

## **Contributions to the flora of Albania, 3**

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Source: Willdenowia, 41(2) : 329-339

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

URL: <https://doi.org/10.3372/wi.41.41214>

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## Contributions to the flora of Albania, 3

### Abstracts

Barina Z., Pifkó D. & Mesterházy A.: Contributions to the flora of Albania, 3. – Willdenowia 41: 329–339. December 2011. – Online ISSN 1868-6397; © 2011 BGBM Berlin-Dahlem.

Stable URL: <http://dx.doi.org/10.3372/wi.41.41214>

Altogether 32 angiosperm taxa (species or subspecies) and two pteridophytes are reported and discussed, of which 24 taxa are new for the flora of Albania, one is also new for Kosovo (*Carex michelii*), and one is new even for the Balkan Peninsula (*Evax asterisciflora*). Ten other species, which had been reported previously but were neglected in recent floras and the red data book of the country, are now confirmed.

Additional key words: vascular plants, phytogeography, adventive plants, chasmophytes, Balkan Peninsula

### Introduction

New floristic records for Albania, and in one case each also for Kosovo and the Balkan Peninsula, based on the material collected during the authors' field trips to Albania in the years 2008 to 2010 are presented and discussed in this paper. Also included are a few new records supplementing the previous results published on the material collected in the years before (see Barina & Pifkó 2011 and references therein) and some confirmations for species with hitherto doubtful occurrence in the country. The collected material amounts to close to 10 000 numbers by now. The results presented here have a special focus on the northeastern region (District of Kukës) and the coastal region of Albania.

### Material and methods

Voucher specimens are deposited in the Herbarium of the Hungarian Natural History Museum (BP) in Budapest. These were determined by the first author unless stated otherwise. The geographical coordinates of the collect-

ing localities were located using a Garmin eTrex GPS (Venture cx until 2008 and Legend hcx from 2009). The names of localities are based on the Russian topographic maps of Albania of 1:50000 scale (Generalnyj Shtab 1986), the geographical map of Albania (Anon. 1983) and Lefe & Kabo (2002). In the species list the numbers of the collecting localities (loc. 1–48) are given combined with the first author's collection numbers.

### List of localities

District of Berat (Rrethi i Beratit)

1. in the valley of river Osum at village Vodice; on open gravel reef, 40.6706°N, 20.0145°E, 80 m, 28.5.2010, A. Mesterházy

District of Bulqizë (Rrethi i Bulqizës)

2. Lopës Mts (Mali i Lopës), c. 5.8 km southeast of Bulqizë, at the southern foot of Mt Runga (1854 m), in dry grassland, on serpentine, 41.4534°N, 20.2730°E, 1770 m, 25.5.2008, Z. Barina, D. Pifkó & B. Pintér

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## District of Elbasan (Rrethi i Elbasanit)

3. Elbasan, in front of Hotel Sandra, by the sidewalk, 41.1047°N, 20.0850°E, 120 m, 13.10.2010, *Z. Barina*
4. in the valley of river Shkumbin at Peqin, near road SH7, on gravel reef, 41.0376°N, 19.7731°E, 30 m, 24.5.2010, *A. Mesterházy*
5. Mali i Shpatit, above village Zavalinë, between pass 'Marku' and pass 'Kali', in a shallow mountain lake, on serpentine, 41.0218°N, 20.2721°E, 1670 m, 4.8.2009, *Z. Barina & D. Pifkó*

## District of Fier (Rrethi i Fierit)

6. between Kurora natura reserve and Seman river, next to village Adriatik (Alibejas), on sand, 40.8092°N, 19.5074°E, 2 m, 11.8.2010, *Z. Barina & D. Pifkó*
7. in Kurora natura reserve next to village Adriatik (Alibejas), in softwood forest, 40.8118°N, 19.5077°E, 10 m, 11.8.2010, *Z. Barina & D. Pifkó*

