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Source: Willdenowia, 41(1) : 139-149

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: https://doi.org/10.3372/wi.41.41118

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ZOLTÁN BARINA[1*] & DÁNIEL PIFKÓ[1]

Contributions to the flora of Albania, 2

Abstract

Barina Z. & Pifkó D.: Contributions to the flora of Albania, 2. – Willdenowia 41: 139–149. – Online ISSN 1868-6397; © 2011 BGBM Berlin-Dahlem.
doi:10.3372/wi.41.41118 (available via http://dx.doi.org/)

Altogether, 34 vascular plant taxa of the flora of Albania are discussed, of which 22 are new records of species for the territory of Albania and 12 are confirmations of previous doubtful reports for Albania. The necessity of further investigation of saline habitats and serpentine areas is highlighted and attention is drawn to possible other disjunct occurrences of Alpine species in Albania.

Additional key words: vascular plants, phytogeography, serpentine, endemism, halophytes, Balkan Peninsula, Alps

Introduction

Between 2004 and 2009, the authors organised altogether 19 field trips of 5–12 days each to various parts of Albania. During these trips, c. 7700 herbarium specimens of vascular plants were collected. Some new and noteworthy records based on these collections have already been published (Barina & Pifkó 2008a, b, c, 2009; Barina & al. 2009).

The revision of the collected material has been continued and further specimens collected proved to represent taxa hitherto unknown to Albania. Also some doubtfully reported species were confirmed through the collected specimens. The present paper comprises such results with a special focus on plants of serpentine substrate and saline habitats. The richness of serpentine vegetation is understood and well in the focus of floristic research in the remainder of the Balkans (Shuka & Hallaçi 2010; Asenov & Pavlova 2009; Pavlova 2009, 2010; Constantinidis 2004). In contrast, the extended serpentine areas in Albania have been little explored and have been rarely the subject of publications (Shuka 2008) or else treated rather generally (Stevanović & al. 2003).

Material and methods

The records given in the present contribution are based on the material collected on our field trips in Albania between 2004 and 2009. Voucher specimens are deposited in the Herbarium of the Hungarian Natural History Museum (BP) in Budapest. The specimens were determined by the first author if not stated otherwise.

The geographical coordinates of the collecting localities were determined using a Garmin eTrex GPS (Legend from 2004 to 2006 and Venture cx from 2007 to 2009). The names of localities are based on the Russian topographic maps of Albania with a 1: 50 000 scale (Generalnyj Shtab 1986), the geographical map of Albania (Anon. 1983) and Lafe & Kabo (2002). In the species list, the

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numbers of the collecting localities (loc. 1–60) as given in the List of localities, below, and the first author's collection numbers are cited for each entry.

Taxa discussed in the present paper are either not reported in the recent Albanian floras (Demiri 1983; Paparisto & al. 1988; Qosja & al. 1992, 1996; Vangjeli & al. 2000; Vangjeli 2003) or, in several cases, were previously included but subsequently disregarded.

List of localities

District of Berat (Rrethi i Beratit)

Tomor Mountains Mts (Mali i Tomorrit)

1. c. 2.2 km S of Mt Partizani (2415.7 m), c. 2 km E of village Tomor i madh, in mixed beech pine forest, 40.6880°N, 20.1386°E, 1750 m, 11.8.2004, *Z. Barina, Cs. Németh & D. Pifkó*

District of Burrel (Rrethi i Burrelit)

Mali i Dejës

2. above village Macukull, near pass "Shkol-Den"; in rocky grassland, on limestone, 41.6903°N, 20.1667°E, 1950 m, 9.8.2009, *Z. Barina & D. Pifkó*
3. above village Macukull; in deep limestone crevice, 41.6886°N, 20.1568°E, 1750 m, 8.8.2009, *Z. Barina & D. Pifkó*

District of Delvinë (Rrethi i Delvinës)

Mali i Gjerë

4. on the southern slope of 1331 m high mount above Delvinë, in grazed grassland, on limestone, 39.9539°N, 20.1335°E, 650 m, 1.5.2009, *Z. Barina & D. Pifkó*

District of Dibër (Rrethi i Dibrës)

Korab Mts (Mali i Korabit)

5. c. 1.7 km E of town Peshkopi, above the valley of brook "përroi i Banjës", on the northern slope of a peak of 1800 m elevation, in open *Pinus nigra* forest on evaporite baserock, 41.6833°N, 20.4663°E, 900 m, 30.6.2007, *Z. Barina & Gy. Pinke*
6. c. 3.3 km E of village "Pocesht" (near town Maqellarë), under the peak of Mt "maja e Korçines" (2345.4 m), at the edge of beech forest, on limestone, 41.5989°N, 20.5427°E, 1600 m, 28.5.2008, *Z. Barina, D. Pifkó & B. Pintér*

Mali i Kreshtës

7. on the northern ridge of Mt "Gurët e Zi" (2080.1 m), c. 4.6 km N of village Vajkal Bulqizë, in rocky grassland, on serpentine, 41.5516°N, 20.2200°E, 1900 m, 31.5.2008, *Z. Barina, D. Pifkó & B. Pintér*

District of Elbasan (Rrethi i Elbasanit)

