). The species has been observed in rice-field canals and small ponds connected with those canals. In both locations, the vulnerable (Ivanova 2009) and protected (Biological Diversity Act, Annex 3) species *Salvinia natans* has also been noticed.

Asteraceae

50. *Carlina lanata* L.

Bu Rhodopi Mts (*Eastern*): Gnyazdovo, Kardzhali district, in a xerophytic grassland used as a pasture, 275 m, 41°39'17.98"N, 25°32'49.36"E, 10.06.2018, coll. *G. Kunev* (SO 107 992).

The species was not mentioned earlier for this floristic subregion (see Assyov & Petrova 2012).

Brassicaceae

51. *Barbarea longirostris* Velen.

Bu Tundzha Hilly Country: W from Kostur village, Haskovo district, close to 'Nahodishte na Div Bozhur v m. Taushan Bair' protected site, 490 m, 41°58'15.51"N, 26°16'44.66"E, 13.05.2019, coll. *G. Kunev* (SO 108 009, 108 010).

So far, this Balkan endemic has been known from the floristic regions of Mt Belasitsa, the Rhodopes (*Western, Central*) and Thracian Lowland (Ančev 2007). The current record of the species is the first for this floristic region (Assyov & Petrova 2012). The species inhabits damp places at both sides of a dirt road, among thickets of *Quercus frainetto*. It has been also found along the main road to the vil-



Fig. 12. *Azolla filiculoides* (photo *G. Kunev*).

lage in meadows with *Poa pratensis*, *Alopecurus pratensis*, *Anthoxanthum odoratum*, *Oenanthe silaifolia*, *Moenchia mantica*, *Orchis laxiflora*, etc.

Buddlejaceae

52. *Buddleja davidii* Franchet

Bu Rhodopi Mts (*Eastern*): Dobromiritsi, Kardzhali district, on a sandy braid bar along river Varbitsa, 360 m, 41°22'51.00"N, 25°12'3.67"E, 31.10.2018, *G. Kunev* obs.

This is a new species for this floristic subregion (Assyov & Petrova 2012; Petrova & al. 2013). It is well established along river Varbitsa. The species occurs with single specimens or in small groups under the opened canopy of *Platanus orientalis* patches, or exposed, on the alluvial terraces of the river. Also, it is often seen along the main road from Fotinovo (Kirkovo Municipality) to Zlatograd. It has been reported recently from Mt Sredna Gora (*Western*) (Glogov & al. 2018), Danubian Plain (Petrova & al. 2018) and Valley of River Struma (*Southern*) (Petrova & al. 2019).

Caryophyllaceae

53. *Corrigiola litoralis* L.

Bu Valley of River Struma (*Southern*): W from Marikostinovo, Blagoevgrad district, on a sandy river braid bar, in front of the mouth of river Melnishka, 85 m, 41°25'43.66"N, 23°18'23.37"E, 11.09.2018, coll. *G. Kunev* (SO 107 987).

This is the first record of this species for this floristic region (Assyov & Petrova 2012)

54. *Silene fabarioides* Hausskn.

Bu Rhodopi Mts (*Eastern*): W from Dobromiritsi, Kardzhali district, on serpentine rocks, on the left bank of river Varbitsa, 375 m, 41°22'56.55"N, 25°12'0.97"E, 08.08.2018, coll. *G. Kunev* (SO 107 985, SOM 176 681).

The species has been already mentioned for the floristic subregion of Eastern Rhodopes (Pavlova 2007; Dimitrov & Pavlova 2015), though not validated with herbarium material. The latest find has been reported from the floristic subregion of the Pirin Mts (*Northern*) (Vladimirov 2018).

Fabaceae

55. *Trifolium globosum* L. (Fig. 13)

Bu Rhodopi Mts (*Eastern*): W from Zagorichane, Kardzhali district, on serpentine rocks, 440 m, 41°22'40.90"N, 25°19'29.91"E, 13.05.2019, *G. Kunev* & *I. Kostadinov* obs.



Fig. 13. *Trifolium globosum* (photo G. Kunev).