## District of Gjirokastrë (Rrethi i Gjirokastrës)

8. west of village Klishar, above the valley of temporary brooklet Shkolave, in rocky scrubland, on limestone, 39.8604°N, 20.3247°E, 680 m, 2.5.2009, *Z. Barina, L. Lőkös & D. Pifkó*
9. in the valley of brook Belicë, c. 2 km N of village Prongji, 40.1369°N, 20.0414°E, 250 m, 15.8.2010, *Z. Barina, D. Pifkó & L. Lőkös*

## District of Has (Rrethi i Hasit)

on the S slope of Mt Pashtrik (1998 m) above village Pogaj; in bushy forest, on limestone, 22.5.2010, *Z. Barina & D. Pifkó*

10. 42.1951°N, 20.5246°E, 1150 m
11. 42.1971°N, 20.5297°E, 1280 m
12. 42.1963°N, 20.5286°E, 1260 m

## District of Kavajë (Rrethi i Kavajës)

on hills east of villages Spille and Rreth (Rreth-Greth)

13. in open grassland, on flysch, 41.0927°N, 19.4878°E, c. 80 m, 28.4.2009, *Z. Barina & D. Pifkó*

## District of Korçë (Rrethi i Korçës)

14. Thatë Mts (Mali i Thatë), on the southeastern slope of Mt 'Sliva Gorna' (1510 m), c. 3.8 km WSW of village Gollomboç, in open xerotherm forest, on limestone, 40.8465°N, 20.9042°E, c. 1190 m, 11.8.2008, *Z. Barina, Cs. Németh & A. Schmotzer*
15. c. 600 m SE of village Zerec, by the roadside, 40.6976°N, 20.3554°E, c. 790 m, 9.8.2008, *Z. Barina, Cs. Németh & A. Schmotzer*

## District of Kukës (Rrethi i Kukësit)

- c. 2 km N of village Gjegan and c. 1.5 km NW of village Norgut, between the new highway and river Drin i Bardhe (Kukës lake), 24.5.2010, *Z. Barina & D. Pifkó*
16. in overgrazed serpentine grassland, 42.1086°N, 20.4831°E, c. 420 m

17. in scrubland, on serpentine, 42.1101°N, 20.4754°E, c. 370 m
18. on the W foot of Mt Gjallicë, above village Nangë; in *Cotinus* scrubland, 42.0120°N, 20.4333°E, c. 830 m, 23.5.2010, *Z. Barina & D. Pifkó*

## District of Kurbin (Rrethi i Kurbinut)

19. near settlement Fushë Milot at the Kukës-Durrës-Lezhë road conjunction, by the roadside, 41.6623°N, 19.6731°E, 19.10.2010, *Z. Barina*

## District of Librazhd (Rrethi i Librazhdit)

20. Jablanica Mts (Mali i Jablanices), on the southwestern slope of Mt 'Varri i Marises' (2022 m), c. 7.5 km southsoutheast of village Steblevë, in mountain grassland, on gravel-conglomerate, 41.2717°N, 20.5013°E, c. 1880 m, 3.7.2008, *Z. Barina, D. Pifkó & A. Vojtkó*

## District of Lushnjë (Rrethi i Lushnjës)

21. at the beach of Divjakë, in pioneer vegetation by the roadside, 40.9731°N, 19.4806°E, c. 5 m, 23.5.2010, *A. Mesterházy*

## District of Malësi e Madhe (Rrethi i Malësisë së Madhe)

## Bjeshkët e Nemuna Mts (Prokletije Mts)

22. above village Bogë, bjeshkë (pasture) 'Jaraku', in rocky grassland, on limestone, 42.4196°N, 19.6472°E, c. 1850 m, 13.7.2010, *Z. Barina, G. Puskás & B. Sárospataki*
23. above village Nikç, on the eastern 2466 m high peak of Mt Maja e Shnikut (2552.2 m), in rocky grassland, on limestone, 42.4716°N, 19.7412°E, c. 2460 m, 15.7.2010, *Z. Barina, G. Puskás & B. Sárospataki*

## District of Përmet (Rrethi i Përmetit)

24. Nemerçke Mts (Mali i Nemerçkes), northern slope of Mt 'Poliçani' (Maja e Poliçanit, 2138 m), 600 m east of pass Dhëmbeli (qafa Dhëmbelit, 1456 m), in open limestone rocky grassland, 40.2003°N, 20.3427°E, c. 1420 m, 24.5.2006, *Z. Barina & D. Pifkó*