Mali i Shpatit

8. above village Zavalinë, at the edge of vegetable gardens, on flysch, 41.0002°N, 20.2444°E, 950 m, 4.8.2009, *Z. Barina & D. Pifkó*
9. above village Zavalinë, towards pass "Marku", in black pine forest, on serpentine, 41.0101°N, 20.2613°E, 1650 m, 4.8.2009, *Z. Barina & D. Pifkó*
10. above village Zavalinë, towards pass "Marku", on serpentine rocks, 41.0050°N, 20.2590°E, 1300 m, 4.8.2009, *Z. Barina & D. Pifkó*

District of Gjirokastër (Rrethi i Gjirokastrës)

11. WSW of village Klishar, near the peak of Mt "Paljemendra" (1416.3 m), in rocky grassland, on limestone, 39.8513°N, 20.3031°E, 1400 m, 2.5.2009, *Z. Barina & D. Pifkó*

District of Kolonjë (Rrethi i Kolonjës)

Grammos Mountains (Mali i Grammozit)

12. 1.3 km E of village Starje and 3.9 km W of the peak "Maja e Qukapecit" (2522.7 m), in the valley of brook "Alikolare", in *Ostrya carpinifolia* dominated open forest, 40.3598°N, 20.7371°E, 1450 m, 19.7.2006, *Z. Barina, D. Pifkó, G. Király & Cs. Németh*
13. in the valley of brook "përroi i Sotirës", 4.9 km W of the peak of Mt Kameniku (2043.1 m), in alder forest along the brook, 40.2105°N, 20.6569°E, 1000 m, 21.7.2006, *Z. Barina, D. Pifkó, G. Király & Cs. Németh*

District of Korçë (Rrethi i Korçës)

14. at the 1140 m high pass between villages Liqenas and Gollomboç, in open scrubland, on limestone, 40.8307°N, 20.9135°E, 1150 m, 10.8.2008, *Z. Barina*

Grammos Mts (Mali i Grammozit)

15. c. 4.3 km SW of village Dardhë, c. 1.2 km NNW of village Nikolic, in rocky grassland, on serpentine, 40.4856°N, 20.8033°E, 1500 m, 21.5.2007, *Z. Barina, D. Pifkó & Cs. Németh*

Region "Mokër Gore"

16. c. 3.2 km W of village Pirg, on the southeastern ridge of Mt "mali i Kozeliti" (1492 m), in open grassland, on conglomerate, 40.7785°N, 20.6668°E, 1400 m, 26.5.2007, *Z. Barina & D. Pifkó*
17. Kamjës Mts (Mali i Kamjës), c. 2.8 km N of village "Osnat", near the peak of Mt "Guri i Rëzhanit" (1588.3 m), in dry, open grassland, on conglomerate, 40.8520°N, 20.5987°E, 1600 m, 24.5.2007, *Z. Barina, D. Pifkó & Cs. Németh*

Thatë Mts (Mali i Thatë)

18. c. 2.4 km NNW of village "Zvezdë", c. 500 m S of the peak of Mt "Zvezdë" (1833 m), in rocky grassland, on limestone, 40.7552°N, 20.8537°E, 1750 m, 25.5.2007, *Z. Barina, D. Pifkó & Cs. Németh*
19. between Mt "Sliva Gorna" (1510 m) and Mt "Gorno Sedelo" (1458 m), c. 4.4 km W of village Gollomboç, in beech forest, on limestone, 40.8541°N,

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20.8941°E, 1400 m, 11.8.2008, *Z. Barina, Cs. Németh & A. Schmotzer*

Valamarë Mts (Mali i Valamarës)

20. "Fusha e Grykës", c. 4.5 km N of village Moglicë and c. 4.1 km E of village Shënepremte, on serpentine rocks, 40.7579°N, 20.4472°E, 2100 m, 16.8.2007, *Z. Barina & D. Pifkó*

District of Lezhë (Rrethi i Lezhës)

21. near the peak of Mt "Velës" (1170.1 m), above village Kallmet, on limestone rocks, 41.8206°N, 19.7195°E, 1100 m, 23.4.2009, *Z. Barina & D. Pifkó*

District of Librazhd (Rrethi i Librazhdit)

Jablanica Mts (Mali i Jablanices)

22. between Mt Osoit (1653.8 m) and Mt maja e Strapit (1974 m), c. 4.8 km S of village Steblevë, in beech forest, on limestone, 41.2933°N, 20.4684°E, 1750 m, 2.7.2008, *Z. Barina, D. Pifkó & A. Vojtkó*
23. on Mt "Lapë" (2038 m), c. 5.0 km E of village Qarrishtë, in rocky grassland, on limestone, 41.2508°N, 20.5037°E, 2000 m, 4.7.2008, *Z. Barina, D. Pifkó & A. Vojtkó*
24. on the 1957 m high mount between Mt "Lapë" (2038 m) and Mt Zrinos (1998 m), c. 4.7 km E of village Qarrishtë, in rocky grassland, on limestone, 41.2517°N, 20.4979°E, 1850 m, 4.7.2008, *Z. Barina, D. Pifkó & A. Vojtkó*

Shebenik Mts (Mali i Shebenikut)