This is the first record of the species from the floristic subregion of the Rhodopi Mts (*Eastern*). So far, it has been known from the Black Sea Coast (*Southern*), Thracian Lowland and Tundzha Hilly Country, at altitudes up to 500 m (Assyov & Petrova 2012). The current report was based on an observation of one specimen, which was not collected. The species was evaluated as Endangered, according to the *Red Data Book of the Republic of Bulgaria* (Petrova 2015). The vegetation in the surrounding area was composed of mainly annual clovers and bur clovers, such as *Trifolium cherleri*, *Medicago rigidula*, *M. disciformis*, *M. arabica*, *M. monspeliaca*, etc.

Lamiaceae

56. *Sideritis montana* subsp. *remota* (D'Urv.)

Heywood (Fig. 14)

Bu Valley of River Struma (*Southern*): Ilindentsi, Blagoevgrad district, on bare limestone rocks, at the roadside, 390 m, 41°38'55.55"N, 23°14'16.00"E, 10.06.2018, coll. G. Kunev (SO 107 994).

— Rhodopi Mts (*Central*): NE from Trigrad, Smolyan district, on bare limestone rocks, at the side of a dirt road, 1305 m, 41°36'27.76"N, 24°23'30.95"E, 11.06.2018, coll. G. Kunev (SO 107 995).

This infraspecific taxon is rare in Bulgaria, with no recent information on its distribution from the available herbaria collections (SO, SOM and SOA). According to Assenov (1989), it occurs on limestone bedrock in Mt Slavyanka and Pirin Mts (above Gotse Delchev) up to 1000 m a.s.l. At the location close to Ilindentsi village, the subspecies is observed on steep slopes, at the roadside to Ilindentsi marble quarries, along with *Centaurea immanuelis-loewii*, *Trachelium rumelianum*, *Thymus atticus*, etc.

Najadaceae

57. *Najas marina* L.

Bu Valley of River Struma (*Southern*): Strumyani, Blagoevgrad district, submerged in shallow waters on the left bank of the river, 130 m, 41°38'8.04"N, 23°11'39.99"E, 11.09.2018, coll. G. Kunev (SO 107 991).

This is a new species for this floristic region (Assyov & Petrova 2012). It is probably more widely distributed than documented in the earlier floristic works.



Fig. 14. *Sideritis montana* subsp. *remota* (photo G. Kunev).

Cyperaceae**58. *Cyperus michelianus* (L.) Delile (Fig. 15)**

Bu Valley of River Struma (*Southern*): W from Marikostinovo, Blagoevgrad district, 85 m, 41°25'42.07"N, 23°18'26.56"E, 11.09.2018, coll. G. Kunev (SO 107 989); W from Kulata, Blagoevgrad district, 75 m, 41°22'50.95"N, 23°20'39.84"E, 11.09.2018, coll. G. Kunev (SO 107 988, SOM 176 680).

This is a new species for this floristic subregion (see Assyov & Petrova 2012). It was seen on muddy or sandy river deposits that emerge during low tide. The species has prostrate facies and occurs along with other annuals with similar appearance, namely: *Corrigiola litoralis*, *Cyperus fuscus*, *Lindernia dubia*, *Portulaca oleracea*, etc. It grows in abundance.



Fig. 15. *Cyperus michelianus* (photo G. Kunev).

Reports 59–61**Andrey Popatanasov**

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Orchidaceae**59. *Epipactis purpurata* Sm. (Fig. 16)**

Bu Balkan Range (*Eastern*): in an old mixed deciduous forest above the road from Marikino Gradishte village to the Ablanovo Nursery Garden, on a north-facing slope, inclination *ca.* 10–20 degrees, 530 m a.s.l., 42°42'N, 26°17'E, 23.08.2017, with flowers and fruits, A. Popatanasov obs.



Fig. 16. *Epipactis purpurata* (photo A. Popatanasov).

A second report for this subregion (Kostadinov & al. 2018). At the location, a small group of seven plants was found. No plants were collected since the population was rather small and vulnerable. The dominant species in the forest was *Fagus sylvatica* and the secondary floor was nearly absent. The other species from this family found in the forest were *Neottia nidus-avis* and *E. helleborine*.

So far, about ten localities of this endangered plant are known in Bulgaria. With its rather low number of shoots in each location (Petrova & al. 2002; Assyov & Petrova 2012; Popatanasov 2014a), the species meets the IUCN criteria for 'Endangered' species (Petrova 2012a). The location, however, is not in a protected area. The species has not been reported for Slivenska Mts in Alexandrova & al. (2018).

