

New floristic records in the Balkans: 30*

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Abstract: New chorological data are presented for 188 species and subspecies from Bulgaria (1-2, 76-91, 151-159, 186-188), Greece (8-52, 59-75, 92-150, 160-163-185) and Turkey-in-Europe (3-7, 53-58). The taxa belong to the following families: *Aceraceae* (186), *Amaryllidaceae* (53, 84), *Anacardiaceae* (76), *Apiaceae* (12, 59, 60, 94-96), *Apocynaceae* (56-58), *Aquifoliaceae* (77), *Asclepiadaceae* (160), *Asphodelaceae* (72, 142, 183), *Aspleniaceae* (8, 9, 92), *Asteraceae* (1, 2, 13-18, 52, 78, 79, 97-102, 161, 163, 164), *Boraginaceae* (19, 61, 90, 103, 165), *Brassicaceae* (20, 21, 62, 104, 166), *Butomaceae* (54), *Campanulaceae* (105, 106), *Caprifoliaceae* (22, 23, 107), *Caryophyllaceae* (108, 109, 167), *Chenopodiaceae* (168), *Cistaceae* (110), *Convolvulaceae* (24), *Crassulaceae* (25, 63), *Cyperaceae* (43, 85, 143), *Dryopteridaceae* (10), *Euphorbiaceae* (64, 162), *Fabaceae* (6, 26-30, 65, 111-118, 148, 149, 169-171), *Gentianaceae* (80), *Geraniaceae* (119, 150), *Hypericaceae* (31, 120, 172), *Iridaceae* (144, 184), *Lamiaceae* (32, 66-68, 121-127, 173, 174), *Liliaceae* s.l. (44, 45, 55, 73-75, 86), *Linaceae* (33, 128), *Morinaceae* (129), *Oleaceae* (187), *Orchidaceae* (3-5, 87, 91, 145, 146, 185), *Pinaceae* (11), *Plantaginaceae* (130), *Platanaceae* (188), *Poaceae* (7, 46-51, 88, 89, 147, 156-159), *Pyrolaceae* (151, 152), *Ranunculaceae* (34, 35, 81, 82, 131, 132, 175, 176), *Rhamnaceae* (177), *Rosaceae* (36, 133-136, 178), *Rubiaceae* (37, 38, 137, 138, 153, 181, 182), *Salicaceae* (39), *Scrophulariaceae* (69, 139, 154, 179, 180), *Tamaricaceae* (40), *Taxaceae* (93), *Thymelaeaceae* (140), *Urticaceae* (141), *Valerianaceae* (70, 155), *Verbenaceae* (41), *Vitaceae* (42), and *Violaceae* (71, 83).

New species for science is: *Onobrychis citrina* Kit Tan & al. (149).

The publication includes contributions by: A. Asenov (1-2), M. Aybeke (3-5), M. Aybeke, C. Kurt & A. Semerci (6), M. Aybeke & C. Yarci (7), B. Biel & Kit Tan (8-51), C. Cattaneo (52), F. Dane & M. Aybeke (53-55), F. Dane, H. Sezginer & M. Aybeke (56-58), K. Giannopoulos, Kit Tan & G. Vold (59-75), Y. Marinov, K. Pachedjieva & D. Dimitrov (76-89), A. Popatanasov (90-91), Kit Tan, A. Strid, F.-N. Sakellarakis & G. Vold (92-147), Kit Tan & G. Vold (148-150), A. Tashev, D. Dimitrov & M. Delcheva (151-159), M. Thornberg & Kit Tan (160-162), G. Zarkos, V. Christodoulou, Kit Tan & G. Vold (163-185), A. Tashev & N. Tashev (186-188).

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 F. Dane.

Reports 1–2

Asen Asenov

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Asteraceae

1. *Centaurea immanuelis-loewii* Degen

Bu Znepole region: Mt Zemenska, limestone terrain on the north slope of peak Banderata, ca. 1100 m, FN30, 27.07.2006, coll. A. Asenov (SO 104 310).

Only one generative individual of this perennial plant was found on an open ridge area, in communities of *Festuca valesiaca*, *Melica ciliata* and *Satureja montana*. Only the overground parts were collected and the root remained for the next vegetation.

2. *Centaurea kerneriana* subsp. *gheorghieffii*

(Halásczy) Dostál

Bu Mt Rila: peak Belmeken: mosaic population in rocky and grassy places on the southern slopes of peak Belmeken, on silicate terrain, 2100–2418 m, 42°10'19"N, 23°45'57"E, on an area of 1600 m², coll. A. Asenov (SO 107 706); river Urdina and Urdin Cirque: mosaic population in rocky and grassy places at altitudes of 1900–2400 m; coll. A. Asenov (SO 107 714); above Borovets Ski Resort: five individuals were found in grassy places of an open forest habitat (*Picea abies*), 1400 m, coll. A. Asenov (SO 107 713).

In the locality at peak Belmeken, the accompanying species were: *Acinos alpinus*, *Agrostis capillaris*, *Aquilegia aurea*, *Athyrium filix-femina*, *Botrychium lunaria*, *Bistorta major*, *Bruckenthalia spiculifolia*, *Carex atrata*, *C. curvula*, *Cerastium decalvans*, *Dianthus microlepis*, *D. tristis*, *Festuca picta*, *F. valida*, *Hesperis dinarica*, *Jovibarba heuffelii*, *Juniperus sibirica*, *Luzula italica*, *Myosotis alpestris*, *Nardus stricta*, *Pedicularis ortanthera*, *Pleuropterypyrum undulatum*, *Poa alpina*, *Polystichum lonchitis*, *Saxifraga paniculata*, *Sedum alpestre*, *Scleranthus uncinatus*, *Sesleria comosa*, *Silene lerchenfeldiana*, *Thymus vandasii*, *Vaccinium vitis-idaea*, and *Veratrum lobelianum*.

The taxon is a Bulgarian endemic protected by the national Biological Diversity Act (2007) and included in *Red List of Bulgarian Vascular Plants* as Endangered (EN) (Bancheva 2009). So far it was known only from two sites in the Rila Mts: the Musala Cirque and above Kostenets village. Apparently, this species is more widely presented in Rila Mts. In some of its localities, the population is partially threatened by grazing and trampling.

Acknowledgement: Investigation of the Belmeken area was part of Project No. DIR 5113325-18-16 'Sustainable management of the Rila National Park, 1st phase' funded under the Environment Operational Programme (2007–2013).

Reports 3–5

Mehmet Aybeke

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Orchidaceae

3. *Cephalanthera epipactoides* Fischer & C.A. Meyer

Tu(E) A1(E) Edirne: Keşan, Çeltik village, in a forest, 252 m, 40°40'60"N, 41°52'28"N, 19.05.1995, coll. G. Dalgıç, det. M. Aybeke (EDTU 3437); Keşan, Mecidiye, 252 m, 40°41'17"N, 26°27'53"E, 12.05.1992, coll. G. Dalgıç, det. M. Aybeke (EDTU 4754).

A new record for A1(E) Edirne in European Turkey. According to Renz & Taubenheim (1984), this taxon was recorded only in A1(E) Çanakkale.

4. *Serapias vomeracea* (Burm. fil.) Briq. subsp. *orientalis* Greuter

Tu(E) A1(E) Kırklareli: Demirköy, between İğneada – Demirköy, 3 km, 14 m, 41°52'28"N, 27°59'02"E, 17.06.1987, coll. G. Olgun & A. Asan, det. M. Aybeke (EDTU 1402).

A new record for A1(E) Kırklareli in European Turkey. According to Renz & Taubenheim (1984), this taxon was recorded in A1(E) Tekirdağ and A2(E) Istanbul.

5. *Spiranthes spiralis* (L.) Chevall.

Tu(E) A1(E) Edirne: Uzunköprü, Çöpköy, 55 m, 41°15'36"N, 26°42'44"E, 19.05.1995, coll. G. Dalgıç, det. M. Aybeke (EDTU 4670).

A new record for A1(E) Edirne in European Turkey. According to Renz & Taubenheim (1984), this taxon was recorded in A1(E) Çanakkale and A2(E) Istanbul.

Report 6

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Fabaceae

6. *Trifolium glanduliferum* Boiss. var. *glanduliferum*

Tu(E) A1(E) Edirne: Lalapasa, Hacilar village, forage (03 H), 460 m, 41°55'60"N, 26°46'60"E,

08.07.2003, coll. *M. Aybeke, C. Kurt & A. Semerci*, det. *M. Aybeke* (TTAE 1091).

A new record for European Turkey. According to Zohary (1970), this taxon was recorded in Western Anatolia and indicated as E Mediterranean element. According to *Flora Europaea* (Coombe 1968), it was distributed in the Balkans, namely in Albania, Crete, Greece, Romania, Bulgaria, and European Turkey; no locality was given however. In this report, the taxon was confirmed and precisely reported.

Acknowledgement. Field work was carried out in 2003 within the framework of TAGEM/04/04/01/002 Project.

Report 7

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Poaceae

7. *Piptatherum coerulescens* (Desf.) P. Beauv.

Tu(E) A1(E) Kırklareli: between Kocayazı and Kula villages, 5 km, in a clearance of a mixed forest, 637 m, 41°57'56"N, 27°12'19"E, 09.07.1997, coll. *C. Yarci*, det. *C. Yarci*, conf. *M. Aybeke* (EDTU 6820); between Dereköy and Kırklareli; 5 km, in Hediye Bayırı locality, in a mixed forest, 508 m, 41°55'48"N, 27° 22'14"E, 12.07.1997, coll. *C. Yarci*, det. *C. Yarci*, conf. *M. Aybeke* (EDTU 7236).

This is a new record for European Turkey. According to Kit Tan (1985), this taxon was recorded from Anatolia, A1(A) Balıkesir, A2(A) Istanbul, Kocaeli, A5 Yozgat, B1 Çanakkale, Manisa, İzmir, Aydın, Muğla, C2 Denizli, C3 Antalya Konya, C5 İçel, and C6 Hatay. It was distributed from S Europe and Cyprus to W Syria.

Reports 8–51

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This is the sixth report of new plant-records for the island of Amorgos (phytogeographical region Kiklades, Nomos Kikladon, Eparchia Thiras) based

mainly on visits in March, May and June 2016. The 44 records listed are new to the island unless otherwise stated, 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 number of new records for this area to 42. Occurrence on the other Kikladean islands is briefly summarized. A single record (*Allium paniculatum*) from the island of Limnos (N Aegean) is also included.

Aspleniaceae

8. *Asplenium obovatum* Viv. subsp. *obovatum* (Fig. 1)

Gr Amorgos: NE of Chora, crevices in rock walls of small ravine with shrubs and trees, 240 m, 36°51'15"N, 25°55'00"E, 10.11.2014, *Biel* 14.324; *loc. ibid.*, 22.03.2016, *Biel* 16.073.

On several islands in the Kiklades.



Fig. 1. *Asplenium obovatum* subsp. *obovatum* (photo B. Biel).

9. *Asplenium onopteris* L.

Gr Amorgos: SW of Arkesini, crevices in rock walls of Vouno tou Choriou, 440 m, 36°46'40"N, 25°47'19"E, 20.03.2016, *Biel* 16.053.

Mainly in N and S Kiklades. Noted in November 2014 but in vegetative state.

Dryopteridaceae**10. *Dryopteris villarii* subsp. *pallida* (Bory) Heywood**

Gr Amorgos: E-SE of Lagadha, crevices in rock walls of Pano Mandra, 640 m, 36°54'07"N, 26°00'32"E, 01.06.2016, *Biel* 16.118; E of Lagadha, crevices in rock walls of Mt Krikelos, 810 m, 36°54'22"N, 26°01'25"E, 01.06.2016, *Biel* 16.122.

Recorded from Andros, Astipalea, Kea and Naxos. Only sterile fronds were collected; the laminae however, were non-glandular, thus differing from typical *D. v.* subsp. *pallida* which is very sparsely glandular. Also noted at 700 m N of Krikelos.

Pinaceae**11. *Pinus pinea* L.**

Gr Amorgos: E-NE of Katapola, abandoned terraces above Fonias stream, 70 m, 36°50'03"N, 25°52'22"E, 19.03.2016, *Biel* obs. (photo).

Recorded also from Naxos. Native to W and C Mediterranean and perhaps W Peloponnese. Established plantings; other individuals were counted at the coast between Katapola-Rachidi and Xilokeratidhi.

Apiaceae**12. *Petroselinum crispum* (Mill.) Fuss**

Gr Amorgos: Apano Potamos, phrygana at rocky slope by steps, 150 m, 36°53'40"N, 25°58'28"E, 28.05.2016, *Biel* 16.091; E-NE Aghia Thekla, terraced slope by path, 80 m, 36°48'43"N, 25°51'07"E, 05.06.2016, *Biel* 16.144.

Apparently first documented report for Kiklades. Garden escape flourishing in stone wall crevices and road margins, semi-established.

Asteraceae**13. *Anthemis wernerii* Stoj. & Acht.**

Gr Amorgos: NW of Tholaria, gravelly beach of Mikri Vlichadha, 5 m, 36°55'25"N, 25°58'37"E, 02.06.2016, *Biel* 16.126.

On several islands in the Kiklades.

14. *Crepis sancta* (L.) Bab.

Gr Amorgos: NE of Katapola, old olive plantations in Gialinas valley, 30 m, 36°50'03"N, 25°52'22"E, 19.03.2016, *Biel* 16.052.

C and S Kiklades (Folegandros, Naxos, Paros and Thira).