25. c. 400 m W of the peak of Mt "Shebenik" (2250.5 m), c. 7 km SSE of village Qarrishtë, in rocky grassland, on serpentine, 41.2068°N, 20.4646°E, 2100 m, 6.7.2008, *Z. Barina, D. Pifkó & A. Vojtkó*

District of Mat (Rrethi i Matit)

Mali i Skënderbeut

26. on the northern forehills of Mt "maja e Mëllezit", near village Shkopet, on limestone rocks, 41.6904°N, 19.8232°E, 300 m, 24.4.2009, *Z. Barina & D. Pifkó*

District of Përmet (Rrethi i Përmetit)

27. 1.6 km SW of village "Leusë", towards pass Dhëmbeli (qafa Dhëmbelit), on limestone rock, 40.2080°N, 20.3436°E, 1000 m, 21.5.2006, *Z. Barina & D. Pifkó*

District of Pogradec (Rrethi i Pogradecit)

Valamarë Mts (Mali i Valamarës)

28. c. 300 m NW of the peak of Mt "Guri i Topit" (2119.4 m), c. 5.8 km NE of village Grabovë, in mountain grassland, on limestone, 40.8390°N, 20.4506°E, 2000 m, 17.8.2007, *Z. Barina & D. Pifkó*
29. northern ridge of Mt Valamarë (2372.6 m), c. 6.5 km N of village Shalës and c. 4.7 km E of village Grabovë, in open serpentine grassland, 40.8001°N, 20.4688°E, 2100 m, 17.8.2007, *Z. Barina & D. Pifkó*
30. northern ridge of Mt Valamarë (2372.6 m), c. 6.5 km N of village Shalës and c. 4.7 km E of village Grabovë, in open serpentine grassland, 40.8011°N, 20.4681°E, 2200 m, 17.8.2007, *Z. Barina & D. Pifkó*
31. on the eastern slope of Mt Lukova (1976 m), c. 6.8 km NNE of village Gribë and c. 1.8 km WSW of village Shpellë, in stony beech forest clearing, on serpentine, 40.8990°N, 20.4108°E, 1600 m, 19.8.2007, *Z. Barina & D. Pifkó*
32. on the eastern slope of Mt Lukova (1976 m), c. 7 km NNE of village Gribë and c. 1.8 km WSW of village Shpellë, in stony beech forest clearing, on serpentine, 40.9004°N, 20.4109°E, 1600 m, 18.8.2007, *Z. Barina & D. Pifkó*

District of Pukë (Rrethi i Pukës)

33. on the southwestern slope of Mali i Munellës, above village Mushtë, in cut pine forest, on serpentine, 41.9472°N, 20.0729°E, 1100 m, 11.8.2009, *Z. Barina & D. Pifkó*

District of Sarandë (Rrethi i Sarandës)

34. c. 600 m W of the ancient settlement of "Buthrotum" (Butrint), southern slope of Mt "Sotirë" (234.3 m), in rocky grassland, on limestone, 39.7458°N, 20.0131°E, 20 m, 19.4.2007, *Z. Barina, D. Pifkó, A. Csóka & B. Pintér*
35. on the northern part of Mt Maja e Miles (823.7 m), on limestone rocks, 39.7727°N, 20.0736°E, 100 m, 30.4.2009, *Z. Barina & D. Pifkó*
36. on the promenade of town Sarandë, 1.5.2009; *Z. Barina, L. Lőkös & D. Pifkó*

District of Tepelenë (Rrethi i Tepelenës)

Griba Mts (Mali i Gribes)

37. northeastern slope of Mt "Tartari" (mali i Tartarit, 1946.1 m), 1.8 km NE of the peak, on limestone rock, 40.3504°N, 19.7763°E, 1450 m, 12.8.2006, *Z. Barina, D. Pifkó & D. Schmidt*
38. western ridge of Mt "Goliku" (1721.4 m), 3.2 km E of village Kodër and 2.7 km SW of village Peshtan, in mountain pasture, 40.2691°N, 20.1055°E, 1600 m, 11.8.2006, *Z. Barina, D. Pifkó & D. Schmidt*

District of Tiranë (Rrethi i Tiranës)

Mali me Gropë

39. on the western slope of Mt "Mëcekut" (1826.4 m), by the roadside, on limestone, 41.3764°N, 20.0180°E, 1300 m, 6.8.2009, *Z. Barina & D. Pifkó*
40. western slope of Mt "Mëcekut" (1826.4 m), in beech forest clearing, 41.3706°N, 20.0187°E, 1300 m, 5.8.2009, *Z. Barina*

District of Tropojë (Rrethi i Tropojës)

Albanian Alps (Alpet Shqiptare, Bjeshkët e Nemuna, Prokletije)