60. *Goodyera repens* (L.) R. Brown (Fig. 17)

Bu Rhodopi Mts (*Central*): in an old mixed coniferous forest, on a southeast-facing steep slope of the Chairska Gorge, below the trail from Trigrad village to Chair Dere, inclination *ca.* 30 degrees, 1420 m a.s.l., 41°36'N, 24°25'E, with flowers and fruits, 07.08.2018, A. Popatanasov obs.



Fig. 17. *Goodyera repens* (photo A. Popatanasov).

A typically small group of nearly 30 leaf rosettes of *Goodyera repens* was found on the slopes. The plants grew among shady mosses and coniferous compost. From all leaf rosettes, only two had inflorescences. Other species from this family found in the forest were: *Epipactis helleborine*, *Cephalantera rubra*, *Listera ovata*, and *Neottia nidus-avis*.

So far, less than ten isolated and local spots of this endangered plant (Petrova 2009, Petrova 2012b; Popatanasov 2014b, 2018) have been known in Bulgaria. The location is not in a protected area.

61. *Himantoglossum jankae* Somlyay, Kreutz & Óvári (Fig. 18)

Bu Balkan Range (*Eastern*): On the southern slopes of the ridge above Topolitsa village, in bushes along the road, 360 m a.s.l., 42°44'N, 27°07'E, with flowers 06.06.2015, A. Popatanasov obs.

Over twenty plants were found on an area of over 2 ha, among the bushes and deciduous trees along the road



Fig. 18. *Himantoglossum jankae* (photo A. Popatanasov).

from Topolitsa village to the resort area. Other species from this family found in that locality were *Epipactis helleborine*, *Orchis simia*.

The location is in unprotected area. However, the geomorphology of the place and the difficult access naturally protected it to some extent from some anthropogenic treats.

Reports 62–70

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Apiaceae

62. *Athamanta albanica* Alston & Sandw. [syn. *Bubon albanicum* (Alston & Sandw.) Hand]

Gr Nomos Ioanninon, Eparchia Konitsis: near Ag. Paraskevi between Molista and Fourka, on grey gravelly scree of eroded flysch slopes, 700 m, 40°08'N, 20°51'E, 15.07.2019, *Kit Tan & G. Vold* 33105 (C, ATH, TIR, UPA).

— Nomos Grevenon, Eparchia Grevenon, Mt Smolikas, above river from Samarina to Distrato, 1400 m, 40°04'N, 20°59'E, *Kit Tan & G. Vold* s.n. (grown from seed, flowering and fruiting in cultivation).

New for Mt Smolikas. A monocarpic perennial restricted to S Albania and NW Greece (N Pindos), flowering from mid-June to early July. Numerous plants were also found on serpentine rock at a higher altitude on Mt Smolikas. The basal rosette leaves and fruits match those of the type species which was described from the district of Gjirokastrò in S Albania. The mericarps are elliptical, 4.5–6 × 1.5–2.5 mm (average 5 × 2 mm), slightly compressed, densely hispid-pubescent on ridges and in-between. The styles are ca. 1.5 mm long, delicate and reflexed in fruit. Mericarps of *A. macedonica* (L.) Sprengel are smaller, averaging 3–5 × 1–1.5 mm.

Many genera and species in the Apiaceae are being 'split', largely as a result of molecular characters which are not easily utilized in a 'traditional key' based on morphological form. Rather than introducing new genera and new combinations as a result of constant change we prefer to maintain *Athamanta* at the moment as the genus has few members and is easily recognizable in Greece.

Asteraceae

63. *Centaurea albanica* Bornm.

[Syn. *C. alba* subsp. *albanica* (Bornm.) Dostál; *C. ustulata* Halácsy, nom. illeg., non *C. ustulata* DC.]

Gr Nomos Ioanninon, Eparchia Konitsis: on limestone rock in small ravine near old bridge over the Voidomatis river, 450–550 m, 39°58'N, 20°39'E, 15.07.2019, flowering and fruiting, *Kit Tan & G. Vold* 33107 (ATH, TIR).