15. *Helminthotheca echioides* (L.) Holub

Gr Amorgos: Egiali, road margin in marshy coastal area, 2 m, 36°54'14"N, 25°58'42"E, 28.05.2016, *Biel* 16.096.

Already noted N of Lagadha in 2014 (*Biel & Tan* 2015: 57).

16. *Hypochaeris radicata* L.

Gr Amorgos: N-NW of Katapola, sandy dune at Vlichada beach, 1 m, 36°50'51"N, 25°51'10"E, 19.03.2016, *Biel* 16.050.

On several islands. Also noted N of Hora.

17. *Reichardia intermedia* (Sch. Bip.) Samp.

Gr Amorgos: NW of Katapola-Xilokeratidi, rocky phrygana with *Juniperus* and *Pistacia* on peninsula near chapel Ag. Pandeimonas, 15 m, 36°50'03"N, 25°51'21"E, 17.03.2016, *Biel* 16.040.

Recorded from several islands in S Kiklades.

18. *Scorzonera cana* (C.A. Mey.) Griseb. (syn.: *Podospermum canum* C.A. Mey.)

Gr Amorgos: E of Tholaria, phrygana and waste ground near chapel Ag. Astratios, 230 m, 36°55'03"N, 25°59'49"E, 02.06.2016, *Biel* 16.130.

Mainly N and C Kiklades.

Boraginaceae**19. *Myosotis litoralis* Steven ex Fisch.**

Gr Amorgos: SW of Aghia Thekla, sandy estuary at beach Ormos Ag. Saranta, 2 m, 36°48'33"N, 25°50'45"E, 21.03.2016, *Biel* 16.068.

N and C Kiklades.

Brassicaceae**20. *Arabidopsis thaliana* (L.) Heynh.**

Gr Amorgos: NE of Chora, crevices in rock walls of small ravine, 240 m, 36°51'15"N, 25°55'00"E, 10.11.2014, 22.03.2016, *Biel* 16.072.

N, C and S Kiklades.

21. *Erophila boerhaavii* (H.C. Hall) Dumort. (syn.: *Draba boerhaavii* H.C. Hall)

Gr Amorgos: E-NE of Lagadha, phrygana slope near a long stone wall, 520 m, 36°54'51"N, 26°01'36"E, 12.03.2016, *Biel* 16.013.

Reported only from Naxos and Thira.

Caprifoliaceae**22. *Sambucus nigra* L.**

Gr Amorgos: NW of Chora, terraced slope with shrubs below village, near small ravine, 240 m, 36°50'00"N, 25°53'42"E, 18.03.2016, *Biel* 16.044.

On the larger islands of Andros, Kea and Siros.

23. *Viburnum tinus* L. subsp. *tinus* (Fig. 2)

Gr Amorgos: SE of Aghia Thekla, abandoned terraces with fruit trees above stream gorge, 260 m, 36°48'17"N, 25°51'24"E, 21.03.2016, *Biel* 16.066.

The species has also been recorded from Naxos. Remnant of former planting. Also noted near Aghia Thekla village and Egiali-Kambos.



Fig. 2. *Viburnum tinus* subsp. *tinus* (photo B. Biel).

Convolvulaceae

24. *Calystegia sepium* (L.) R. Br. subsp. *sepium*

Gr Amorgos: Egiali, marshy coastal area with waste-deposits, 2 m, 36°54'14"N, 25°58'42"E, 03.06.2016, *Biel* 16.131.

Recorded from N and C Kiklades.

Crassulaceae

25. *Sedum caespitosum* (Cav.) DC.

Gr Amorgos: W-NW of Chora, *Phlomis*-phrygana slope at path, 280 m, 36°49'57"N, 25°53'37"E, 18.03.2016, *Biel* 16.044.

Mainly C and S Kiklades. Also noted NW of Lagadha.

Fabaceae

26. *Acacia melanoxylon* R. Br.

Gr Amorgos: N-NE of Katapola-Xilokeratidi, roadside slope near chapel, 30 m, 36°49'54"N, 25°51'56"E, 21.03.2016, *Biel* obs. (photo).

A fast-growing introduced species native to E Australia, spreading by suckers and seed. Apparently no previous reports in Greece based on herbarium vouchers.

27. *Lens culinaris* Medik.

Gr Amorgos: E of Lagadha, terraced fields, ruderal places, 220 m, 36°54'21"N, 25°59'58"E, 01.06.2016, *Biel* 16.117.

Reported from Naxos. Persisting from former cultivation.

28. *Lotus conimbricensis* Brot.

Gr Amorgos: S of Katapola, damp areas in stream

bed, 60 m, 36°48'20"N, 25°51'44"E, 21.03.2016, *Biel* 16.060.

Several islands in N and C Kiklades.

29. *Lotus parviflorus* Desf.

Gr Amorgos: S of Katapola, damp areas in stream bed, 60 m, 36°48'20"N, 25°51'44"E, 21.03.2016, *Biel* 16.061.

Recorded from Naxos and Sifnos.

30. *Trifolium cherleri* L.

Gr Amorgos: E of Tholaria, rocky phrygana slope by path, 200 m, 36°55'02"N, 25°59'43"E, 02.06.2016, *Biel* 16.128.

Widespread in Kiklades.

Hypericaceae

31. *Hypericum perforatum* L.

Gr Amorgos: S of Katapola, damp areas in stream bed, 60 m, 36°48'20"N, 25°51'44"E, 06.06.2016, *Biel* 16.151.

Mainly N and C Kiklades.

Lamiaceae

32. *Stachys arvensis* (L.) L.

Gr Amorgos: W-NW of Egiali, *Sarcopoterium*-phrygana at steep terraced slope above Chochlakas beach, 60 m, 36°54'33"N, 25°57'44"E, 13.03.2016, *Biel* 16.016.

C Kiklades (Naxos, Poros, Serifos and Sifnos).

Linaceae

33. *Linum corymbulosum* Rchb.

Gr Amorgos: S of Lagadha, *Sarcopoterium*-phrygana at saddle, above Aghia Triada, 400 m, 36°54'05"N, 25°59'46"E, 29.05.2016, *Biel* 16.100.

Reported from Naxos, otherwise new for the Kiklades. Also noted NE of Lagadha.

Ranunculaceae

34. *Ranunculus peltatus* Schrank subsp. *peltatus*

Gr Amorgos: SE of Katapola, concrete basin for overflow of dam, 25 m, 36°49'15"N, 25°52'11"E, 08.04.2015, *Biel* 15.059; *loc. ibid.*, 21.03.2016, *Biel* 16.055.

N and C Kiklades.

35. *Ranunculus sardous* Crantz

Gr Amorgos: NE of Katapola, seasonal wet pasture behind coast, 5 m, 36°49'50"N, 25°52'01"E, 23.03.2016, *Biel* 16.079.

Mainly N, W and C Kiklades.

Rosaceae

36. *Prunus cerasifera* subsp. *divaricata* (Ledeb.) C.K. Schneid.

Gr Amorgos: N of Lagadha, phrygana and scrub in valley near chapel Aj. Pandeimonas, 200 m, 36°54'41"N, 26°00'08"E, 15.03.2016, *Biel* 16.019. Recorded only from Andros.

Rubiaceae

37. *Galium spurium* L.

Gr Amorgos: SW of Lagadha, phrygana slope at paved path to Aghia Triada, 200 m, 36°54'13"N, 25°59'43"E, 11.03.2016, *Biel* 16.008; S of Katapola, phrygana slopes near small stream, 300 m, 36°48'16"N, 25°51'45"E, 21.03.2016, *Biel* 16.058a. N, C and S Kiklades. Also noted at Chora and Egiali.

38. *Galium verticillatum* Danthoine

Gr Amorgos: NE of Chora, rocky phrygana slope below summit of Profitis Ilias, 480 m, 36°50'23"N, 25°54'21"E, 18.03.2016, *Biel* 16.043; NW of Chora, steep phrygana slope with shrubs near Panagia Filopotamiani, 190 m, 36°50'20"N, 25°53'27"E, 22.03.2016, *Biel* 16.076.

Recorded only from Andiparos and Paros. Also noted near Chora.

Salicaceae

39. *Populus nigra* L.

Gr Amorgos: Egiali-Laki, waste ground and gardens near habitation, 15 m, 36°54'24"N, 25°58'42"E, 17.03.2016, *Biel* 16.035.

On the larger islands of Kea, Andros and Naxos. Other localities are at Chora, Katapola, Lefkes and Tholaria. Formerly planted, including *P. n.* var. *italica*.

Tamaricaceae

40. *Tamarix hampeana* Boiss. & Heldr.

Gr Amorgos: W of Katapola, coastal slope by dirt road, 5 m, 36°49'35"N, 25°51'23"E, 23.03.2016, *Biel* 16.080.

Reported from Folegandros and Naxos.

Verbenaceae

41. *Phyla nodiflora* (L.) Greene

Gr Amorgos: NE of Katapola, vegetable fields and ruderal places along track, 10 m, 36°49'44"N, 25°52'05"E, 09.06.2016, *Biel* 16.163.

New for Kiklades.

Vitaceae

42. *Parthenocissus inserta* (A. Kern.) Fritsch

Gr Amorgos: Chora, ruderal and waste places in village, 320 m, 36°49'53"N, 25°53'52"E, 08.06.2016, *Biel* obs. (photo).

First documentation for the Kiklades. Introduced as garden ornamental, native to N America. In Greece observed as a widespread escape in natural or semi-natural habitats but presence usually documented by photos, rarely by herbarium vouchers.

Cyperaceae

43. *Carex divulsa* Stokes

Gr Amorgos: Egiali, marshy coastal area with waste-deposits, 2 m, 36°54'14"N, 25°58'42"E, 28.05.2016, *Biel* 16.095.

N and C Kiklades.

Liliaceae s.l.

44. *Allium paniculatum* L. (Fig. 3)

Gr Amorgos: N of Egiali, waste ground at beach near houses, 3 m, 36°54'19"N, 25°58'38"E, 03.06.2016, *Biel* 16.132; S of Katapola, *Sarcopoterium*-phrygana with *Opuntia* along path, 36°49'29"N, 25°51'50"E, 06.06.2016, *Biel* 16.154; Chora,



Fig. 3. *Allium paniculatum* (photo B. Biel).

ruderal and waste ground in village, 320 m, 36°49'53"N, 25°53'52"E, 08.06.2016, *Biel* 16.161.

- Nomos Lesvou, Eparchia Limnou: eastern outskirts of Myrina, grassy slopes with almond trees and castle ruin, 30 m, 39°52'26"N, 25°03'56"E, 07.04.2014, *Biel* 14.040a; material in cultivation at Höchberg, originating from near Myrina, bulbs collected in 2014 and pressed at flowering stage, 23.07.2016, *Biel* 16.001.

On several of the larger islands in the Kiklades. Also noted near Kalotaritissa and Kamari. This is also a first report for the N Aegean island of Limnos.

45. *Ruscus hypophyllum* L.

- Gr** Amorgos: SE of Aghia Thekla, abandoned terraces with fruit trees above stream gorge, 260 m, 36°48'17"N, 25°51'24"E, 21.03.2016, *Biel* 16.063.

New for Kiklades, reported from Crete, N Aegean (Limnos, Ag. Evstratios) and E Aegean islands (Rodos). Planted, now naturalized (native to W Mediterranean). Also noted at Katapola.

Poaceae

46. *Aegilops peregrina* (Hack.) Maire & Weiller

- Gr** Amorgos: NE of Lagadha, steep phrygana slope with *Quercus* scrub, 290 m, 36°54'33"N, 26°00'18"E, 30.05.2016, *Biel* 16.106.

S Aegean islands.

47. *Elytrigia atherica* (Link) Kerguélen

- Gr** Amorgos: Egiali, road margin in marshy coastal area, 2 m, 36°54'14"N, 25°58'42"E, 03.06.2016, *Biel* 16.132.

Recorded from Folegandros and Serifos. Also noted N of Katapola.

48. *Lolium temulentum* L.

- Gr** Amorgos: NE of Katapola, old olive plantations in Gialinas valley, 30 m, 36°50'03"N, 25°52'22"E, 19.03.2016, *Biel* 16.051; W of Katapola, abandoned field and phrygana by dirt road, 3 m, 36°49'37"N, 25°51'19"E, 23.03.2016, *Biel* 16.081.

Widespread in the Kiklades but not previously recorded from Amorgos.

49. *Parapholis filiformis* (Roth) C.E. Hubb.

- Gr** Amorgos: NW of Katapola-Xilokeratidi, rocky phrygana with *Juniperus* and *Pistacia* on peninsula with the chapel Ai Pandeimonas, 15 m, 36°50'03"N, 25°51'21"E, 04.06.2016, *Biel* 16.134.

Mainly W Kiklades.

50. *Phalaris coerulescens* Desf.

- Gr** Amorgos: NW of Tholaria, gravelly beach of Mikri Vlichadha, 5 m, 36°55'25"N, 25°58'37"E, 02.06.2016, *Biel* 16.127.

Reported from Milos, otherwise new for Kiklades.

51. *Setaria viridis* (L.) P. Beauv.

- Gr** Amorgos: Egiali, road margin in marshy coastal area, 2 m, 36°54'14"N, 25°58'42"E, 03.06.2016, *Biel* 16.133.

Mainly N and C Kiklades. Also noted N of Katapola.