## District of Pogradec (Rrethi i Pogradecit)

25. canal Via Vlores (Drilon) between villages Gurras (Zagorçan) and Tushemist, 40.8903°N, 20.7122°E, c. 700 m, 9.8.2010, *Z. Barina, D. Pifkó, L. Lőkös*
26. on the S slope of mountain N of Mt Krasta e Glavës (884 m), between villages Alarup and Gurras (Zagorçan), in rocky grassland, on limestone, 40.8815°N, 20.7603°E, c. 810 m, 9.8.2010, *Z. Barina, D. Pifkó & L. Lőkös*

## District of Pukë (Rrethi i Pukës)

27. c. 3.5 km W of village Gomsiqja e Epermë, in open rocky grassland on serpentine, 41.9920°N, 19.7518°E, c. 510 m, 30.3.2010, *Z. Barina, D. Pifkó & B. Pintér*

## District of Sarandë (Rrethi i Sarandës)

28. at the shore of lake Liqeni i Mursit opposite to village Mursi, 39.7112°N, 20.0853°E, 17.10.2010, *Z. Barina*
29. E foot of Mt 'Kokali', near the road between villages Vurgu i Ri and Xarrë, in rocky grassland, on limestone, 39.7778°N, 20.0703°E, c. 140 m, 17.10.2010, *Z. Barina*
30. near the peak of Mt 'Xtoi' 271.5 m, between villages Çiflig and Shkallë, in grazed grassland, 39.6813°N, 20.1225°E, c. 270 m, 17.10.2010, *Z. Barina*
31. S part of town Sarandë, above the gorge of river Bistrica, on rock wall (planted?), 39.8486°N, 20.0240°E, c. 40 m, 24.3.2010, *Z. Barina, D. Pifkó & B. Pintér*
32. on the W slope of Mt Maja e Dhivrovinit (1184 m) above village Dhivër, in oak wood, 39.8476°N, 20.1773°E, c. 980 m, 14.8.2010, *Z. Barina*

## District of Shkodër (Rrethi i Shkodrës)

Syri i Sheganit, c. 2 km W of village Premal, at the shore of Shkodra Lake, 15.8.2010, *Z. Barina, D. Pifkó & L. Lőkös*

33: 42.2731°N, 19.3939°E, c. 5 m

34: 42.2731°N, 19.3938°E, c. 5 m

## District of Skrapar (Rrethi i Skraparit)

35. in the valley of river Osum at village Kakrukë, on open gravel reef, 40.5790°N, 20.1345°E, c. 170 m, 28.5.2010, *A. Mesterházy*

## District of Tepelenë (Rrethi i Tepelenës)

36. southern slope of Mt 'Dutihe' (1429.1 m), facing river 'Bëncë', c. 4.8 km north of village Progonat, in oak forest, 40.2578°N, 19.9454°E, c. 730 m, 9.8.2006, *Z. Barina, D. Pifkó, D. Schmidt*
37. c. 1 km north of village Mamaj, by the roadside, 40.3251°N, 20.0031°E, c. 150 m, 15.8.2010, *Z. Barina, D. Pifkó & L. Lőkös*

## District of Tropojë (Rrethi i Tropojës)

38. in village Pac, next to brook 'Lumi i Pacit', in meadow, 42.2974°N, 20.2068°E, c. 560 m, 3.6.2009, *Z. Barina, D. Pifkó & D. Schmidt*

## District of Vlorë (Rrethi i Vlorës)

39. c. 3.3 km NW of village Zvërnec, at the southern foot of hill 'kodra e Dajlanit' (46.6 m), on sandstone rocks by the seashore, 40.5302°N, 19.3845°E, c. 5 m, 15.8.2008, *Z. Barina & A. Schmotzer*
40. c. 4 km northwest of village Zvërnec, on sandstone rocks at the seashore, 40.5370°N, 19.3786°E, c. 1 m, 13.4.2008, *Z. Barina, D. Pifkó, D. Schmidt, R. Gögh, Z. Drahos & F. Pósa*
41. south of Vlorë, c. 4 km north of village 'Radhimë', on limestone cliff by the roadside at the seashore, 40.4087°N, 19.4808°E, c. 5 m, 15.4.2007, *Z. Barina, D. Pifkó, A. Csóka & B. Pintér*