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41. above the valley of river Valbonë and village Valbonë, on the southern slope of Mt maja e Thatë (2400 m); in karstic beech forest, on limestone, 42.4633°N, 19.8864°E, 1500 m, 4.6.2009, *Z. Barina, G. Lunk & D. Schmidt*
42. above the valley of river Valbonë between villages Dragobi and Valbonë, opposite of the southern foot of Mt Kolates (2553.3 m), in clearing of beech forest, on limestone, 42.4606°N, 19.9064°E, 850 m, 4.6.2009, *Z. Barina, G. Lunk & D. Schmidt*
43. above town Tropojë, in the valley at the southern foot of Mt Shkëlzen (2404.4 m), in limestone scree, 42.4349°N, 20.1355°E, 1200 m, 5.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
44. region Gash, above town Tropojë, in the valley of river "pr. i Tropojës", along the riverside, 42.5077°N, 20.1449°E, 1500 m, 8.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
45. region Gash, above town Tropojë, in the valley of river "pr. i Tropojës", along the riverside, 42.5088°N, 20.1391°E, 1550 m, 8.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
46. region Gash, above town Tropojë, in the valley of river "pr. i Tropojës", along the riverside, 42.5088°N, 20.1391°E, 1550 m, 8.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
47. region Gash, above town Tropojë, in the valley of river "pr. i Tropojës", at the edge of beech forest, on granite, 42.5044°N, 20.1493°E, 1450 m, 8.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
48. region Gash, above town Tropojë, on the northeastern ridge of Mt Callumit (2327 m), in closed mountain grassland, on granite, 42.4976°N, 20.1289°E, 2100 m, 7.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
49. region Gash, above town Tropojë, on the northern slope of Mt Callumit (2327 m), on shady granite rocks, 42.5041°N, 20.1184°E, 1900 m, 7.6.2009, *Z. Barina, D. Pifkó & D. Schmidt*
50. next to village Kam, above the valley of brooklet "Maljav", in scrubland, on serpentine, 42.2747°N, 20.2260°E, 600 m, 3.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
51. next to village Kam, in the valley of brooklet "Maljav", on serpentine, 42.2738°N, 20.2229°E, 550 m, 3.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
52. W of village Bytyç, on the northern slope of mount above pass "qafa e Luzhës" (815 m), in flush with Molinia, on serpentine, 42.3225°N, 20.1676°E, 750 m, 3.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
53. W of village Bytyç, on the southern slope of mount above pass "qafa e Luzhës" (815 m), on serpentine rocks, 42.3137°N, 20.1674°E, 800 m, 3.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*
54. W of village Bytyç, on the southern slope of mount above pass "qafa e Luzhës" (815 m), on serpentine rocks, 42.3145°N, 20.1671°E, 850 m, 3.6.2009, *Z. Barina, G. Lunk, D. Pifkó & D. Schmidt*

District of Vlorë (Rrethi i Vlorës)

55. "rrëza e Kanalit", c. 800 m SE of village Dukat i Ri, on the northeastern slope of Mt "Vili" (1362.7 m), in rocky grassland, on limestone, 40.2633°N, 19.5162°E, 250 m, 14.4.2007, *Z. Barina, D. Pifkó, A. Csóka & B. Pintér*
56. above bay Porto Palermo, c. 4.3 km W of Qeparo, on the south-western slope of Mt Gemi (540.7 m), in *Quercus macrolepis* wood, 40.0790°N, 19.7783°E, 150 m, 17.4.2008, *Z. Barina, D. Pifkó, D. Schmidt, R. Gőgh, Z. Drahos & F. Pósa*
57. Çikës Mts (mali i Çikës), 2.3 km NE of Pass Logara (qafa e Llogorait), c. 200 m E of the peak of Mt "mali i Qores" (2017.5 m), on limestone rock, 40.2150°N, 19.6092°E, 1950 m, 12.8.2004, *Z. Barina, Cs. Németh & D. Pifkó*
58. Çikës Mts (mali i Çikës), western ridge of Mt "Maja e Pandelejmonit" (805.8 m), near the monastery above village Dhërmi, in grazed grassland on limestone, 40.1528°N, 19.6429°E, 250 m, 29.4.2009, *Z. Barina & D. Pifkó*
59. N of lake "Liqen i Nartës", W of village Skrofotinë, in dried salt ponds, 40.5769°N, 19.4569°E, 2 m, 15.8.2008, *Z. Barina*
60. NE of lake "Liqen i Nartës", c. 700 m W of village Skrofotinë-1, in the salt ponds next to the lake, 40.5768°N, 19.4694°E, 1 m, 13.4.2007, *Z. Barina, D. Pifkó, A. Csóka & B. Pintér*

Results

Thirty-four taxa of vascular plants (2 ferns and 32 flowering plants) from 60 localities are discussed. Of these, 22 represent new records for the flora of Albania (indicated in the following list with an asterisk preceding the taxon name), and 12 represent confirmations of taxa for the flora of Albania that were omitted or disputed in the recent floras of the country (taxon name preceded by a bracketed asterisk). The flowering plants are arranged in the alphabetical order of their families.

Pteridophyta

* ***Phegopteris connectilis*** (Michx.) Watt – loc. 49: *15615*. According to Jermy & Paul (1993), the species is distributed in most of Europe but is apparently rare in the southern parts (Biel & Tan 2008).

(\) ***Polystichum illyricum*** Hahne – loc. 22: *13862a,* loc. 41: *15446*

In spite of several early reports of this hybrid from N and NE Albania (Kümmerle 1926; Hayek 1927; Markgraf 1931; Bornmüller 1933), it is not included in any recent Albanian flora. It was also reported from the Macedonian

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part of the Jablanica Mts (Niketić & al. 2007), where our record derives from as well.