In Dimopoulos & al. (2013) this species was subordinated to *C. alba* L. which, however, is a West Mediterranean taxon occurring in the Iberian Peninsula and southern France. The affinities of *C. albanica* (and those of related taxa from Italy and the Balkans) are closer to *C. deusta*

Ten. It was described from N Pindos, "m. Konitza supra Gorica (Vradeto)" based on a specimen collected by A. Baldacci on 12 July 1896 (*Baldacci* 179, B, WU-Hal). Gorica (Goritsa) is the old name for the village of Kallithéa which lies below the village of Vradeto on the slope of Tsouka-Koula on Mt Timfi. Thanks to Pierre Authier (Paris) for information on this locality.

Boraginaceae

64. *Alkanna methanaea* Hausskn.

Gr Nomos Lakonias, Eparchia Epidavrou Limiras: Mt Koulochera, stony limestone slopes at roadside, 460 m, 36°49'N, 22°57'E, 05.02.2020, *Kit Tan & G. Vold* obs. (not flowering).

New for eparchia.

Cactaceae

65. *Austrocylindropuntia subulata* (Mühlentpf.) Backeb.

Gr Nomos Lakonias, Eparchia Epidavrou Limiras: coast at Limeni Gerakas, 10 m, 36°47'N, 23°04'E, 06.02.2020, *Kit Tan & G. Vold* obs.

New for eparchia. Native to S America, established.

Caryophyllaceae

66. *Bolanthus corinthiacus* Kit Tan, Zarkos & Vold, **sp. nov.** (Figs. 19A & 20A).

Gr Nomos & Eparchia Korinthias: SW-exposed cliffs at chapel of Ag. Nikolaos by Lake Vouliagmeni, crevices of hard limestone rock, 80 m, 38°02'N, 22°54'E, 31 January 2020, *Kit Tan & G. Vold* 33120 (holotype C; isotypes ATH, UPA).

— archaeological site at Cape Ireon, Lake Vouliagmeni, limestone cliffs and dry slopes, 20–80 m, 38°02'N, 22°52'E, 31.01.2020, *Kit Tan & G. Vold* obs.; *loc. ibid.*, 09.06.2015, *Strid* 58164 (G, herb. Strid); by Lake Vouliagmeni, limestone rocks on N and W side of lagoon, 0–50 m, 21.05.1991, *Strid & al.* 31937 (ATH, UPA); chapel of Ag. Nikolaos, Lake Vouliagmeni, 30.12.2009, *Zarkos & Christodoulou* obs.; *loc. ibid.*, 23.01.2020, *Zarkos* obs.

Branched perennial herb, woody at base. Stems several, prostrate-ascending, to 25 cm long, glandular and eglandular pubescent. Leaves opposite, flat or subterete, elliptic-oblong to narrowly spatulate, 5–8 × 1–2 mm, densely glandular and eglandular hairy on both surfaces, never glabrescent; hairs long and short, both patent and deflexed-appressed, appressed indumentum almost pruinose in appearance. Bracts

leaf-like, to 6 mm long. Flowers solitary or in axillary and terminal clusters of 2–3. Pedicels 6–9 mm, longer than calyx. Calyx tubular-turbinate, 4.5–5 mm long, with 5 projecting, long patent glandular and eglandular hairy, green or reddish-purple ribs; commissures scarious, with shorter deflexed and curled hairs. Calyx 5-lobed with 0.7 mm long teeth. Petals with long slender white claw; limb exerted by 1–1.5 mm, 1.5–2 × 1 mm, obtuse-rounded, white and faintly veined pink above or white with pale transverse purple stripe, magenta-pink beneath. Stamens 10; anthers cream, pale yellow or pink, *ca.* 1 mm long. Ovary unilocular; styles 2. Capsule ovoid, 4–4.5 mm long, *ca.* equalling calyx, dehiscing with 4 broad, outwardly curved teeth. Seeds comma-shaped, 0.9–1 mm long, *ca.* 0.5 mm at broadest width, minutely tuberculate, black.

This plant was first collected at Lake Heraion (Vouliagmeni) during the biennial University of Copenhagen students' excursion to Greece in May 1991 (labelled as *Strid & al.* 31937). Although registered in the *Flora Hellenica* database as deposited in the herbarium of the University of Patras (UPA) it was not located during a recent visit in February 2020 by the first author (KT). However, the sheet in ATH is extant and had been identified as *B. thymifolius* var. *thymifolius* for the *Bolanthus* account in *Flora Hellenica* (Phitos 1997: map 631).