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

Report 52

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Asteraceae

52. *Staehelina fruticosa* (L.) L. (Fig. 4)

- Gr** Nomos Dodekanisou, Eparchia Kalimnou: Ofidoussa (small island NW of Astipalea), vertical limestone cliffs on east side of island, 114 m, 36°33'N, 26°08'E, 18.08.2015, *Cattaneo* obs. (photos).



Fig. 4. *Staehelina fruticosa* on the rocks (photo C. Cattaneo).

New for Ofidoussa. An endemic of the Cretan area, the smaller islands of SE Kiklades (Anafi, Anidros, Astipalea, Iraklia, Keros, Kinaros, Sirina, Zafora) and the island of Simi in E Aegean.

Reports 53–55

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Amaryllidaceae

53. *Leucojum aestivum* L.

Tu(E) A1(E) Edirne: Centre, Değirmenyeni village, in the environs of river Tunca, 18 m, 41°45'43"N, 26°33'11"E, 26.04.1987, coll. & det. *F. Dane* (EDTU 638).

This is a new record for A1(E) Edirne in European Turkey. According to Mill (1984), this taxon was recorded only in A2(E) Istanbul.

Butomaceae

54. *Butomus umbellatus* L.

Tu(E) A1(E) Edirne: Centre, Yenikadın village, on the bank of river Meriç, Söğütlük, in a humid forest, 26 m, 41.687245N, 26.438195E, 02.08.1984, coll. *H. Arda* & *M. Erten*, det. *F. Dane* (EDTU 95).

This is a new record for A1(E) Edirne in European Turkey. According to Uotila (1984), this taxon was recorded only in A1(E) Tekirdağ and A2(E) Istanbul.

Liliaceae s.l.

55. *Allium ampeloprasum* L.

Tu(E) A1(E) Çanakkale: Gelibolu to Bolayır, 5th km, 68 m, 40°30'57"N, 26°45'19"E, 10.05.1987, coll. & det. *F. Dane* (EDTU 617).

This is a new record for A1(E) Çanakkale in European Turkey. According to Kollmann (1984), this taxon was recorded only in A1(E) Tekirdağ and A2(E) Istanbul.

Reports 56–58

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Apocynaceae

56. *Trachomitum venatum* subsp. *sarmatiense* (Woodson) Avetisian

Tu(E) A1(E) Çanakkale: Gelibolu; Burhanlı, Kurak Tepe, 0 m, 40°24'37"N, 26°40'15"E, 09.08.2001, coll. & det. *G. Dalgıç* (EDTU 8261).

This is a new report for A1(E) Çanakkale in European Turkey. According to Stearn (1978), this taxon was reported only from A1(E) Kırklareli: İğneada to Hursitaga (ISTE 15989) and A2(E) Istanbul: Istanbul, Kilyos, 1891, Azn.!

57. *Vinca major* L. subsp. *major*

Tu(E) A1(E) Edirne: Centre, naturalized, under a tree, 26 m, 41°40'33"N, 26°33'31"E, 10.04.2001, coll. *F. Dane* & *H. Sezginer*, det. *F. Dane* (EDTU 15006).

This is a new report for A1(E) Edirne in European Turkey. According to Stearn (1978), this taxon was found only in A2(E) Istanbul: Yıldız Park, Berk (ISTE 2903). It is cultivated as an ornamental plant and occasionally naturalized elsewhere. Scattered in S France, Italy & NW Jugoslavia, often naturalized. A Mediterranean element.

58. *Vinca minor* L.

Tu(E) A1(E) Edirne: Centre, Hüseyinpinar village, 252 m, 41°10'20"N, 26°45'12"E, 11.05.1988, coll. *N. Başak* & *G. Dalgıç*, det. *G. Dalgıç* (EDTU 2023); Uzunköprü: Çöpköy, 33 m, 41°15'58"N, 26°41'19"E, 02.06.1988, coll. *F. Dane* & al., det. *F. Dane* (EDTU 2665); Lalapaşa: Kalkansöğüt village, on a hill, 252 m, 41°50'22"N, 26°44'08"E, 14.05.1989, coll. *G. Dalgıç* & *N. Polat*, det. *G. Dalgıç* (EDTU 3131); Süleoğlu: Kovankaya-Süleoğlu, under trees, 252 m, 41°46'08"N, 26°54'36"E, 09.04.1989, coll. *G. Dalgıç* & al., det. *G. Dalgıç* (EDTU 3152); Lalapaşa: Bağlık Deresi, on a slope, 252 m, 41°50'22"N, 26°44'08"E, 18.04.1989, coll. *G. Dalgıç* & *F. Dane*, det. *G. Dalgıç* (EDTU 3158); Süleoğlu: around a barrage, 252 m, 41°46'08"N, 26°54'36"E, 04.04.1990, coll. *H. Pedük* & al., det. *F. Dane* (EDTU 4319); Süleoğlu: around a barrage, in bushes, 252 m, 41°46'08"N, 26°54'36"E, 18.04.2000, coll. & det. *N. Başak* & *N. Güler* (EDTU 10298).

This is a new report for A1(E) Edirne in European Turkey. This taxon is naturalized in Edirne. According to Stearn (1978), it was found only in A2(E) Istanbul. Cultivated and occasionally naturalized, it is scattered in SW & C Europe, Balkans, C & S Russia, and the Caucasus.

Reports 59–75

Konstantinos Giannopoulos¹, Kit Tan² & Gert Vold³

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Continuing a series of new plant records based on further floristic investigations in the prefecture of Iliia in western Peloponnese. The records listed are new for Eparchia Ilias or Olimbias, or for both eparchies in Nomos Ilias.

Apiaceae

59. *Hellenocarum multiflorum* (Sm.) H. Wolff

Gr Nomos Ilias, Eparchia Olimbias: Mt Minthi, on way to second summit, crevices of limestone rock, 1160 m, 37°27'N, 21°51'E, 03.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32055 (herb. Giannopoulos).

New for eparchia Olimbias. Recently reported from Mt Lambia and Akr. Kounopeli in eparchia Ilias (*Kit Tan & al.* 31195 & 31437).

60. *Selinum silaifolium* (Jacq.) Beck [syn. *Cnidium silaifolium* (Jacq.) Simonk.]

Gr Nomos & Eparchia Ilias: Mt Lambia, 1210 m, 37°54'N, 21°49'E, 03.07.2016, *Kit Tan, G. Vold & Giannopoulos* 32234 & 32235 (herb. Giannopoulos).

New for Mt Lambia, nomos and eparchia.

Boraginaceae

61. *Buglossoides incrassata* (Guss.)

I.M. Johnst. (Fig. 5)

Gr Nomos Ilias, Eparchia Olimbias: Mt Minthi, on way to second summit, 1160 m, 37°27'N, 21°51'E, 03.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32054 (herb. Giannopoulos).

New for eparchia Olimbias; also collected in eparchia Ilias from Koumani and Mt Lambia.

Brassicaceae

62. *Crambe hispanica* L.

Gr Nomos Ilias, Eparchia Olimbias: near Skoupas, 195 m, 37°26'N, 21°42'E, 02.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32042 (herb. Giannopoulos).

New for nomos and eparchia. Mainly coastal in S and SW Greece and on islands.

Crassulaceae

63. *Sedum laconicum* Boiss. & Heldr.

Gr Nomos Ilias, Eparchia Olimbias: Mt Minthi, near Krioneri, 860 m, 37°28'N, 21°47'E, 02.07.2016, *Kit Tan, G. Vold & Giannopoulos* 32226 (herb. Giannopoulos).

New for eparchia Olimbias, recorded from Mt Lambia in eparchia Ilias.

Euphorbiaceae

64. *Euphorbia apios* L.

Gr Nomos Ilias, Eparchia Olimbias: Mt Minthi, on way to second summit, 1130 m, 37°27'N, 21°51'E, 03.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32051 (herb. Giannopoulos).

New for eparchia Olimbias, recorded from Mt Erimanthos in eparchia Ilias.

Fabaceae

65. *Lupinus angustifolius* L.

Gr Nomos Ilias, Eparchia Olimbias: Minthi, near Linistaina village, 910 m, 37°26'N, 21°50'E, 03.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32057 (herb. Giannopoulos).

New for eparchia Olimbias.



Fig. 5. *Buglossoides incrassata* (photo K. Giannopoulos).

Lamiaceae**66. *Ballota acetabulosa* (L.) Benth.**

Gr Nomos & Eparchia Ilias: Mt Lambia, 1210 m, 37°54'N, 21°49'E, 03.07.2016, *Kit Tan, G. Vold & Giannopoulos* 32242 (herb. Giannopoulos).

New for Mt Lambia, nomos and eparchia; rarely recorded in W Peloponnese.

67. *Sideritis purpurea* Benth.

Gr Nomos Ilias, Eparchia Olimbias: Minthi, near Krioneri, 860 m, 37°28'N, 21°47'E, 02.07.2016, *Kit Tan, G. Vold & Giannopoulos* 32227 (herb. Giannopoulos).

New for eparchia Olimbias.

68. *Teucrium flavum* subsp. *hellenicum* Rech. f.

Gr Nomos Ilias, Eparchia Olimbias: Minthi, near Krioneri, 860 m, 37°28'N, 21°47'E, 02.07.2016, *Kit Tan, G. Vold & Giannopoulos* 32230 (herb. Giannopoulos).

New for eparchia Olimbias. Rarely recorded from W Peloponnese.

Scrophulariaceae**69. *Scrophularia peregrina* L.**

Gr Nomos Ilias, Eparchia Olimbias: Mt Minthi, on way to second summit, 1160 m, 37°27'N, 21°51'E, 03.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32053 (herb. Giannopoulos).

New for nomos and eparchia Ilias.

Valerianaceae**70. *Centranthus macrosiphon* Boiss. (Fig. 6)**

Gr Nomos Ilias, Eparchia Olimbias: near Skoupas, SW of Minthi, 195 m, 37°26'N, 21°42'E, 02.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32040 (herb. Giannopoulos).

New for nomos, eparchia and mainland Peloponnese. A W Mediterranean species already reported from the islands of Salamis and Kithira (where it is described as subsponaneous), and Sterea Ellas (Athens and Mt Pateras). In Nomos Ilias, only the native *C. ruber* (L.) DC. has been collected, on rocky limestone slopes in the gorge of the Neda river.

Violaceae**71. *Viola kitaibeliana* Schult.**

Gr Nomos Ilias, Eparchia Olimbias: near Sylimna village, Minthi, 760 m, 37°29'N, 21°47'E, 02.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32045 (herb. Giannopoulos).

New for eparchia Olimbias; reported from eparchia

Ilias. Widespread in Greece, particularly in the central and northern mainland.

Asphodelaceae**72. *Asphodeline lutea* (L.) Rchb.**

Gr Nomos & Eparchia Ilias: Mt Lambia, 1210 m, 37°54'N, 21°49'E, 03.07.2016, *Kit Tan, G. Vold & Giannopoulos* 32237 (herb. Giannopoulos).

New for Mt Lambia, rare in NW Peloponnese. In nomos Ilias, recorded only from Mt Erimanthos.

Liliaceae s.l.**73. *Gagea heldreichii* (A. Terracc.) Stroh**

Gr Nomos Ilias, Eparchia Olimbias: near Minthi village, 690 m, 37°30'N, 21°46'E, 03.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32044 (herb. Giannopoulos; det. J.M. Tison, April 2016).

New for nomos, eparchia and W Peloponnese. Recorded from Peloponnese (Taigetos, Parnon), Sterea Ellas (Parnitha) and Crete.

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

Gr Nomos & Eparchia Ilias: Astras Plateau, 1380–1400 m, 37°54'N, 21°47'E, 04.04.2016, *Kit Tan, G. Vold & Giannopoulos* 32069 (herb. Giannopoulos).

New for nomos, eparchia and W Peloponnese.



Fig. 6. *Centranthus macrosiphon* (photo K. Giannopoulos).

75. *Nothoscordum gracile* (Aiton) Stearn (Fig. 7)

Gr Nomos & Eparchia Ilias: damp places at roadside in the town of Pyrgos, 28 m, 37°40'N, 21°26'E, 03.07.2016, *Kit Tan, G. Vold & Giannopoulos* obs. (photos).

New for eparchia Ilias. Native to warm temperate S America. An escape from cultivation, naturalized in cultivated fields, as a weed in gardens, along roadsides in urban areas of Kerkira, Rodos and large cities such as Patras and Chania.

Reports 76–89

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New chorological data are presented from the Central Balkan Range (the territory of Shipchenski and Trevnenski Divides, Gabrovo and Tryavna Municipality, Gabrovo District, Kazanlak Municipality, Stara Zagora District). Some locations of the new species are on the territory of Balgarka Natural Park, Kamenshtitsa Natural Reserve and Eninsko Zhdrelo Protected Area. The area is part of the Balgarka Protected Site BG0000399 and Tsentralen Balkan – Bufer Protected Site BG0001493, which fall into the European Ecological Network NATURA 2000. The vegetation on the entire territory has been formed on diverse bedrock consisting of marble-limestone complexes alternating with dolomite

with silicate. Beech forest habitats have the highest distribution in the region.

Detailed information for a total of 14 species (including the subspecies) is presented. Twelve of them are new for the Central Balkan Range, and the locations of two species (*Gentianella amarella*, *Orchis militaris*) are confirmed in the floristic region. Six species are of conservation significance (*Galanthus nivalis*, *Ilex aquifolium*, *Gentianella amarella*, *Orchis militaris*, *Anemone sylvestris*, *Viola parvula*). The conservation status of the territory and the habitats of some species according to the EUNIS classification system (Davies & al. 2004) are also specified.