Spermatophyta

Caryophyllaceae

* ***Stellaria uliginosa*** Murray – loc. 46: *15651*
This widespread Euro-Siberian species (Strid 1986) occurs only in the mountains of S Europe (Chater & Heywood 1993). From both Greece and Macedonia it is known from near the Albanian border (Jablanica and Mavrovo in Macedonia, Varnoús Óros in Greece). Our record is from near the border of Albania with Kosovo and Montenegro.

Chenopodiaceae

* ***Halopeplis amplexicaulis*** (Vahl) Ung.-Sternb. ex Ces., Pass. & Gibelli – loc. 59: *14492*
Blanché & Molero (1987) consider this annual halophyte as a widespread taxon in the Mediterranean, while Maarel & Maarel-Versluys (1996) classify it as a widespread coastal species. However, according to its known occurrences, it is very rare in the European part of its range and known only from the southwestern countries (Greuter & al. 1984) with only very few occurrences in Italy, Sicily, Sardinia (Lausi 1982) and the Iberian Peninsula (Blanché 1990; Blanché & Molero 1987). It is similarly a very rare and endangered species in Turkey (Yaprak 2006; Ekim & al. 2000). The report from Bulgaria proved to be erroneous (Greuter & al. 1984; Assyov & Petrova 2006). Though only a small population of less than 50 plants was found in dried salt ponds, it is regarded as a native species in Albania and other populations may occur in the surrounding saline wastes or dried ponds.

Compositae (Asteraceae)

* ***Arctium nemorosum*** Lej. – loc. 8: *15732,* loc. 19: *14307,* loc. 39: *15882*
Though distributed in much of Europe, the species is largely absent from the Balkan Peninsula (Euro+Med 2006+), where it is rare in Bulgaria (Assyov & Petrova 2006), present in S Croatia (Plazibat 2002) but apparently not occurring in Serbia (Josifović 1975).

* ***Cirsium montanum*** (Waldst. & Kit. ex Willd.) Spreng. – loc. 44: *15660*
This montane-subalpine element has a narrow distribution range from the S Alps to N Croatia (Farkaš-Vukotinović 1869: 772) with an isolated occurrence in central Italy (Pignatti 1982b: 161). Its occurrence in Serbia (Hayek 1928: 721) is not confirmed (Josifović 1975: 216). No reports from Albania exist in the literature but it was collected by Pál Jakucs in 1960 (deposited in BP) in the gorge of Shijë (Gjallicë Mts), and was observed and (supposedly) collected by Schütt (P. W. Ball, pers. comm.) at Shkrobotusa, qafa e Ndërmanjes and between Stani i Rebes and Dobrodol in the North Albanian Alps.

(*) ***Inula hirta*** L. – loc. 54: *15293*
Though records from all Balkan countries are known of this species (Euro+Med 2006+), no certain record existed from Albania for a long time. Bornmüller (1937) was the first to report it from Mt Paštrik, located near the Kosovan-Albanian border, and later B. Schütt (P. W. Ball, pers. comm.) gathered some unpublished records from various parts of N Albania (Pogaj – Kishaj, Zogaj – Tropoje, Pashtrik), but these findings remained unusual.

(*) ***Tragopogon porrifolius*** L. subsp. ***porrifolius*** – loc. 35: *14936*
The species is native to some S European countries and cultivated, a casual alien or naturalised in others. One previous record only, by Fiori (1928) from Sazan Island (opposite Vlorë), has been known so far from Albania and the taxon was not included in any Albanian flora.

Cyperaceae

(*) ***Carex curta*** Gooden. – loc. 45: *15653*
The species is widely distributed in the northern and even the southern hemisphere. Its southernmost locality in Europe was considered to be Macedonia (Chater 1980), but later it was found also in Greece (Strid & Franzén 1982). The only available report of this taxon from Albania is by Jávorka (1926: Korab Mts). Demiri (1983) discussed this report, but the species was not included in any later Albanian flora.

* ***Carex phyllostachys*** C. A. Mey. – loc. 16: *11805,* loc. 17: *11709,* loc. 27: *9231*
The species, described from the Caucasus, is very rare in Europe, known only from a few localities in the Republic of Macedonia (FYROM) and Greece (Authier 1997; Bergmeier 1988). Though Hayek (1933: 162) mentioned it also from Albania, he refers to localities outside of the present borders of the country (Authier 1997). Its localities in Albania are near the border with Macedonia and Greece. While most of the known localities are in various deciduous forests, in Albania it was found in dry, open grasslands, on gravel conglomerate. Similarly, the known habitats in Greece are also non-forest places (Bergmeier 1988). The localities in Albania are in the oak forest zone. The former vegetation may have been oak woods with clearings, now the localities are largely deforested and overgrazed by cows.

(*) ***Carex spicata*** Huds. – loc. 33: *16085,* loc. 40: *15839,* loc. 42: *15411,* loc. 43: *15474*
Despite the record of this species from near Maranaj (Dörfler in Hayek 1924), Chater (1980) questioned its occurrence. Demiri (1983) discussed the species, later

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Albanian floras (Vangjeli & al. 2000; Vangjeli 2003) omitted it. According to the earlier and new records, this *Carex* species may be distributed more widely in the montane region of Albania, at least in the northern and central part of the country.