Bolanthus thymifolius (Sm.) Phitos was lectotypified by a specimen from Parnassos (Phitos 1981: 39). Only one species of *Bolanthus* occurs on Mt Parnassos and all material from there is named *B. thymifolius*. *Bolanthus corinthiacus* differs from *B. thymifolius* by its stems and leaves which never become glabrous with age but remain pubescent. The densely adpressed indumentum, in particular, provides a pruinose effect (Figs. 19A & 20A) and the midvein is indistinct on the lower surface. The leaves are broadest at the upper third and the petal limb dark magenta beneath. Owing to mild weather conditions it was still in flower at Lake Vouliagmeni during the winter months of December and January; normal flowering times would be May and June. *Bolanthus corinthiacus* occurs on rocky limestone cliffs and slopes at 20–80 m and is locally restricted to Cape Ireon, washed by the Gulf of Corinth. The somewhat similar *Bolanthus graecus* (Schreber) Barkoudah is endemic to Attica and Evvia as well as the Kikladian islands of Naxos and Sikinos. It differs from *B. corinthiacus* by its indumentum, its flowers which are in dense, 3–10-flowered terminal clusters and the petal

limb which has a very conspicuous transverse purple stripe. The calyx is longer and tubular-cylindrical, not tubular-turbinate.

67. *Bolanthus thymifolius* (Sm) Phitos (Figs. 19B & 20B)

- Gr** Nomos Achaïas/Korinthias, Eparchia Kalavriton/Korinthias: summit of Ntourntouvana (Dourdouvana), limestone scree, 2051 m, 37°54'N, 22°15'E, 24.07.2015, *Zarkos* obs.
 — Nomos & Eparchia Korinthias: Mt Killini, on limestone rocks below summit Simeo, 2000 m, 37°55'N, 22°24'E, 17.07.2018, *Kit Tan, Vold, Zarkos & Christodoulou* 33016 (herb. Kit); *loc. ibid.*, 19.07.2017, 10.07.2018 & 21.08.2018, *Christodoulou* obs.

New for the Peloponnese. We had previously allocated the Dourdouvana and Killini plants to *B. chelmicus* Phitos subsp. *chelmicus*. This was because plants of *B. corinthiacus* from Lake Vouliagmeni (quod vide) had been identified as *B. thymifolius* var. *thymifolius*. Since the Killini plants bore no resemblance to the Lake Vouliagmeni plants we did not think to name the former *B. thymifolius*. It was only after examining *B. thymifolius* from the type locality (Parnassos) that we realized they are identical to the Killini plants. For recent photos of Parnassos plants, we thank Prof. A. Strid.

Bolanthus thymifolius is a variable species in which *B. thessalus* (Jaub. & Spach) Barkoudah and *B. intermedius* Phitos have been included (Flora of Greece website, May 2018). It has a wide distribution, ranging from the area of Gerania in Sterea Ellas up to the northeastern mainland. The flowers are not only solitary but can also be in clusters of 2–5. Although the petals are usually white, they may also have transverse, pale purple stripes.

Thymelaeaceae

68. *Thymelaea tartonraira* (L.) All.

- Gr** Nomos Lakonias, Eparchia Lakedemonos: Agrainoi to Kallithea, 760 m, 37°05'N, 22°39'E, 06.02.2020, *Kit Tan & G. Vold* obs.

Confirming literature report by Boratynski & al. (1992: 262) from approximately the same area.

Amaryllidaceae

69. *Narcissus tazetta* L. subsp. *tazetta*

- Gr** Nomos Lakonias, Eparchia Epidavrou Limiras: vicinity of Ag. Paraskevi above Molai, 250 m, 36°48'N, 22°51'E, 05.02.2020, *Kit Tan & G. Vold* obs.
 New for eparchia excluding the island of Elafonisos. Perianth cream, corona golden-yellow, flowers fragrant.