Anacardiaceae

76. *Cotinus coggygria* Scop.

Bu Balkan Range (*Central*): Eninsko Zhdrelo Protected Area, in the lands of Enina village, N of the village, on a steep and stony mixed limestone-and-silicate terrain, in a *Carpinus orientalis* and *Ostrya carpinifolia* community, 570 m, 42°40'36.5"N, 25°24'55.38"E, 14.07.2010, coll. K. Pachedjieva & D. Dimitrov (SO 104046).

The species is a medicinal plant included in the Annex to the Medicinal Plants Act. It is distributed in all floristic regions of Bulgaria and has not been reported so far only for the Central Balkan Range (Assyov & Petrova 2012).



Fig. 7. *Nothoscordum gracile* (photo K. Giannopoulos).

Aquifoliaceae**77. *Ilex aquifolium* L. (Fig. 8)**

Bu Balkan Range (*Central*): in Balgarka Nature Park, Gabrovo region, on a northwestern slope of peak Turlata, Parnara locality, in the herb synusia of a humid beech forest, on silicate terrain, 980 m, 42°47'02.1"N, E 25°25'44.4"E, with flower buds, 30.04.2006, coll. Y. Marinov (SOM 172388).

The species has been reported so far from Mt Belasitsa, Mt Sredna Gora and Rhodopi Mts (Assyov & Petrova 2012). This tertiary relict is a threatened species, in the Endangered category (Gussev 2015) and is included in Annex III to the Bulgarian Biodiversity Act.

The location of this species in the region of peak Turlata overlaps by about 100 m² with the herb layer of a 150-year-old beech forest: habitat G1.6931 – Balkan acidophilous beech forests. The species composition of the forest includes also: *Vaccinium myrtillus*, *V. vitis-idaea*, *Bruckenthalia spiculifolia*, *Luzula luzuloides*, *Lerchenfeldia flexuosa*, *Prenanthes purpurea* and high abundance of the mosses *Leucobryum glaucum*, *Polytichum commune*, and *Dicranum scoparium*.

Asteraceae**78. *Centaurea rutifolia* Sm.**

Bu Balkan Range (*Central*): in the lands of Enina village (Kazanlak Municipality), southwards of peak Chilicheto, on mixed limestone-and-silicate terrains in *Festucion valesiacae* grasslands, 680 m, 42°40'42.91"N, 25°25'15.25"E, 14.07.2010, coll. K. Pachedjieva & D. Dimitrov (SO 104047).



Fig. 8. *Ilex aquifolium* (photo Y. Marinov).

The species is new for the floristic region. It is a Balkan endemic known so far from the Black Sea Coast, Northeast Bulgaria, Balkan Range (*Eastern*), Sofia region, Valley of River Struma, Valley of River Mesta, Mt Belasitsa, Rhodopi Mts (*Eastern*), and Mt Strandzha (Assyov & Petrova 2012).

79. *Lactuca tuberosa* Jacq. (syn.: *Steptorhamphus tuberosus* (Jacq.) Grossh.) (Fig. 9)

Bu Balkan Range (*Central*): in Eninsko Zhdrelo Protected Area, in the lands of Enina village, to the northeast of the Enina Hydroelectric Power Station, on mixed limestone-and-silicate terrains, presented by single individuals in the herb layer of *Ostryo-Carpinion* communities, 600 m, 42°40'37.95"N, 25°24'55.16"E, 14.07.2010, coll. K. Pachedjieva (SO 104050).

This species so far reported for the floristic regions of South Bulgaria belongs to the group of the Mediterranean floristic elements. Its habitat in the Central Balkan Range borders between the Central Balkan Range and Tundzha Hilly Country. Together with some other sub-Mediterranean and Mediterranean elements like *Juniperus oxycedrus*, *Lamium garganicum* and *Ostrya carpinifolia*, it reveals the specific sub-Mediterranean conditions and relict character of *Ostryo-Carpinion* communities in the Eninsko Zhdrelo Protected Area.

Gentianaceae**80. *Gentianella amarella* (L.) Börner (Fig. 10)**

Bu Balkan Range (*Central*): on the eastern slope of peak Sahrnka, in open stony pastures on limestone terrain, southwards of Sinanitsa locality, 1595 m, 42°42'34.1"N, 25°08'06.9"E, with fruits, 30.07.2014, coll. Y. Marinov (SOM 172391); in Balgarka Nature Park, to the east of Karamandra locality, at the foot of peak Ispolin, 1443 m, 42°44'21.8"N, 25°15'02.5"E, with fruits, 03.08.2015, coll. Y. Marinov (SOM 172392). The following locations have been confirmed: Demirkapija, 07.1903, Neičev



Fig. 9. *Lactuca tuberosa* (herbarium specimen) (photo K. Pachedjieva).



Fig. 10. *Gentianella amarella* (Demirkapija, photo Y. Marinov).

SOM 58071 (as *Gentiana lutescens*), Korudzha and Chifuta (Ispolin massif), 07.1903, Neičev SOM 57926 (as *Gentiana lingulata*).

The species has been known only from the Central Balkan Range (Assyov & Petrova 2012). The reported locations by Neičev (1909) have been confirmed. The populations of the newly found locations are small and composed of single individuals in *Sesleria latifolia* communities, habitat E4.438 Oro-Moesian calciphile stippled grasslands, with participation also of *Festuca balcanica* subsp. *neichevii*, *F. dalmatica*, *Anthyllis vulneraria*, *Arabis sagittata*, *Asperula cynanchica*, *Carex kitaibeliana*, *Carum graecum*, *Cerastium banaticum*, *Euphrasia salisburgensis*, *Filipendula vulgaris*, *Linum capitatum*, *Minuartia verna*, *Potentilla cinerea*, *Primula veris*, *Rhodax canus*, *Scabiosa columbaria*, *Seseli libanotis*, *Teucrium chamaedrys*, and *Thymus vandasii*.

The species is recorded as Critically Endangered (Ivanova 2015) and listed in Annex III to the Bulgarian Biodiversity Act.

Ranunculaceae

81. *Anemone sylvestris* L. (Fig. 11)

Bu Balkan Range (*Central*): in

Balgarka Nature Park, in the lands of Stanchev Han village, Tryavna Municipality, NE of peak Golyam Bazovets, on a shrubby slope with northeast exposition, in rendzic soils on limestone bedrock, 840 m, 42°48'10.3"N, 25°32'37.8"E, with flowers and fruits, 30.04.2013, coll. Y. Marinov (SOM 172389).

The species is new for this floristic region. It has been known so far from the Northeast Bulgaria, Danubian Plain, Forebalkan, Balkan Range (*Western, Eastern*), Sofia Region, Znepole Region, West Frontier Mts, Rila Mts, Pirin Mts (*Northern*), Mt Sredna Gora, Rhodopi Mts (*Eastern*), and Thracian Lowland (Assyov & Petrova 2012).



Fig. 11. *Anemone sylvestris* (photo Y. Marinov).

The species is listed in the *Red List of Bulgarian Vascular Plants*, under Near Threatened category (Bancheva 2009) and is covered by Annex III to the Bulgarian Biodiversity Law. The population grows on an area of about 300 m² and numbers above 1000 individuals. It participates in *Fraxinus ornus* communities affiliated to habitat G1.7C63 Manna tree woods. Accompanying species are also: *Cornus mas*, *Crataegus monogyna*, *Brachypodium sylvaticum*, *Clynopodium vulgare*, *Festuca heterophylla*, *Fragaria vesca*, *Hedera helix*, *Primula veris*, and *Teucrium chamaedrys*.

82. *Ranunculus ophioglossifolius* Vill. (Fig. 12)

Bu Balkan Range (*Central*): SE of peak Bedek, on silicate terrain along small streamlets, takes part in mesohygrophytic communities of *Caltha palustris* and *Angelica pancicii*, 1450 m, 42°44'41.2"N, 25°26'10.0"E, 12.07.2010, coll. K. Pachedjieva (SO 104057).

This annual hygrophyte species has been known so far from the mountain regions in South Bulgaria: Black Sea Coast, Balkan Range (*Western*), Rila Mts, Pirin Mts and Rhodopi Mts, and also Tundza Hilly Country (Assyov & Petrova 2012). It participates in *Calthion*



Fig. 12. *Ranunculus ophioglossifolius* (photo K. Pachedjieva).

palustris communities which have scattered distribution along streamlets – an element of azonal vegetation in the high-mountain belt. The habitat is E5.41 Screens or veils of perennial tall herbs lining watercourses, with dominant species *Caltha palustris*, *Angelica pancicii* and *Deschamptia caespitosa*, and accompanying species *Filipendula ulmaria*, *Juncus effusus*, *Geum rivale*, *Lysimachia nummularia*, *Lathyrus pratensis*, and high abundance of mosses *Calliergonella cuspidata*, *Philenetis fontana* and *Marchantia aquatic*.

Violaceae

83. *Viola parvula* Teneo (Fig. 13)

Bu Balkan Range (*Central*): at peak Katunite, in the lands of Enina village, Kazanlak Municipality, on silicate screes at the southwestern border of Kamenshtitsa Reserve, 1260 m, 42°42'08.2"N, 25°25'04.2"E, with flowers, 03.06.2014, coll. Y. Marinov & K. Pachedjieva (SOM 171249).

The species is new for this floristic region. It has been known so far only from the Rhodopi Mts (*Western*) (Assyov & Petrova 2012). For the first time this species has been reported for the Bulgarian flora from the Pashovi Skali Natural Highlight in 2003 (Tashev 2003).



Fig. 13. *Viola parvula* (photo Y. Marinov).

It is a threatened plant, in the Critically Endangered category (Tashev 2015) and listed in Anex III to the Bulgarian Biodiversity Law.

The population of the species forms mosaic patches on an area of 20 m², on silicate terrain, numbering about 20 individuals. It participates in habitat H3.152 Carpatho-Balkano-Rhodopide campion siliceous cliffs. Other species in the habitat are: *Allium guttatum*, *A. webbia*, *Alyssum alyssoides*, *Anthemis carpatica*, *Asperula cynanchica*, *Dianthus moesiacus*, *Erysimum diffusum*, *Euphorbia myrsinites*, *Jovibarba heuffelii*, *Potentilla rupestris*, *Saxifraga paniculata*, *Sedum annuum*, *Sempervivum erythraeum*, *Seseli rigidum*, *Silene lerchenfeldiana*, *Silene saxifraga*, and *Veronica verna*. This type of vegetation is remarkable for its specific conditions: high solar radiation, acid substrate and low humidity, which create ecological isolation for the inhabiting species.

Amaryllidaceae

84. *Galanthus nivalis* L. (Fig. 14)

Bu Balkan Range (*Central*): in Balgarka Nature Park, on the ridges of Trevnenska Stara Planina Divide, on a northern slope and in a steep rocky limestone terrain with brown forest soils (*Eutric Cambisols*), in a beech forest westwards of the Balgarka Holiday Resort, Tryavna Municipality, 1100 m, 42°45'47.9"N, 25°29'38.5"E, with flowers, 02.04.2013, coll. Y. Marinov (SOM 172390).

This is a new species for this floristic region. It has



Fig. 14. *Galanthus nivalis* (photo Y. Marinov).

been known so far from the Black Sea Coast, Danubian Plain, Northeast Bulgaria, Forebalkan, Balkan Range (*Western*), and Mt Strandzha (Assyov & Petrova 2012). The species is reported also from the Znepole region and Tundzha Hilly Country and evaluated as Endangered (Evstatieva 2015) in the *Red Data Book of the Republic of Bulgaria*. It is listed in Annex III to the Bulgarian Biodiversity Act.

The species forms mosaic patches in a beech forest of subass. *Aremonio agrimonoidis-Fagetum sylvaticae allietosum ursini* (Tzonev & al. 2006) and habitat G1.6934 Balkan Range thermophile beech forests according to the EUNIS classification (Davies & al. 2004), on the ridges of the Trevneska Stara Planina Divide, between 900 and 1450 m a.s.l.

Cyperaceae

85. *Carex liparocarpos* Gaudin

Bu Balkan Range (*Central*): southwards of peak Bedek, in mesohygrophytic communities with *Caltha palustris*, *Filipendula ulmaria*, *Angelica pancicii*, *Geum rivale*, and other *Calthion* species, 1450 m, 42°44'41.25"N, 25°26'10.05"E, 12.07.2010, coll. K. Pachedjieva & D. Dimitrov (SO 104049).

The species is new for this floristic region. It has been reported so far from the Black Sea Coast, Danubian Plain, Northeast Bulgaria, West Frontier Mts, Valley of River Struma, Valley of River Mesta, Rhodopi Mts, Thracian Lowland, and Mt Strandzha (Assyov & Petrova 2012).

*Liliaceae s.l.***86. *Nectaroscordum siculum* subsp. *bulgaricum***

(Janka) Stearn (Fig. 15)

Bu Balkan Range (*Central*): in Balgarka Nature Park, Uzana region, on a south-facing slope and limestone bedrock, together with *Allium ursinum* it forms a spring aspect in the herb layer of a beech forest, 1200 m, 42°45'11.7"N, 25°17'51.3"E, with flower buds, 24.04.2011, coll. K. Pachedjieva (SO 106473).

This taxon is new for the floristic region. It has been known so far from the Black Sea Coast, Northeast Bulgaria, Balkan Range (*Eastern*), Mt Sredna Gora (*Eastern*), Tundzha Hilly Country, and Mt Strandzha (Assyov & Petrova 2012). It is a medicinal plant and a common spice, occasionally cultivated in private gardens. Possibly, this plant is artificially spread in the Central Balkan Range.