Euphorbiaceae

*** *Euphorbia deflexa*** Sibth. & Sm. – loc. 26: *14656*
This species has been known so far from N Greece, even from near the Albanian border (Aldén 1986), with a large altitudinal distribution range (0–2000 m). It occurs in a variety of open habitats and is also a character species of scree vegetation (Valachović & al. 1997). Our record is from the northern part of the country, which indicates that the species is more widely distributed in Albania.

Gramineae (Poaceae)

******Agrostis vinealis*** Schreb. – loc. 10: *15756,* loc. 38: *10420*
Because of the frequent confusion with *Agrostis canina* L., this species with insufficiently known distribution (Tutin 1980) has no record from most of the Balkan countries (Georgijev 1963; Josifović 1976; Hartvig 1991; Assyov & Petrova 2006) including Albania, and was first observed only in the 1990s in Greece and treated as a "very rare" species (Damanakis & Scholz 1990). Although our records originate from S Albania, the species may be present in other parts of the mountains in the country.

******Avenula praeusta*** (Rchb.) Holub – loc. 24: *13985*
Holub (1980) treated this species as being a Central and SE European taxon, occurring also in "Yugoslavia", but among the ex-Yugoslavian countries only the field guide of Slovenia (Jogan 2007) discusses it. Records from Bosnia and Hercegovina, Serbia, Kosovo, Bulgaria and also Macedonia are given by Lange (1995) and Röser (1996).

(*) ***Calamagrostis arundinacea*** (L.) Roth – loc. 2: *15971,* loc. 9: *15773,* loc. 20: *12622,* loc. 23: *13966,* loc. 29: *12675,* loc. 31: *12785*
This taxon is missing from the latest Albanian floras (Vangjeli & al. 2000; Vangjeli 2003), despite of the record of Markgraf (1931) from Mali Alamanit and the record of Hoda (1988) from the Korab Mts. However, it was discussed by Demiri (1983) in his field guide, but without any location. While according to Strid (1991a) it is much more common in Greece than *C. varia*, we cannot see a remarkable difference in the frequency of the two species in Albania. The available Albanian records indicate that the species is chiefly distributed in the mountains.

(*) ***Calamagrostis varia*** (Schrad.) Host – loc. 1: *7014a,* loc. 5: *12467,* loc. 12: *10010,* loc. 13: *10209*
Several records of this species were published from N Albania in the Albanian Alps (Prokletije Mts) by Beck & Szyszylowicz (1889), Hayek (1924), Jávorka (1926) and Rakaj (2009). Our records strongly extend its distribution in Albania to the central and southern parts of the country. *Calamagrostis varia* is apparently present in all mountains of Albania above an altitude of c. 800 m without disjunction to the Greek populations (Strid 1991a).

* ***Sphenopus divaricatus*** (Gouan) Rchb. – loc. 60: *10788*
According to Pignatti (1982), this is an E Mediterranean-Turanian species, while Maarel & Maarel-Versluys (1996) classify it as a transregional coastal species. It is known mainly from the western part of the Mediterranean Basin in Europe, and in SE Europe only from Greece (Wolff 1968) and Crete (Bergmeier 2007), where it seems infrequent (Tan & al. 2006). Though it was found in a dried salt pond, it may be of wider distribution in the saline habitats surrounding Lake Nartës, and we regard it as native in Albania (cf. Bergmeier 2007).

* ***Stipa rechingeri*** Martinovský – loc. 15: *11558,* loc. 30: *12678*
Martinovský (1967) described this species from Smólikas Óros ("Smolica", N Pindus) and it has been known only from N Greece until now. Strid (1991b) applied a different species concept, merging it with further taxa into *Stipa pulcherrima* C. Koch (= *S. pennata* L. subsp. *pulcherrima* (C. Koch) Freitag). Stevanović & al. (2003) treated *S. rechingeri* as a serpentine relative of *S. pulcherrima*. Our findings from S Albania fully confirm the correlation between the morphological characters and the substrate. The Albanian occurrences in open, rocky serpentine grasslands extend its known area from Greece continuously northwards. Therefore we maintain *S. rechingeri* as a separate species.

(*) ***Vulpia ligustica*** (All.) Link – loc. 36: *15025*
This Mediterranean species is distributed in N Africa, S Europe and Turkey, but it is missing from many territories such as the Iberian Peninsula, Slovenia and Bulgaria. It is an infrequent plant in Europe and, according to Damanakis & Scholz (1990), "very rare" in Greece and also a red-listed species in Croatia (FCD 2004+). Demiri (1983) listed it from Albania and, according to Paparisto & al. (1962: 72), it is a rare species in the lowlands around Tirana. Whereas it is omitted in later Albanian floras, it is listed as a native species of Albania in the Euro-Med plantbase (Euro+Med 2006+). Our record (Sarandë) is situated in the southern part of the country, not far from the Greek border and only a few kilometres from Kerkyra (Korfu).

Juncaceae

* ***Juncus sphaerocarpus*** Nees – loc. 51: *15389*
According to Snogerup (1980), this is a rare species in most of its range, resembling *Juncus tenageia* L., which

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was also recorded in Albania in the recent past (Barina & Pifkó 2008c).