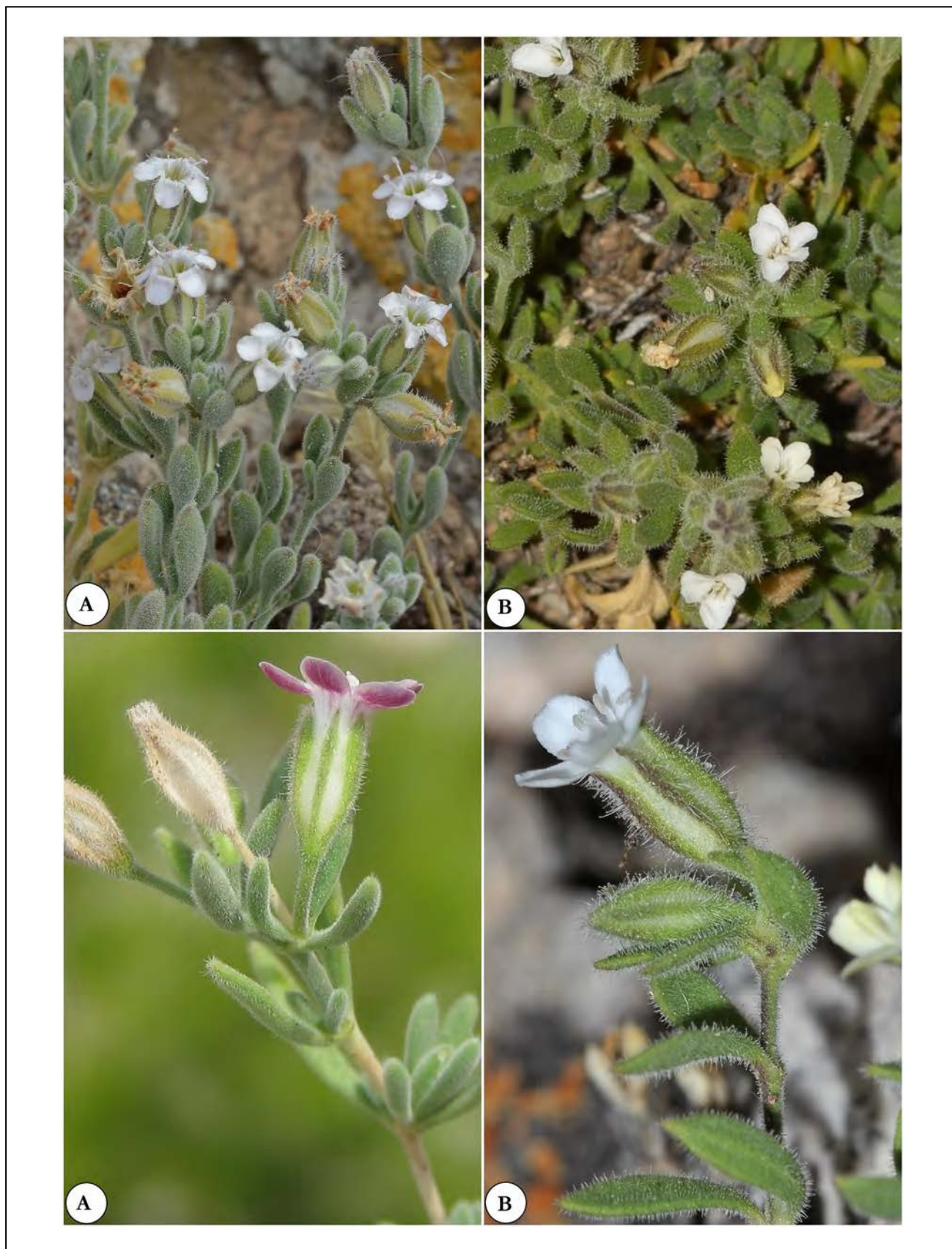


Fig. 19. A, *Bolanthus corinthiacus* (upper left, photo A. Strid; lower left, photo G. Zarkos). B, *Bolanthus thymifolius* (upper right, photo V. Christodoulou; lower right, photo G. Zarkos).