Together with *Allium ursinum*, it forms dense herb synusia in an *Aremonio agrimonoides-Fagetum sylvaticae allietosum ursini* beech forest. The accompanying species are: *Arum maculatum*, *Cardamine bulbifera*, *Corydalis bulbosa*, *Euphorbia amygdaloides*, *Lamiasrum galeobdolon*, and *Hepatica nobilis*.



Fig. 15. *Nectaroscordum siculum* subsp. *bulgaricum* (in the herb layer of *Asperulo-Fagetum* beech forest, photo K. Pachedjieva).

*Orchidaceae***87. *Orchis militaris* L. (Fig. 16)**

Bu Balkan Range (*Central*): in Balgarka Nature Park, Gabrovo District, on the ridge of peak Malusha, on a limestone terrain of northwest exposition and with rendzic soils, 1320 m, 42°45'0.9"N, 25°17'9.6"E, with flowers.

The species is confirmed for this floristic region. It has been known so far from the Danubian Plain, Northeast Bulgaria, Balkan Range (*Central, Eastern*), Znepole Region, Sofia Region, the Rhodopi Mts (*Central*), and Thracian Lowland (Assyov & Petrova 2012). Petrova (2015) reports that the species has been reliably documented since 1990 for the Balkan Range (*Central* –Balgarka Nature Park and *Eastern* – Sinite Kamani Nature Park), Znepole Region and Rhodopi Mts (*Central*). The species is a threatened plant, in the Endangered category (Petrova 2015). It is listed in Anex III to the Bulgarian Biodiversity Act and in Anex II to CITES.

The species is presented by a small population on an area of 1 m². A small number of flowers has been observed during different years. The species grows in *Festuca rubra* communities affiliated to habitat E2.33



Fig. 16. *Orchis militaris* (photo Y. Marinov).

Balkan mountain hay meadows. The accompanying species are also: *Carex montana*, *Festuca balcanica*, *F. pratensis*, *Filipendula vulgaris*, *Linum capitatum*, *Primula veris*, *Scabiosa ochroleuca*, *Teucrium chamaedrys*, *Verbascum longifolium*, and *Veronica austriaca* subsp. *neicevii*.

Because of the critically low number of individuals of the population, no herbarium specimens have been collected and deposited.

Poaceae

88. *Poa palustris* L.

Bu Balkan Range (*Central*): to the south of peak Atovo Padalo, in *Calthion palustris* communities with prevalence of *Mentha longifolia*, *Filipendula ulmaria*, and *Deschampsia caespitosa*, on silicate terrain, 1450 m, 42°43'50.53"N, 25°25'16.89"E, 12.07.2010, coll. K. Pachedjjeva & D. Dimitrov (SO 104295).

The species has been known so far from almost all floristic regions in Bulgaria, except for the Balkan Range, West Frontier Mts, Valley of River Struma, Valley of River Mesta, Rhodopi Mts (*Western, Central*), and Mt Strandzha. It belongs to the Boreal floristic element and is included in Annex IIA to the Biological Diversity Act. Its habitat is under protection of the NATURA 2000 Network. However, the *Calthion* vegetation in this region is partially destroyed under the impact of the Wind Park on the mountain ridge built in 2009.

89. *Psilurus incurvus* (Gouan) Schinz & Thell.

Bu Balkan Range (*Central*): in the Eninsko Zhdrelo Protected Area, in the lands of Enina village, on open stony limestone terrains, in petrophilous communities of *Satureja montana*, 570 m, 42°40'20.7"N, 25°24'45.2"E, 14.07.2010, coll. K. Pachedjjeva & D. Dimitrov (SO 106020).

This annual plant and a sub-Mediterranean element is new for the floristic region. It has been known so far from almost all floristic regions in Bulgaria, except for the mountain regions (Assyov & Petrova 2012).

Reports 90–91

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Boraginaceae

90. *Echium russicum* J.F. Gmel.

Bu Black Sea Coast (*Southern*): in the grasslands

near the exit from Tsarevo town, not far from the trail to Arapy beach, approx. 10 m.

- Mt Strandzha: on an east-facing slope in Mt Strandzha, in a dry grassland, 60 m, 42°10'01.21"N, 27°49'30.76"E, 05.06.2016, with flowers, coll. A. Popatanasov (SO 107 701).

In the first location, only 10 plants were found on an area of several ares. In the second location, a small group of 12 plants was found occupying an area of similar size.

Although relatively well distributed across the country, the species forms fragmented local populations (Petrova 2015), therefore it has a protected status Vulnerable (VU). Because of the localities and the species rarity, its distribution is still under exploration and it quite recently was found in the neighbouring Greece (Assenov 2015; Simoglou & al. 2015). The first population was located westwards of Tsarevo town, at the foot of Mt Strandzha, near grasslands used as pastures but outside the Strandzha Nature Park. Therefore, it is vulnerable to destruction, especially taking into account that the plant is biennial. The other location is along one of the trails to Arapy beach. However, it is rather close to some intense construction works so its survival can also be risky.

Although the species is relatively widespread across the country, it is new for Mt Strandzha and the floristic region according to Assyov & Petrova (2012) and Petrova (2015).

Orchidaceae

91. *Epipactis microphylla* (Ehrh) Sw. (Fig. 17)

Bu Znepole region: Mt Golo Burdo, in a *Pinus nigra* plantation with sparse lilac bushes on a southwestern slope, with inclination approx. 15 degrees, 845 m, 42°33'41.286"N, 22°58'52.392"E, 15.06.2016, with flowers and fruits, coll. A. Popatanasov (SO 107 700).

The population comprises over 40 plants and occupies an area of several ares, unevenly distributed under the moderate shade of *Syringa vulgaris* bushes and *Pinus nigra* trees. The population differs from the other populations observed across the country, as well as from the more common form described by P. Delforge (2006) and H. Baumann & al. (2006) in the following: a) All plants have a clearly brownish-violet tinted stem (especially at the base), as well as similarly tinted flowers; b) The plants have often multiple aerial stems; c) The inflorescences have rather high number of flowers: normally over

15 and occasionally up to 32; d) The plants have a very strong sweet floral scent and are very successfully pollinated and, probably as a consequence, they manifest a rather high population density of this species.

Other species from this family found in this forest and shrubs are: *Anacamptis pyramidalis*, *Cephalanthera damasonium*, *Epipactis helleborine*, and *Himatoglossum jankae*.

This is a new species for this floristic region and mountains (Apostolova-Stoyanova & Stoyanov 2009; Assyov & Petrova 2012).

Reports 92–147

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Fig. 17. *Epipactis microphylla* (photo A. Popatanasov).

Mt Boutsis (peak 1776 m) is situated *ca.* 2 km to the southwest of the village of Vatochori in the prefecture of Florinis in NW Greece near the Albanian border. The mountain has been little explored botanically and there are fewer than 250 collections in herbaria worldwide, made by a handful of botanists. The main contributor to its floristic knowledge is A. Strid who collected there intermittently during the early 1980's and 90's. Boutsis is a floristically rich limestone mountain with many Balkan endemics. Rare or narrowly distributed species include *Achillea chrysocoma*, *Amelanchier ovalis* subsp. *integrifolia*, *Anthyllis aurea*, *Astragalus mayeri*, *Colchicum doerfleri*, *Dianthus stenopetalus*, *Erodium absinthoides* subsp. *guicciardii*, *Fritillaria montana*, *Geranium aristatum*, *Minuartia graminifolia* subsp. *brachypetala*, *Saxifraga federici-augusti* subsp. *grisebachii*, *Sempervivum ciliosum* and *Verbascum baldaccii*. In June 2016 we decided to visit the mountain, together with Per Hartvig (from Denmark), and were pleasantly surprised to find that within a single day, more than 50 species could be reported as new for the area (Fig. 18). These records are listed here. Vouchers are provisionally kept in the private herbarium of Kit Tan at Copenhagen and will be distributed after the study is completed.

Aspleniaceae

92. *Asplenium ruta-muraria* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, Kit Tan & al. 32161.

Taxaceae

93. *Taxus baccata* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, 5 km along forest road above Kristallopigi, rocky limestone slopes, 1580–1650 m, 40°37'N, 21°07'E, 12.08.2016, Strid obs.

Apiaceae

94. *Geocaryum pindicum* (Hausskn.) Engstrand (Fig. 19)

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, Kit Tan & al. 32181.

Representing an extension of its range in Greece to the north and west (see Fig. 19), occurring also in S Albania (*vide* Hartvig in Strid & Kit Tan 1991). The plants are a little more erect than specimens seen from N Pindos.



Fig. 18. Kit Tan, Arne Strid, Per Hartvig and Gert Vold near the summit of Mt Boutsis (photo F. Sakellarakis).



Fig. 19. *Geocaryum pindicolum*, distribution in Greece.

95. *Orlaya grandiflora* (L.) Hoffm.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

96. *Trinia glauca* (L.) Dumort. subsp. *glauca*

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* 32167.

Asteraceae

97. *Arctium minus* (Hill) Bernh.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

98. *Carduus kernerii* Simonk.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32141.

99. *Cirsium arvense* (L.) Scop.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

100. *Doronicum orientale* Hoffm.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

101. *Lactuca muralis* (L.) Gaertn.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

102. *Lapsana communis* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Boraginaceae**103. *Cynoglossum montanum*** L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32148.



Fig. 20. *Campanula foliosa* (photo A. Strid).

Brassicaceae**104. *Arabis turrita*** L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Campanulaceae**105. *Campanula foliosa*** Ten. (Fig. 20)

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32142.

106. *Edraianthus horvatii* Lakušić (Fig. 21)

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 40°39'N, 21°09'E, 1600–1750 m, 15.06.2016, *Kit Tan & al.* 32164; *loc. ibid.*, 08.07.1981, *Strid & al.* 18754 sub nom. *E. graminifolius* (L.) A. DC.



Fig. 21. *Edraianthus horvatii* (photo A. Strid).

Caprifoliaceae**107. *Sambucus ebulus* L.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Caryophyllaceae**108. *Paronychia macedonica* Chaudhri subsp. *macedonica***

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* 32176.

109. *Silene latifolia* Poir.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Cistaceae**110. *Helianthemum oelandicum* subsp. *canum* (L.) Bonnier**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* 32160.

Fabaceae**111. *Astragalus angustifolius* Lam.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

112. *Astragalus glycyphyllos* subsp. *glycyphylloides* (DC.) Maire & Petitm.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32153.

113. *Lathyrus nissolia* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32150.

114. *Onobrychis alba* (Waldst. & Kit.) Desv.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy plac-

es and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* 32158.

115. *Trifolium campestre* Schreb.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

116. *Trifolium phleoides* Willd.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* 32174.

117. *Trifolium pignantii* Fauché & Chaub.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32148.

118. *Vicia villosa* Roth

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32142.

Geraniaceae**119. *Geranium versicolor* L. (Fig. 22)**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Hypericaceae**120. *Hypericum perforatum* L.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32138.

Lamiaceae**121. *Ajuga genevensis* L.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

122. *Ajuga reptans* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.



Fig. 22. *Geranium versicolor* (photo A. Strid).

123. *Clinopodium vulgare* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

124. *Lamium garganicum* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

125. *Prunella vulgaris* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

126. *Salvia argentea* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

127. *Stachys sylvatica* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, 1450–1550 m, openings in *Fagus* forest, limestone, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Linaceae

128. *Linum tenuifolium* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Morinaceae

129. *Morina persica* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, 5 km along forest road above Kristallopigi, rocky limestone slopes, 1580–1650 m, 40°37'N, 21°07'E, 12.08.2016, *Strid* obs.

Plantaginaceae

130. *Plantago major* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Ranunculaceae

131. *Actaea spicata* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32140.

132. *Thalictrum minus* subsp. *saxatile* DC. ex Ces.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

Rosaceae

133. *Aremonia agrimonoides* (L.) DC.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

134. *Fragaria vesca* L.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

135. *Potentilla micrantha* DC.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

136. *Sanguisorba minor* Scop.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Rubiaceae**137. *Galium aparine* L.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

138. *Galium odoratum* (L.) Scop.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Scrophulariaceae**139. *Rhinanthus minor* L.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* 32162.

Thymelaeaceae**140. *Daphne oleoides* Schreb.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

Urticaceae**141. *Urtica dioica* L.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

Asphodelaceae**142. *Asphodeline lutea* (L.) Rchb.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

Cyperaceae**143. *Carex depauperata* With.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32145.

Iridaceae**144. *Iris attica* Boiss. & Heldr.**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

Orchidaceae**145. *Cephalanthera damasonium* (Mill.) Druce**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, 1450–1550 m, openings in *Fagus* forest, limestone, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* obs.

146. *Neotinea ustulata* (L.) R.M. Bateman & al.

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, E slopes of summit area, grassy places and rocky limestone outcrops, 1600–1750 m, 40°39'N, 21°09'E, 15.06.2016, *Kit Tan & al.* obs.

Poaceae**147. *Hordelymus europaeus* (L.) Harz**

Gr Nomos & Eparchia Florinis: Mt Boutsis, SW of Vatochori, along 9 km of forest road, openings in *Fagus* forest, limestone, 1450–1550 m, 40°39'N, 21°08'E, 15.06.2016, *Kit Tan & al.* 32156.