(*)***Luzula luzuloides*** (Lam.) Dandy & Wilmott – loc. 47: *15668*
Despite the records of Hayek (1917, 1924) from the Albanian Alps and Korab Mts, the species is not included in the Albanian floras. Since it is distributed in the neighbouring countries of Macedonia, Kosovo and Montenegro, the species could also be distributed in N Albania.

Leguminosae (Fabaceae)

(*)***Chamaecytisus purpureus*** (Scop.) Link – loc. 53: *15272*
The species is distributed in the SE Alps (Pignatti 1982; Fischer & al. 2005; Jogan 2001) and in the neighbouring regions (Nikolić 1997), while isolated populations are reported from Kosovo (Diklić 1972a; Krivošej & Amidžić 1999). The record from Hungary (Cristofolini 1991) refers to a cultivated plant or a Croatian occurrence, which belonged to Hungary until 1921.

Chamaecytisus purpureus was also recorded from Albania without exact locations (Heywood & Frodin 1968; Greuter & al. 1989; Qosja & al. 1992), but according to Cristofolini (1991) the records need confirmation. Though *Chamaecytisus purpureus* is a frequently cultivated ornamental plant in Europe, the Kosovan populations were treated as native (Diklić 1972a; Krivošej & Amidžić 1999) and we regard the Albanian population also as native.

There is a remarkable difference between the Alpine and Kosovan-Albanian populations. While in the Alps it is a submontane-montane species of limestone rocks and grasslands (Fischer & al. 2005; Pignatti 1982), in Kosovo and Albania it is a colline (500–1000 m) species of open serpentine grasslands, which was found in high number in the observed locality. The species differs from other *Chamaecytisus* taxa because of its completely glabrous stem, leaves and calyx. The possible differences between the isolated limestone and serpentine populations require more studies.

****Corothamnus adpressepilosus*** (H. Lindb.) Skalická – loc. 18: *11744,* loc. 55: *10800*
This taxon was described from Montenegro (inter Krstac et Njeguši) and, until now, has been known only from that country (Skalická 1967). Later it was treated as a synonym of *Corothamnus pseudoprocumbens* (Greuter & al. 1989), but based on the remarkable features observed by Skalická (1967), we consider it justified to be treated as a separate taxon (see also *C. glaber* below). Our records derive from S Albania and thus extend the distribution area of the species far to the south.

****Corothamnus glaber*** Skalická – loc. 25: *14040*
This taxon was considered by Skalická (1967) to have a restricted distributional range from NE Italy to NW Yugoslavia. Unfortunately her species concept was not followed by later authors (Frodin & Heywood 1968; Nikolić 1997; Martinčič 2007) and the taxon was treated as a synonym of *Corothamnus pseudoprocumbens* (Greuter & al. 1989). Considering the importance of hairiness and hair types *Cytisus* s.l. (incl. *Corothamnus*), we propose to retain this as a separate taxon (see also *C. adpressepilosus* above). The new occurrence of the species is far SE from its known distribution, and in contrast to its known occurrence on limestone, it was found on serpentine in Albania (see also *Chamaecytisus purpureus*).

****Lupinus angustifolius*** L. – loc. 4: *14984*
Greuter & al. (1989) already listed *Lupinus angustifolius* for Albania, but it was not included in any Albanian flora (Qosja & al. 1992; Vangjeli 2003).

****Medicago disciformis*** DC. – loc. 34: *11136,* loc. 56: *13207,* loc. 58: *14866*
This Mediterranean species has been known in the Balkans from Greece, Bulgaria (Assyov & Petrova 2006), Macedonia (Micevski 2001) and Croatia (FCD 2004+). Our Albanian records are from the southern part of the country, from the limestone region between Vlorë and the Greek border. Because of the presence of the species in Croatia, its occurrence along the N Albanian limestone coasts (Shkodër–Shëngjin) also appears likely.

****Vicia trunculata*** Fisch. ex M. Bieb. – loc. 6: *13594*
This chiefly Caucasian species has only scattered occurrences in the Balkans, where it is known from some localities in Bulgaria (Kuzmanov 1976), the eastern part of Serbia (Diklić 1972b) and only one locality (Skopska Crna Gora) in Macedonia (Micevski 2001: 1217). Our Albanian record constitutes the westernmost known locality of the species.

Liliaceae

(*)***Allium pallens*** L. – loc. 37: *10504,* loc. 57: *7054*
This summer-flowering *Allium* has known occurrences in the neighbouring countries in the Balkans. Formanek (1895) mentioned it from the surroundings of Durrës and also Kavajë, but the taxon has not been included in the Albanian floras. Since the known records are from a wide vertical range, various substrates and several parts of the country, its probably has a much wider distribution in the Mediterranean regions of Albania.

****Allium paniculatum*** subsp. ***villosulum*** (Halácsy) Stearn – loc. 14: *14283*
Webb (1980b) mentioned this subspecies only from Greece and Bulgaria, however, today the known range is much wider through the records from Croatia (FCD 2004+) and Serbia (Tomović & al. 2006). Further occurrences can be expected in the territory of Albania.