42. between village Panajë and lake Liqen i Nartës, in saline meadows, 40.5227°N, 19.4601°E, c. 1 m, 28.3.2010, *Z. Barina, D. Pifkó & B. Pintér*
43. in swamp Pylli i Pallorëngut next to Orikum, 40.3268°N, 19.4659°E, 12.8.2010, *Z. Barina*
44. S of village Spile, above bay Gjiri i Spilëse, on maritime limestone rocks, 40.0901°N, 19.7532°E, c. 1 m, 13.8.2010, *Z. Barina & D. Pifkó*

## Palermo Peninsula

45. on the W maritime cliff, 40.0483°N, 19.7955°E, c. 60 m, 18.10.2010, *Z. Barina*
46. near the main road, by the roadside, 40.0510°N, 19.8026°E, c. 20 m, 18.10.2010, *Z. Barina*
47. near the military station, in rocky grassland, on limestone, 40.0487°N, 19.7958°E, c. 80 m, 18.10.2010, *Z. Barina*
48. on maritime limestone rock wall, 40.0461°N, 19.8011°E, c. 10 m, 27.3.2010, *Z. Barina, D. Pifkó & B. Pintér*

## Results

Thirty-two taxa (species or subspecies) of angiosperms and two species of pteridophytes are reported and discussed in the following list. Of these, 24 represent new records for the flora of Albania (preceded by an asterisk, below), one is also new for Kosovo, one for the Balkan Peninsula and 10 represent confirmations for hitherto doubtful occurrences.

## Pteridophytes

\* *Lycopodium annotinum* L. – loc. 22: 17845

A Holarctic species extending southwards to the Pyrenees and Apennines in Europe. In the Balkans so far known only from the Prokletije Mts in Montenegro (Pulević 2005).

Our record is from the Albanian Alps, which are the Albanian part of the Prokletije Mts. In the Balkans, the species appears to be restricted to the Prokletije Mts.

\* *Ophioglossum lusitanicum* L. – loc. 47: 18497

A mainly coastal plant in the Mediterranean and W Europe, occurring also in Australia (FAO 1998+), in Asia (China: FOC 2011+; Iran: Naqinezhad & Kavousi 2004), in southern Africa (Sim 1915), in North America as subsp. *californicum* (Prantl.) R. T. Clausen (or as an independent species *O. californicum* Prantl) and in South America as subsp. *coriaceum* (Cunn.) Clausen. In the Balkan Peninsula it is scattered from Croatia to Greece (FCD 2004+; Akeroyd & Preston 1987) but has not been known hitherto from Montenegro and Albania.

As a frequently overlooked species (Akeroyd & Preston 1987) it may have more localities in Albania especially in the limestone based "Albanian Riviera".

## Spermatophytes

### Monocotyledons

#### Commelinaceae

\* *Commelina communis* L. – loc. 19: 18506

An E Asian species naturalised in North America (Pennell 1937) and casual in many parts of S and C Europe. In the Balkan Peninsula it is known from Bulgaria (Assyov & Petrova 2006), Croatia (FCD 2004+) and Montenegro (Stešević & Petrović 2010), but maybe much more frequent as a casual alien.

Our record is from an extended landfill with a lot of debris, so it will likely be only a casual escape from cultivation, but may emerge elsewhere around inhabited areas in Albania.

#### Cyperaceae

\* *Carex cespitosa* L. – loc. 38: 15375

An Eurasian species distributed from Europe to China (Chater in Tutin & al. 1980; Lunkai & al. 2010). Scattered in the N part of the Balkan Peninsula including Bulgaria (Assyov & Petrova 2006; Hájek & al. 2007), Croatia (FCD 2004+), Slovenia (Martinčič in Martinčič & al. 2007) and Serbia (Jovanović-Dunjić in Josifović 1976), but not known from the S part of the peninsula.