Reports 148–150**Kit Tan¹ & Gert Vold²**

¹ Institute of Biology, University of Copenhagen, Øster Farimagsgade 2D, DK-1353 Copenhagen K, Denmark, e-mail: kitt@bio.ku.dk (author for correspondence)

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Fabaceae**148. *Astragalus mayeri* Micevski**

Gr Nomos Ioanninon, Eparchia Konitsis: W of Elefthero on way from Konitsa to Distrato, rocky slopes in open *Pinus nigra* forest, 950–1000 m, 40°03'N, 20°51'E, 12.06.2016, *Kit Tan & G. Vold* 32100.

New for phytogeographical area N Pindos. Distinguished from the very similar *A. sericophyllus* Griseb. by its legumes with distinctive black and white zebra-stripes or patches.

149. *Onobrychis citrina* Kit Tan, Stevanović & G. Vold, **sp. nov.** (Figs. 23–25)

Gr Nomos Kozanis, Eparchia Voiou: deforested southern side of Mt Siniatsiko, rocky limestone slopes and road embankments between Siatista and Galatini, 1100–1150 m, 40°17'N, 21°33'E, 17.06.2016, Kit Tan & G. Vold 32118 (holotype C; isotypes ATH, BEOU, LD, herb. Strid).

Caespitose perennial 25–35 (–40) cm tall, with slender woody stock *ca.* 0.5 cm diam. Flowering stems short, erect to suberect, adpressed-pubescent. 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 moderately white adpressed-pilose to subglabrous. Peduncles erect, ascending to procumbent, 10–22 cm, much longer than subtending leaves, striate, adpressed-pubescent. 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 to patent-ciliate, green, tinged blackish-purple at tips. Standard lemon yellow or pale lemon yellow, veined green or pale violet, 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 linear-elliptic leaves. Unlike some white or cream-flowered plants of *Onobrychis alba* (Waldst. & Kit.) Desv. (*ochroleuca*-type), the standard is always a clear yellow. Plants had previously been identified as *Onobrychis degenii* Dörfner. The latter was described from the vicinity of Allchar (Alšar), SE of Prilep in FYR of 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



Fig. 23. *Onobrychis citrina* (photo A. Strid).

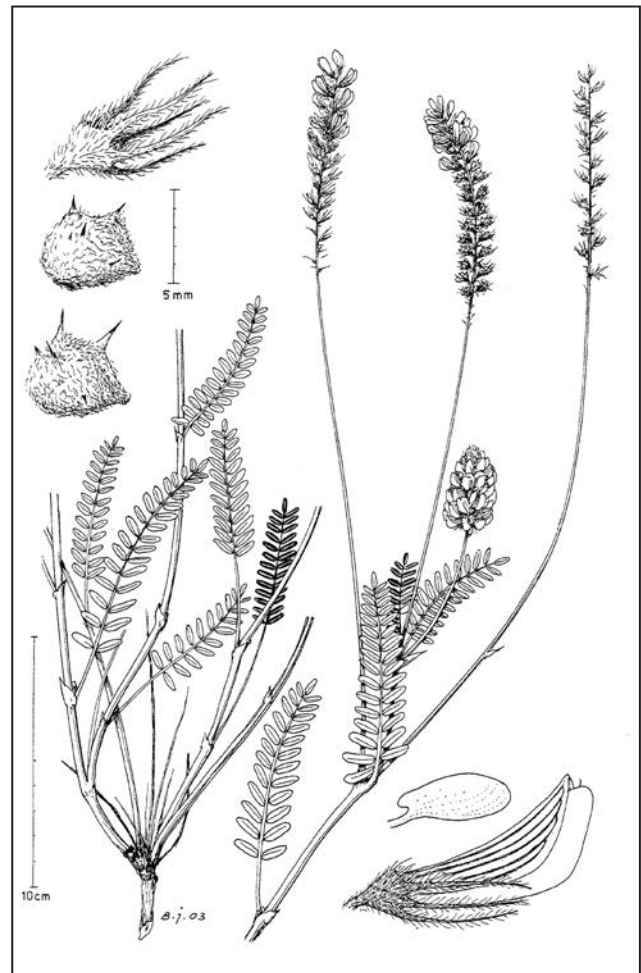


Fig. 24. *Onobrychis citrina*, drawn by the late Bent Johnsen.

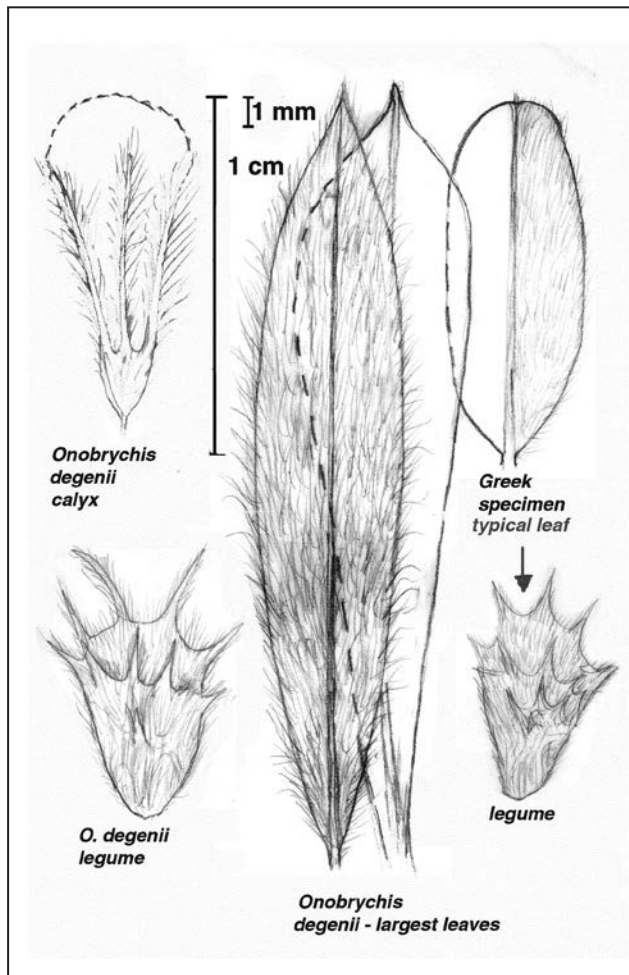


Fig. 25. Comparison between *Onobrychis citrina* and *O. degenii*, drawn by Vladimir Stevanović.

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.

KT and GV first collected this plant in Serron in the year 2000, on the way from Siderokastro to Ahladohori near the Greek-Bulgarian border. Material was sent to VS for a comparison with *O. degenii* and an illustration prepared in 2003. Publication of the new species was originally scheduled for the third volume of *Flora Hellenica* which comprises the families *Rosaceae* and *Fabaceae*. Plants now representing the type material were collected in 2016 on Mt Siniatsiko together with *Alkanna pindicola*, *Erodium hartvigianum*, *Onosma visianii*, *Paronychia macedonica* and *Trifolium campestre*. An unusual, completely white-flowered form of *Scrophularia canina* subsp. *bicolor* was found flourishing on the gravelly embankment together with the tawny-yellow *Matthiola fruticulosa* subsp. *valesiaca*.

It is an interesting botanical locality and no doubt further discoveries are to be expected, especially at different times of the year.

Geraniaceae

150. *Erodium absinthoides* subsp. *guicciardii*

(Heldr.) Maire & Petitm.

Gr Nomos Ioanninon, Eparchia Konitsis: W of Elefthero on way from Konitsa to Distrato, rocky slopes in open *Pinus nigra* forest, 950–1000 m, 40°03'N, 20°51'E, 12.06.2016, Kit Tan & G. Vold 32099.

New for phytogeographical area N Pindos. Occurring in North Central, East Central and North East Greece with a disjunct distribution in Sterea Ellas (Mt Timfristos and Lidorikiou Ori). Distinct by its silvery-sericeous leaves and pink flowers.

Reports 151–159

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Pyrolaceae

151. *Pyrola media* Sw.

Bu Pirin Mts (*Southern*): close to Mlaki locality and a water catchment, along a dirt road in a forest of *Picea abies*, *Pinus sylvestris* and *Fagus sylvatica*, in the middle of a north-facing slope with inclination of 15°, 1621 m, 41°31'35.2"N, 23°39'17.2"E, 17.07.2013, coll. A. Tashev & D. Dimitrov (SOM 170636; SOA 060422).

Pyrola media was located in a herbaceous community, along with *Luzula luzuloides*, *Poa nemoralis*, *Fragaria vesca*, *Epilobium montanum*, *Hieracium murorum*, *Euphorbia amygdaloides*, *Mycelis muralis*, *Myosotis sylvatica*, and *Campanula sparsa*. There was underbrush of *Salix caprea*, *Picea abies*, and *Abies alba*.

New for this floristic region. So far this Euro-Siberian species has been reported only for Vitosha region, Rila Mts and Mt Belasitsa (Delipavlov 2011: 147; Assyov & Petrova 2012: 337).

152. *Pyrola minor* L.

Bu Pirin Mts (*Southern*): between Yurutsite and Popovi Livadi localities, in a forest glade, close to a culture of *Pinus sylvestris*, with participation of *Fagus sylvatica*, in the middle of a low-grade north-facing slope, with inclination of 6°, 1231 m, 41°33'38.7"N, 23°39'03.6"E, 15.07.2013, coll. A. Tashev & D. Dimitrov (SOM 170635; SOA 060421).

The location of *Pyrola minor* covered an area of 100 m² in the community, together with *Luzula luzuloides*, *L. campestris*, *Ortilia secunda*, *Lerchenfeldia flexuosa*, *Poa nemoralis*, *Veronica officinalis*, *Oxalis acetosella*, *Pteridium aquilinum*, *Fragaria vesca*, *Vaccinium myrtillus*, *Daphne mezereum*, *Rubus idaeus*, *Calamagrostis arundinaceae*, *Hieracium murorum*, *Aremonia agrimonoides*, *Rumex acetosella*, *Galium rotundifolium*, *Euphorbia amygdaloides*, *Mycelis muralis*, *Hypericum perforatum*, *Echium vulgare*, *Campanula sparsa*, *Sanicula europaea*, *Ranunculus acris*, and *Veronica urticifolia*. There was undergrowth of *Fagus sylvatica*, *Populus tremula*, *Salix caprea*, *Betula pendula*, *Picea abies*, *Abies alba*, *Sorbus torminalis*, and *Corylus avellana*.

New for this floristic region. So far this boreal species has been reported for Balkan Range (*Western, Central*), Vitosha region, Rila Mts, Mt Sredna Gora (*Western*), and Rhodopi Mts (Delipavlov 2011: 147; Assyov & Petrova 2012: 337).

Rubiaceae**153. *Galium pseudoaristatum* Schur**

Bu Pirin Mts. (*Southern*): along the border of centuries-old forest of *Fagus sylvatica*, within habitat 6520 Mountain hay meadows, close to the place of execution of Yane Sandanski, on a silicate rock with powerful, uneroded wet soil, on a low-grade south-facing slope with inclination of 2°, 1184 m, 41°31'54.8"N, 23°36'07.0"E, 18.07.2013, coll. A. Tashev & D. Dimitrov (SOM 170638).

The species was found in a herbaceous community with 95% projection cover, with the participation of: *Achillea millefolium*, *Agrostis capillaris*, *Alchemilla* spp., *Allium carinatum*, *Anthoxanthum odoratum*, *Athyrium filix-femina*, *Carex leporina*, *C. stellulata*, *Centaurea uniflora*, *Cruciata glabra*, *C. laevipes*, *Cynosurus cristatus*, *Deschampsia caespitosa*, *Dianthus deltoides*, *Epilobium hirsutum*, *E. nutans*, *Equisetum arvense*, *Euphorbia serrulata*, *Galium aparine*, *G.*

verum, *Geum coccineum*, *Heracleum verticillatum*, *Holcus mollis*, *Hypericum tetrapterum*, *Juncus tomasii*, *Lathyrus pratensis*, *Lotus corniculatus*, *Lythrum salicaria*, *Mentha spicata*, *Myosotis ramosissima*, *Oenanthe fistulosa*, *Ononis arvensis*, *Pastinaca hirsuta*, *Phleum pratense*, *Poa angustifolia*, *Potentilla erecta*, *Pteridium aquilinum*, *Ranunculus acris*, *R. ophioglossifolius*, *R. repens*, *Rhinanthus rumelicus*, *Rumex acetosa*, *R. crispus*, *Scirpus sylvaticus*, *Stellaria graminea*, *Trifolium hybridum*, *T. pratense*, *T. velenovskyi*, *Veronica scutellata*, *Viola arvensis*, etc.

New for this floristic region. So far this Pannonian-Balkan species has not been recorded in the Forebalkan, Valley of River Struma, Valley of River Mesta, Pirin Mts and Rhodopi Mts (*Eastern*) (Cheshmedzhiev 2011: 304; Assyov & Petrova 2012: 205).

Scrophulariaceae**154. *Verbascum roripifolium* (Halacsy) I. K.**

Ferguson

Bu Pirin Mts (*Northern*): along the road connecting Kremen and Masta villages, under the canopy of an offshoot forest of *Quercus* spp. with *Linaria genistifolia*, *Coronilla varia*, *Lapsana communis*, *Silene vulgaris*, *Galium aparine*, etc., on an east-facing slope with inclination of 10°, 720 m, 41°44'40.1"N, 23°40'31.5"E, 14.06.2014, coll. A. Tashev & D. Dimitrov (SOM 171748; SO 107694).

New for this floristic region. So far this Balkan endemic has been reported from the southern parts of the country: Valley of River Struma (*Southern*), Mt Slavyanka, Valley of River Mesta, Rila Mts, Rhodopi Mts, Thracian Lowland, and Tundzha Hilly Country (Cheshmedzhiev 2011: 345; Assyov & Petrova 2012: 436).