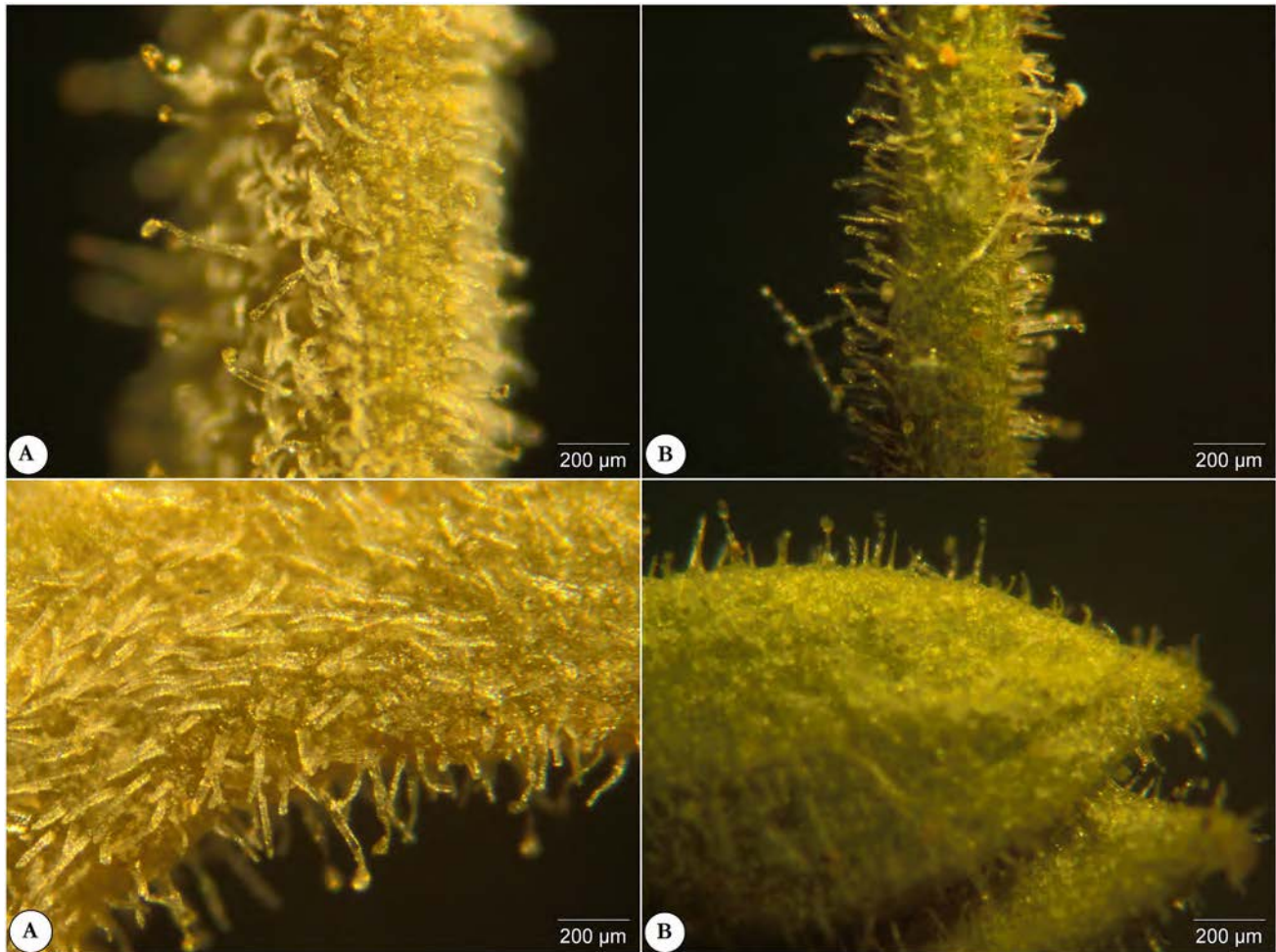


Fig. 20. A, *Bolanthus corinthiacus* and B, *Bolanthus thymifolius*: showing stem indumentum (above) and leaf indumentum (below). At 200 µm bar scale.

Hyacinthaceae

70. *Bellevalia hyacinthoides* (Bertol.) K. Perss. & Wendelbo

Gr Nomos Lakonias, Eparchia Lakedemonos: phrygana slopes outside Kalloni on road to Chryssafa, 500 m, 37°07'N, 22°56'E, 06.02.2020, Kit Tan & G. Vold 33122 (living plants collected).
New for eparchia. Early flowering in large quantities, together with mats of *Paronychia capitata*.

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