Our record comes from the NE part of Albania, near the Kosovan border.

*Carex ericetorum* Pollich – loc. 2: 13465

Distributed in most of Europe, but rare or missing from the SE. It has only one record from Greece near the Albanian border (Pavlidis 1997).

Earlier Qosja (1973) reported it from the Korça region without exact location as a rare plant in forests and pastures. Thereafter the species has never been reported from Albania. Our record confirms its presence in the country.

\* *Carex michelii* Host – loc. 10: 17187, loc. 12: 17143

A character species in E Europe of semidry grassland (Horváth 2010) and forest communities (Roleček 2005), but very rare in C and W Europe (Gaggermeier 1986).

In the neighbouring countries it is known only from Montenegro (Hadžiablahović 2010). Our records from the border area of Albania with Kosovo (the eastern half of Mt Patrik belongs to Kosovo, the western half to Albania) are new records for both Albania (site 10, c. 350 m W of the state border) and Kosovo (site 12, c. 20 m E of the state border; according to the borderline as marked on Google Earth). See also *Ranunculus illyricus* and *Globularia punctata*.

\* *Carex umbrosa* Host – loc. 27: 16627

An Eurasian species distributed from N Europe to China (Chater in Tutin & al. 1980; Lunkai & al. 2010). It is scattered in the northern Balkan Peninsula including Bulgaria

(Assyov & Petrova 2006; Hájek & al. 2007), Croatia (FCD 2004+), Serbia (Jovanović-Dunjić in Josifović 1976) and Slovenia (Martinčič & al. 2007) and recently was found also in Greece near the Macedonian border (Strid 2006).

According to Strid (2006) subsp. *umbrosa* is known on the Balkan Peninsula only from Greece while subsp. *huetiana* (Boiss.) Soó also from elsewhere in the peninsula. Our plants with erect leaves equalling or exceeding the stem belong to subsp. *umbrosa*.

An open serpentine grassland as the habitat of *Carex umbrosa* may seem somewhat unusual, but the hollows in the serpentine slopes can preserve water for months ensuring a suitable microhabitat for the species.

\* *Eleocharis carniolica* W. D. J. Koch – loc. 5: 15790

A rare species with a very restricted distribution area in Europe, redlisted or protected in all European countries (Lastrucci & Becattini 2007). It is also a remarkable so called “community interest” species of the Natura 2000 ecological network. No records are known from any of the neighbouring countries (Janković in Josifović 1976; Zukowski 1993), the nearest known localities being in C Bulgaria (Thracian plane; Assyov & Petrova 2006) and Bosnia (Beck 1904). The Albanian locality appears to be the southernmost of its range.

Contrary to the usual habitats (mud vegetation, temporary waters, flooded arable lands) and vertical distribution (preferably a lowland plant, Assyov & Petrova 2006), the Albanian occurrence is in a shallow depression on serpentine baserock with more or less closed vegetation at an elevation of nearly 1700 m above sea level.

*Kobresia myosuroides* (Vill.) Fiori – loc. 23: 17963a

It is one of the 77 Arctic-Alpine species of the Balkans and one of the 49 Arctic-Alpine species occurring in common in the Pyrenees, the Alps, the Apennines, the Carpathians and the Balkans (Stevanović & al. 2009). According to Stevanović & al. (2009), the species is not distributed southwards of the line of Šar planina–Rudoka–Korab–Rila–Pirin Mts. It is known from the Prokletije Mts in many locations near the Albanian border in Montenegro, Kosovo and Macedonia (Stevanović & al. 2009).

Our record, confirming its presence in Albania, is from the North, from the peak of Mali i Snoit, where *Kobresia myosuroides* is restricted to a very small area.

The only previous report for Albania is by Paparisto & Qosja (1981) from Thatë Mts. Vangjeli & al. (2000) and Vangjeli (2003) probably refer to the same record, which is localised in the southeasternmost part of Albania and would be the southernmost isolated locality in the Balkans (Stevanović & al. 2009). Since, Thatë Mts are extremely dry and under continental climatic influences, today without any Arctic-Alpine species, the occurrence of *Kobresia myosuroides* there seems very doubtful and is perhaps erroneous.