Valerianaceae**155. *Centranthus kellereri* (Stoj., Stef. & T. Georg.)**

Stoj. & Stef.

Bu Pirin Mts (*Northern*): Varnitsite locality above Bansko town, 1100 m, 17.07.2014. coll. D. Dimitrov (SOM 170555).

This is a new location in the Pirin Mts (*Northern*) floristic subregion. This endemic species is included in the *Red Data Book of the Republic of Bulgaria*, vol. 1, Plants and Fungi, in the category Critically Endangered, listed in Annex 4 of the Bern Convention, and legally protected in Bulgaria (Peev & Tsoneva 2009, 2015).

Poaceae**156. *Festuca spectabilis* Jan.**

Bu Pirin Mts (*Northern*): on Chalin Valog ski trail, 1150 m, 11.08.2014, coll. D. Dimitrov (SOM 170571); In the lower part of the ski trail No 5 on the slope of Todorin Vrah, 11.08.2014, coll. D. Dimitrov (SOM 170540);

— Pirin Mts (*Southern*): in a wet habitat 6520 Mountain hay meadows, in the southwestern-most part of Popovi Livadi, towards Kriva Reka locality, on silicate rock with powerful, uneroded wet soil and a low-grade south-facing slope with inclination of 5°, 1375 m, 41°32'52.0"N, 23°38'15.2"E, 16.07.2013, coll. A. Tashev & D. Dimitrov (SOM 170640; SOA 060427); in the wet habitat 6520 Mountain hay meadows, close to the place of execution of Yane Sandanski, on a silicate rock with powerful, uneroded wet soil and a low-grade south-facing slope with inclination of 2°, 1184 m, 41°31'54.8"N, 23°36'07.0"E, 18.07.2013, coll. A. Tashev & D. Dimitrov (SOM 170639);

— Rila Mts: under Chernatitsa, near river Iliyna, 19.08.2014, coll. D. Dimitrov (SOM 170541).

New for these floristic regions. So far this Southeast European species has been reported only for the Znepole Region, West Frontier Mts and Rhodopi Mts (*Central*) (Assyov & Petrova 2012: 195).

In Popovi Livadi locality the species was found in a herbaceous community with 95% projection cover and participation of *Alchemilla* spp., *Agrostis capillaris*, *Caltha palustris*, *Cerastium fontanum*, *Cynosurus cristatus*, *Dactylorhiza saccifera*, *Deschampsia caespitosa*, *Dianthus deltoides*, *Equisetum palustre*, *Euphorbia cyparissias*, *E. serrulata*, *Euphrasia liburnica*, *E. salisburgensis*, *Festuca nigrescens*, *Galium verum*, *Geum coccineum*, *G. rivale*, *Hypericum tetrapterum*, *Lathyrus pratensis*, *Leucanthemum vulgare*, *Lotus corniculatus*, *Luzula* sp., *Nardus stricta*, *Phleum alpinum*, *Plantago lanceolata*, *Platanthera bifolia*, *Polygala comosa*, *Potentilla reptans*, *Ranunculus acris*, *Rhinanthus rumelicus*, *Rumex acetosella*, *Stellaria graminea*, *Thymus* sp., *Trifolium pratense*, *T. repens*, *Veronica chamaedrys*, etc.

In the second mentioned locality in Southern Pirin Mts the species was found in a herbaceous community with 95% projection cover and participation of *Achillea millefolium*, *Agrostis capillaris*, *Alchemilla* spp., *Allium carinatum*, *Anthoxanthum od-*

oratum, *Athyrium filix-femina*, *Carex leporina*, *C. stellulata*, *Centaurea uniflora*, *Cruciata glabra*, *C. laevipes*, *Cynosurus cristatus*, *Deschampsia caespitosa*, *Dianthus deltoides*, *Epilobium hirsutum*, *Epilobium nutans*, *Equisetum arvense*, *Euphorbia serrulata*, *Galium aparine*, *G. verum*, *Geum coccineum*, *Heracleum verticillatum*, *Holcus mollis*, *Hypericum tetrapterum*, *Juncus tomasii*, *Lathyrus pratensis*, *Lotus corniculatus*, *Lythrum salicaria*, *Mentha spicata*, *Myosotis ramosissima*, *Oenanthe fistulosa*, *Ononis arvensis*, *Pastinaca hirsuta*, *Phleum pratense*, *Poa angustifolia*, *Potentilla erecta*, *Pteridium aquilinum*, *Ranunculus acris*, *R. ophioglossifolius*, *R. repens*, *Rhinanthus rumelicus*, *Rumex acetosa*, *R. crispus*, *Scirpus sylvaticus*, *Stellaria graminea*, *Trifolium hybridum*, *T. pratense*, *T. velenovskyi*, *Veronica scutellata*, *Viola arvensis*, etc.

157. *Elymus caninus* (L.) L.

Bu Pirin Mts (*Southern*): in Popovi Livadi locality, along the dirt road to Dalgiya Chuchur locality, on a small glade in a centuries-old forest of *Picea abies*, *Abies alba*, *Pinus sylvestris* and *Fagus sylvatica*, in the central part of a northwest-facing slope with inclination of 15°, 1462 m, 41°32'37.5"N, 23°38'49.5"E, 17.07.2013, coll. A. Tashev & D. Dimitrov (SOM 170634; SOA 060420).

The species was found in a herbaceous community with 75% projection cover and participation of *Agrostis capillaris*, *Calamagrostis arundinaceae*, *Poa sylvicola*, *Luzula luzuloides*, *Hypericum perforatum*, *Epilobium angustifolium*, *E. montanum*, *Athyrium filix-femina*, *Euphorbia cyparissias*, *E. amygdaloides*, *Galium verum*, *Fragaria vesca*, *Urtica dioica*, *Rubus idaeus*, *Tussilago farfara*, *Cirsium appendiculatum*, *C. arvense*, *Trifolium medium* subsp. *balcanicum*, *Myosotis ramosissima*, *Mycelis muralis*, *Lysimachia vulgaris*, *Veronica chamaedrys*, *Campanula sparsa*, *Prunella vulgaris*, *Ajuga reptans*, etc.

New for this floristic region. So far this boreal species has not been reported for the Black Sea Coast, Valley of River Struma (*Northern*), Valley of River Mesta, Pirin Mts (*Northern*), Mt Sredna Gora, Rhodopi (*Eastern*), Thracian Lowland, and Mt Strandzha (Petrova & Kožuharov 1983; Delipavlov 2011: 490; Assyov & Petrova 2012: 176).

158. *Lolium rigidum* Gaud.

Bu Pirin Mts (*Northern*): along the ski trail on Todorin Vrah, 11.08.2014, coll. D. Dimitrov (SOM 170542). New for this floristic region. So far this Mediterranean-

Asiatic species has been reported from the Black Sea Coast, Forebalkan, Znepole Region, Valley of River Struma, Rhodopi Mts (*Central, Eastern*), Thracian Lowland, and Tundzha Hilly Country (Delipavlov 2011: 509; Assyov & Petrova 2012: 263).

159. *Phleum montanum* C. Koch

Bu Pirin Mts (*Northern*): along the ski trail on the slope of peak Todorin Vrah, 11.08.2014. coll. *D. Dimitrov*(SOM 170569).

New for this floristic subregion. So far this Mediterranean species has been reported from the Black Sea Coast, Danubain Plain, Forebalkan, Balkan Range (*Eastern*), Znepole region, West Frontier Mts, Valley of River Struma, Pirin Mts (*Southern*), Rhodopi Mts, Thracian Lowland, Tundzha Hilly Country, and Mt Strandzha (Kožuharov & Petrova 1991; Delipavlov 2011: 504; Assyov & Petrova 2012: 313).

Reports 160–162

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A week's holiday on the island of Karpathos by the first author (MT) revealed some taxa infrequently documented for the island. A few which have not been previously reported are listed here.

Asclepiadaceae

160. *Cynanchum acutum* L.

Gr Nomos Dodekanisou, Eparchia Karpathou: island of Karpathos, beach at Makrya Gialos, E of airport, ca. sea level, 35°25'N, 27° 09'E, 10.06.2016, *M. Thornberg* s.n. (C).

New for Karpathos. There are scattered reports from Crete in the floristic region KK (Cretan area) as circumscribed in *Flora Hellenica* (Strid & Tan 1997) but not from the Karpathos island group (Karpathos, Kasos and Saria).

Asteraceae

161. *Tragopogon porrifolius* L. (syn.: *T. sinuatus* Avé-Lall.)

Gr Nomos Dodekanisou, Eparchia Karpathou: island of Karpathos, SW of Pigadia, along road leading to the town, 50–100 m, 35°30'N, 27°12'E, 12.06.2016, *M. Thornberg* obs.

New for Karpathos, recorded from the adjacent island of Saria to the north.

Euphorbiaceae

162. *Euphorbia hypericifolia* L. (syn.: *Chamaesyce hypericifolia* (L.) Millsp.)

Gr Nomos Dodekanisou, Eparchia Karpathou: island of Karpathos, garden weed along road leading to Paralias Hagiou Nikolaou, S of Arkasa, ca. 10 m, 35°28'N, 27°06'E, 06.06.2016, *M. Thornberg* s.n. (C); Pigadia, beach road north of town, weed in front of the Euro-moto shop, ca. 5 m, 35°30'N, 27°12'E, 12.06.2016, *M. Thornberg* obs.

New for Karpathos. Established neophyte, a recent introduction in southern Greece (N Peloponnese, Crete) found in ruderal habitats near the coast, along roadsides, etc.

Reports 163–185

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The following are new plant records based on floristic investigations mainly in the prefecture of Korinthias in north central Peloponnese. *Centaurea iberica* subsp. *iberica*, *Geum heterocarpum*, *Rhynchosorys elephas* and *Asphodelus tenuifolius* are new records for mainland Peloponnese.

Asteraceae

163. *Achillea ligustica* All.

Gr Nomos Achaïas/Korinthias, Eparchia Kalavriton/Korinthias: Ntourntouvana, NE slopes, 5 km from Panorama along forest road to the summit, in open *Abies cephalonica* woodland, 1317–1350 m, 37°55'N, 22°15'E, 05.04.2016, *Kit Tan* & *G. Vold* 32075.

New for Mt Dourdouvana. Widespread in mountains of Peloponnese. The plants were not yet in flower.

164. *Centaurea iberica* Spreng. subsp. *iberica* (Fig. 26)

Gr Nomos & Eparchia Korinthias: eastern part of prefecture, near Stefani village, 719 m, 37°45'N, 22°51'E, 27.07.2016, *Zarkos* obs.

Apparently new for the Peloponnese. *Centaurea iberica* subsp. *holzmanniana* has, however, been recorded in western Peloponnese (nomi Ilias and Messinias); this plant has a lower stature with ascending stems and phyllaries with longer apical spines.

Boraginaceae

165. *Alkanna graeca* subsp. *baeotica* (DC.) Nyman
Gr Nomos Achaïas/Korinthias, Eparchia Kalavriton/
 Korinthias: Ntourntouvana, NE slopes, along forest road in open *Abies cephalonica* woodland, 1120–1125 m, 37°55'N, 22°16'E, 05.04.2016, *Kit Tan* & *G. Vold* 32074.

New for Mt Dourndouvana.

Brassicaceae

166. *Sisymbrium irio* L.

Gr Nomos & Eparchia Korinthias: Mt Killini, Kleftaki peak, trampled ground with goat droppings, 1520 m, 37°59'N, 22°25'E, 16.04.2016 & 11.06.2016, *Kit Tan*, *G. Vold* & *G. Zarkos* 32085.

New for Mt Killini; in nomos Korinthias, surprisingly recorded only from waste ground and urban habitats near the Corinth Canal and Loutraki. Kleftaki peak at 1520 m is probably the highest altitude of occurrence in Greece.

Caryophyllaceae

167. *Gypsophila nana* Bory & Chaub.

Gr Nomos & Eparchia Korinthias: Mt Killini,



Fig. 26. *Centaurea iberica* subsp. *iberica* (photo G. Zarkos).

Kleftaki peak, crevices of shaded conglomerate rock, 1521 m, 37°59'N, 22°25'E, 16.04.2016 & 11.06.2016, *Kit Tan*, *G. Vold* & *G. Zarkos* 32084.

New for Mt Killini; in nomos Korinthias recorded only from Mavro Oros and Feneos valley.

Chenopodiaceae

168. *Beta nana* Boiss. & Heldr.

Gr Nomos Achaïas, Eparchia Kalavriton: Mt Chelmos, alpine area, 2263 m, 37°58'N, 22°11'E, 02.07.2016, *Christodolou*, *Polymenakos* & *Zarkos* obs. (photos).

Confirming the only gathering from Chelmos, made ca. 110 years ago, viz., 2300 m, 12.08.1906, *Maire* & *Petitmengin* 704 (WU-Hal!). Recorded from Mts Taigetos and Killini in the Peloponnese, mountains of Sterea Ellas and Mt Olimbos.

Fabaceae

169. *Colutea arborescens* L.

Gr Nomos & Eparchia Korinthias: Mt Killini, near Ano Trikala village, 895 m, 37°58'N, 22°28'E, 04.05.2016, *Zarkos* obs. (photos).

New for Mt Killini although fairly widespread in Greece.