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* ***Gagea pratensis*** (Pers.) Dumort. – loc. 11: *15050,* loc. 21: *14638*
This species occurs in much of Europe (also in European Turkey: Rix 1984), but according to Richardson (1980) it is rare towards the W and SE. Our record derives from the southern and northern part of the country alike, so it actually may be scattered across the whole country.

* ***Hemerocallis lilioasphodelus*** L. – loc. 52: *15401*
Hitherto the species has been considered to be native only in the foothills of the SE Alps and adjoining lowlands, but widely cultivated and also naturalised elsewhere in Europe (Webb 1980a). According to Höpflinger's (1964) observation on the escaping of this species at Shkodër, Demiri (1983) discussed it as a cultivated plant in Albania, while it is not included in the subsequent Albanian floras (Vangjeli & al. 2000; Vangjeli 2003). Its occurrence observed by the authors in the northeastern part of the country, is in fresh hollows with Molinietum on serpentine hillsides, far away from settlements, and seems completely natural. Therefore it may be hypothesised that *Hemerocallis lilioasphodelus* actually has isolated occurrences on Albanian serpentines, similar to *Chamaecytisus purpureus* and *Corothamnus glaber* (see there).

Ranunculaceae

* ***Pulsatilla alpina*** (L.) Delarbre agg. – loc. 48: *15577*
This Central and S European species is very rare on the Balkan Peninsula. It is a red-listed species in Croatia (FCD 2004+; Lupret-Obradović 2008) and there is only one record from Kosovo, from the Prokletije Mts at Đeravica near the Montenegrin border (Diklić 1992). In Albania we found it in the North Albanian Alps, the Albanian part of the Prokletije Mts. Our record derives from near the Montenegrin-Kosovan-Albanian border and is not far from the known locality in the Prokletije Mts.

Rosaceae

* ***Potentilla alba*** L. – loc. 50: *15398*
The southern limit of this species, which is widespread in Europe, is in Macedonia (Hayek 1924; Ball & al. 1968), otherwise it is also distributed in Serbia (Gajuđ 1972). It is reported in the Euro+Med database (Euro+Med 2006+) also as a native species of Albania, but we do not know any published source substantiating this occurrence and suspect a confusion with the reports for Macedonia, for which no occurrence is given. Our first actual record for Albania is near the southern limit of the species' range.

Umbelliferae (Apiaceae)

(*) ***Grafia golaka*** (Hacq.) Rchb. – loc. 3: *15914,* loc. 7: *13734,* loc. 28: *12723,* loc. 32: *12767*
This amphi-Adriatic species occurs in the SE Alps and surroundings, in Central Italy and, similarly to its range in the Apennines, it also grows in the Central Balkan Peninsula and the Montenegrin and Albanian parts of the Prokletije Mts (Rakaj 2009). According to Rakaj (2009) the species is restricted to the North Albanian Alps in Albania and this population represented its eastern- and southeasternmost occurrence. Our records extend the known distribution area of the species much to the south and somewhat to the east as well.

Discussion

The discussed taxa are of various distribution types, the majority are Mediterranean and Central European species, some with insufficiently known range and frequency in the Balkans or even in Europe. The westernmost occurrences of two, mainly Caucasian species, *Carex phyllostachys* and *Vicia truncatula,* were also found in Albania.

Saline and brackish marshes in Albania are distributed from Vlorë to Shkodër along the Adriatic Sea (Vangeluwe & al. 1996; Dring & al. 2002). Saline grasslands and bare surfaces, however, are fragmented plots between Vlorë and Divjakë, while the only large saline wastes are found around lake Liqen i Nartes, of which about a third is used as salt ponds (c. 14 km^2; Pano & al. 2005). The floristic investigation of this area is insufficient and the two new Albanian records of species in the present paper draw the attention to the value of this area and the need for the study of the Albanian saline vegetation.

The high plant diversity of serpentine areas in the Balkans is well-known, especially the significant endemism of the NE Albanian serpentine areas (Stevanović & al. 2003). Sixteen of our investigated localities treated in the present contribution are on serpentine and eleven of the species treated are from serpentine substrate. Most of them are neither non-serpentine endemics nor specialists, only *Stipa rechingeri* is known as a serpentine endemic.

Another remarkable group is represented by taxa known as endemics of the Alps and their surroundings. These taxa mainly grow on limestone rocks. A few of them are reported in the present contribution from Albania, in stations isolated from their Alpine distribution, and contrary to their situation in the Alps, these plants were found on serpentine substrates in Albania. An earlier known example, which was, however, questioned (Cristofolini 1991), is *Chamaecytisus purpureus,* whose isolated Albanian occurrence is now confirmed. Among the new records, *Corothamnus glaber* is reported far away from its known Alpine distribution and on serpentine. In the same line is also the surprising, presumably native occurrence of *Hemerocallis lilioasphodelus* in Albania on serpentine, far south from its known distribution in the foothills of the Alps on limestone, but obviously the direct impact of the bedrock on a meadow-species is negligible. Isolated serpentine populations in Albania of other, normally non-serpentine taxa, were reported ear-

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lier also from *Hyacinthella leucophaea* (C. Koch) Schur (Barina & al. 2009).

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