170. *Onobrychis arenaria* subsp. *lasioistachya* (Boiss.) Hayek

Gr Nomos & Eparchia Korinthias: Mt Killini, near Ano Trikala village, 886 m, 37°58'N, 22°28'E, 04.05.2016, *Zarkos* obs.; *loc. ibid.*, 11.06.2016, *Kit Tan*, *G. Vold* & *G. Zarkos* obs. (in late fruiting state, not collected).

Only once recorded from Mt Killini at Trikala (Tricole) by Sundqvist in June 1931 (LD!).

171. *Trifolium subterraneum* L.

Gr Nomos & Eparchia Korinthias: Mt Killini, (Mikri Ziria), 1177 m, 37°56'N, 22°30'E, 11.04.2016, *Zarkos* obs. (photos).

New for Mt Killini and Korinthias, surprising as it is fairly widespread in Greece.

Hypericaceae

172. *Hypericum boehlingraabei* Kit Tan & al. (Fig. 27)

Gr Nomos & Eparchia Korinthias: Mt Killini, Kleftaki peak, 1521 m, 37°59'N, 22°25'E, 16.04.2016, *Zarkos* & *Christodoulou* obs.; *loc. ibid.*, 11.06.2016, *Kit Tan*, *G. Vold* & *G. Zarkos* 32083.

New for Mt Killini. A rare endemic known from only two localities in Greece, Mavro Oros and Korakofolia, both in Nomos Korinthias.

Lamiaceae**173. *Scutellaria orientalis* subsp. *pinnatifida* J.R. Edm.**

Gr Nomos Achaias, Eparchia Kalavriton: Mt Chelmos, 1852 m, 37°59'N, 22°11'E, 02.07.2016, *Chistodoulou, Polymenakos & Zarkos* obs. (photo).
Confirming C. Baden's observation in Mountain flora of Greece (Strid & Kit Tan 1991: 76) that the plant goes "up to 2200 m as on Chelmos". Baden visited Chelmos in 1980 and 1983 but apparently did not collect the *Scutellaria*, so his statement may have been based on field notes. No specimens were located in the herbarium at C where he deposited the first set of his collections. Known, however, from Mt Killini (Halácsy 1902:492).

174. *Teucrium halacsyanum* Heldr.

Gr Nomos Achaias, Eparchia Egialias: Vouraikos gorge near Diakofto, S-facing vertical limestone cliff, 100–150 m, 38°13'N, 22°12'E, 07.07.2016, *Kit Tan & G. Vold* 32248; *loc. ibid.*, 27.04.2016, *Zarkos* obs.

Confirming record from the same locality made by Heldreich (8 June 1899, WU-Hal!). There were numerous plants in two localities.

Ranunculaceae**175. *Anemone apennina* subsp. *blanda* (Schott & Kotschy) Nyman**

Gr Nomos Achaias/Korinthias, Eparchia Kalavriton/Korinthias: Ntourntouvana, NE slopes, along forest road in open *Abies cephalonica* woodland, limestone, 1120–1125 m, 37°55'N, 22°16'E, 05.04.2016, *Kit Tan & G. Vold* 32072.

New for Mt Dourndouvana.

176. *Ranunculus trichophyllus* Chaix

Gr Nomos & Eparchia Korinthias: Mt Killini, Lake Dasiou, 1500 m, 37°58'N, 22°25'E, 16.04.2016, *Zarkos & Chistodoulou* obs. (photos).

First report for Lake Dasiou, also recorded near Flabouritsa.

Rhamnaceae**177. *Rhamnus lycioides* subsp. *oleoides* (L.) Jahand. & Maire**

Gr Nomos & Eparchia Korinthias: Mt Killini, near Ano Trikala village, 800 m, 37°58'N, 22°28'E, 04.05.2016, *Zarkos* obs.; *loc. ibid.*, 11.06.2016, *Kit Tan, G. Vold & G. Zarkos* 32089.

Confirming the report from approximately the same area, as indicated by a dot-map in Boratyński & al. (1992: 203).

Rosaceae**178. *Geum heterocarpum* Boiss. (Fig. 28)**

Gr Nomos & Eparchia Korinthias: Mt Killini, Sfedani,



Fig. 27. *Hypericum boehlingraabei* (photo G. Zarkos).

1824 m, 37°54'N, 22°24'E, 23.05.2016, Zarkos obs.; 27.05.2016, Zarkos & Chistodoulou obs.; *loc. ibid.*, 11.06.2016, Kit Tan, G. Vold & G. Zarkos 32081.

New for the Peloponnese. Reported only from two mountains in Sterea Ellas (Timfristos and Vardousia).

Scrophulariaceae

179. *Rhynchosorys elephas* (L.) Griseb. (Fig. 29)

Gr Nomos Achaïas, Eparchia Kalavriton: Mt Chelmos, Krathis river, 1133 m, 37°59'N, 22°13'E, 02.07.2016, Chistodoulou, Polymenakos & Zarkos obs.

New for the Peloponnese. Recorded from mainland Greece.

180. *Scrophularia scopoli* Hoppe

Gr Nomos & Eparchia Korinthias: Mt Killini, Sfedani, 1768 m, 37°54'N, 22°23'E, 27.05.2016, Zarkos & Chistodoulou obs.; *loc. ibid.*, 11.06.2016, Kit Tan, G. Vold & G. Zarkos 32080.

First reported from the Flavouritsa gorge on Mt Killini 154 years ago, *viz.* June 1862, J.S. Mill s.n. (K), otherwise new for Korinthias.

Rubiaceae

181. *Asperula aristata* subsp. *thessala* (Boiss. & Heldr.) Hayek (Fig. 30)

Gr Nomos & Eparchia Korinthias: Mt Oligirtos, 1300 m, 37°48'N, 22°22'E, 10.07.2016, Zarkos & Chistodoulou obs.

New for Oligirtos, recorded from nearby Mt Saitas.

182. *Galium debile* Desv.

Gr Nomos & Eparchia Korinthias: Mt Killini, Kefalari,

1392 m, 37°59'N, 22°26'E, 29.06.2008, 01.07.2012 & 28.06.2016, Zarkos & Chistodoulou obs. (photos).

New for Mt Killini.

Asphodelaceae

183. *Asphodelus tenuifolius* Cav.

Gr Nomos & Eparchia Korinthias: at the ancient port of Kechries, 7 m, 37°53'N, 22°59'E, 10.04.2016, Zarkos obs. (photos).

New for mainland Peloponnese. There have been several recent confirmations of this species' existence in Greece recently, e.g., from Egina island and Lake Vouliagmeni.

Iridaceae

184. *Iris attica* Boiss. & Heldr.

Gr Nomos & Eparchia Korinthias: Mt Killini, Argalios, 1871m, 37°53'N, 22°24'E, 27.05.2016, Zarkos & Chistodoulou obs.

New for Mt Killini. Noted only in vegetative state, but unmistakable with its low stature and falcate leaves.

Orchidaceae

185. *Ophrys fusca* Link subsp. *fusca*

Gr Nomos & Eparchia Korinthias: Mt Killini, near Ano Trikala village, 857 m, 37°58'N, 22°28'E, 04.05.2016, Zarkos obs. (photos).

Confirmation for Mt Killini. A number of distribution maps indicate possible localities near Killini, e.g., in Bayer & al. (1978).



Fig. 28. *Geum heterocarpum* (photo G. Zarkos).



Fig. 29. *Rhynchosorys elephas* (photo G. Zarkos).



Fig. 30. *Asperula aristata* (photo G. Zarkos).

Reports 186–188

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Aceraceae

186. *Acer pseudoplatanus* L.

Bu Black Sea Coast (*Southern*): near Chernomorets town, along the coastal line on the territory of Chernomorets camping site, a few individuals in a plantation of *Robinia pseudoacacia* on sandy substrate, NE exp., inclination 2°, 23 m, NG59, 42°26'09.9"N, 27°38'43.6"E, 02.06.2016, with fruits, coll. A. Tashev & N. Tashev (SOM 172665); a few individuals under the canopy of a 40-year plantation of *Robinia pseudoacacia*, together with *Prunus cerasifera*, *P. avium*, *Acer campestre*, *A. negundo*, *Ailanthus altissima*, *Ulmus minor*, *Fraxinus oxycarpa*, *Quercus cerris*, *Juglans*

regia, *Laurus nobilis* and *Ficus carica*, and a number of shrub species: *Rubus caesius*, *Hedera helix*, *Clematis vitalba*, *Smilax exelsa*, *Euonimus europaeus*, the grass layer is dominated by *Myrrhoides nodosa*, but also present are *Tamus communis*, *Galium aparine*, *Brachypodium pinnatum*, *Geum urbanum*, *Sambucus ebulus*, *Buglossoides purpureoerulea*, *Arum maculatum*, *Stellaria media*, *Allium scorodoprasum*; between Chernomorets and Sozopol towns, along the beach of Gradina camping site, on sandy substrate among other trees and shrubs and near of plantation of *Pinus maritima*, flat area, 3 m, NG59, 42°24'23.7"N, 27°39'40.4"E, 02.06.2015, with fruits, coll. A. Tashev & N. Tashev (SOM 172668); a fruiting specimen near a plantation of *Pinus maritima*, together with *Populus nigra*, *Prunus cerasifera*, *Quercus frainetto*, *Q. pubescens*, *Q. rubra*, *Fraxinus americana*, *F. oxycarpa*, *F. pennsylvanica*, *Platanus orientalis*, *Rubus caesius*, *Cornus sanguinea*, *Paliurus spina-christi*, *Osyris alba*, *Prunus spinosa*, *Rosa canina*, *Vitis sylvestris*, *Cionura erecta*

ta, the grass layer is represented by *Brachypodium sylvaticum*, *Poa pratensis*, *Dactylis glomerata*, *Calamagrostis epigeios*, *Carex* sp., *Sanguisorba minor*, *Cychorium inthybus*, *Eryngium campestre*, *Daucus carota*, *Galium* sp., *Melilotus albus*, *Medicago* sp.

A new species for this floristic region (cf. Cheshmedzhiev 2011: 245; Assyov & Petrova 2012: 44; Tashev & Tashev 2015: 383).

Oleaceae

187. *Fraxinus pennsylvanica* H. Marshall

Bu Black Sea Coast (Southern): between Chernomorets and Sozopol towns, along the beach of Gradina camping site, on sandy substrate in a plantation of *Pinus maritima*, flat area, 3 m, NG59, 42°24'23.7"N, 27°39'40.4"E, 01.06.2015, with fruits, coll. A. Tashev & N. Tashev (SOM 172669); several young fruiting and non-fruiting individuals in a plantation of *Pinus maritima*, together with *Populus nigra*, *Prunus cerasifera*, *Quercus frainetto*, *Q. pubescens*, *Q. rubra*, *Fraxinus americana*, *F. oxycarpa*, *Platanus orientalis*, *Rubus caesius*, *Cornus sanguinea*, *Paliurus spina-christi*, *Osyris alba*, *Prunus spinosa*, *Rosa canina*, *Vitis sylvestris*, *Cionura erecta*, and a grass layer of *Brachypodium sylvaticum*, *Poa pratensis*, *Dactylis glomerata*, *Calamagrostis epigeios*, *Carex* sp., *Sanguisorba minor*, *Cychorium inthybus*, *Eryngium campestre*, *Daucus carota*, *Galium* sp., *Melilotus albus*, *Medicago* sp., etc.

A new floristic region for this species, so far known from Danubian plain, Sofia region and Valley of River Mesta. It occurs at many sites in the area between Chernomorets and Sozopol town, together with *Fraxinus americana*, which predominates in the region (Cheshmedzhiev 2011: 282; Assyov & Petrova 2012: 198).

Platanaceae

188. *Platanus orientalis* L.

Bu Black Sea Coast (Southern): several trees near Chernomorets town, along the coastal line, on the territory of Chernomorets camping site, together with *Ailanthus altissima*, *Morus alba*, *Salix cinerea*, *Ficus carica*, *Phragmites australis*, on flat area, 15 m, NG59, 42°26'19.8"N, 27°38'45.8"E, 02.06.2016, coll. A. Tashev & N. Tashev (SOM 172666); between Chernomorets and Sozopol towns, along the beach of Gradina

camping site, on sandy substrate near a plantation of *Pinus maritima*, on flat area, 3 m, NG59, 42°24'23.7"N, 27°39'40.4"E, 02.06.2015, with fruits, coll. A. Tashev & N. Tashev (SOM 172667); several young trees near *Pinus maritima* plantation, together with *Acer pseudoplatanus*, *Populus nigra*, *Prunus cerasifera*, *Quercus frainetto*, *Q. pubescens*, *Q. rubra*, *Fraxinus americana*, *F. oxycarpa*, *F. pennsylvanica*, *Rubus caesius*, *Cornus sanguinea*, *Paliurus spina-christi*, *Osyris alba*, *Prunus spinosa*, *Rosa canina*, *Vitis sylvestris*, *Cionura erecta*, *Brachypodium sylvaticum*, *Poa pratensis*, *Dactylis glomerata*, *Calamagrostis epigeios*, *Carex* sp., *Sanguisorba minor*, *Cychorium inthybus*, *Eryngium campestre*, *Daucus carota*, *Galium* sp., *Melilotus albus*, *Medicago* sp., etc.

So far the species has been reported from the Valley of River Struma, Valley of River Mesta, Rhodopi Mts (Central, Eastern) and Thracian Lowland (Cheshmedzhiev 2011: 57; Assyov & Petrova 2012: 318). Apparently, some trees were planted for ornamental purposes long ago in a few places near Chernomorets and Sozopol towns and reproduced by seeds in the region.

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