## Lemnaceae

*Lemna gibba* L. – loc. 25: 18059, det. A. Mesterházy; loc. 43: 18223

A cosmopolitan aquatic plant widely distributed in Europe. Presumably because of the lack of any previous records, the species is treated as occurring questionably in Albania (Lawalrée in Tutin & al. 1980). Somewhat later, Demiri (1983) reported it without exact locations, and it was also included in the Euro-Med Plant Base (2006+), but is neglected in the new Albanian floras.

Our records, which confirm its presence in Albania, are from different parts of the country, so the species may be more widely distributed in Albania.

## Liliaceae

*Asparagus officinalis* L. – loc. 11: 17149

Valdés (in Tutin & al. 1980) listed this widely distributed European species as questionable for Albania, supposedly because of missing earlier records. Papparisto & Qosja (1981) reported it from the coasts of Albania (“Në shkurreta dhe ranishte bregdetare” = in shrubby and sandy places at the seashore), however, regarding the habitat, this report is likely erroneous and probably refers to the similar *Asparagus maritimus* (L.) Mill., which is quite frequent along the sandy seashores of Albania. Later Vangjeli & al. (2000) and Vangjeli (2003) discuss *A. officinalis*, but, lacking new records, most probably on the basis of Papparisto & Qosja (1981). Our record confirms its presence in Albania.

\* *Colchicum bivonae* Guss. – loc. 30: 18479

A southern European bulbous plant species distributed from Sardinia and Sicily to Turkey (Akan 2005), including the southern Balkan Peninsula (Greece, SW Bulgaria and Macedonia: Euro+Med 2006+; Assyov & Petrova 2006; Vandas 1909).

Our record is from the southern part of the country near the Greek border, where only a few individuals were found in an open karst plain.

## Poaceae

*Agropyron cristatum* (L.) Gaertn. – loc. 16: 17337

A continental species, becoming rare (Escobar García & Ruiz Téllez 2000), threatened (Maglocký in Čeřovský J. & al. 1999; FCD 2004+) or adventive (Boger 1992; Kerguelen & al. 1989) towards western Europe. It is an introduced and widely distributed species in North America (Heidinga & Wilson 2002; Fansler & Mangold 2010).

The species has been known from Macedonia (Vandas 1909) and N and C Greece (Abraham & al. 2010), but so far not from the territory of Albania.

\* *Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult. – loc. 45: 18495

A species with mainly tropical-subtropical distribution,

extending to the W and C Mediterranean in Europe (Clayton in Tutin & al. 1980; Chen & Phillips 2006). In the Balkan Peninsula it has been known only from Croatia as a redlisted species (FCD 2004+) and was very recently found in Montenegro (Hadžiablahović 2006, 2010; Stešević & al. 2008).

Our first record for Albania is from the limestone coast of the Adriatic Sea, where it is restricted to a small stretch of the Albanian Riviera.

## Potamogetonaceae

*Potamogeton praelongus* Wulfen – loc. 34: 18324

An aquatic macrophyte distributed in the northern hemisphere, including North America (Haynes & Hellquist 2000), Europe (Valentine in Tutin & al. 1980), Asia (Guo & al. 2010) and even Greenland (Bennike & Anderson 1998). In the Balkans it is known from Bulgaria (Assyov & Petrova 2006), Montenegro (Pulević 2005) and Bosnia and Herzegovina (Euro-Med 2006+). The species has become very rare because of water pollution.

Our record from N Albania comes from a protected karst spring within the bed of lake Shkodra, from where it was not reported before (Dhora & Rakaj 2010). It is associated there with other freshwater macrophytes such as *Groenlandia densa* (L.) Fourr., which has only a few records from Albania, and *Callitriche lenisulca* Clavaud, which is also new for the flora of Albania (see below).

## Typhaceae

*Typha minima* Funck – loc. 1, loc. 4, loc. 35

A rare and endangered species in much of Europe and the Balkans (FCD 2004+; Făgăraș & al. 2010) or even extinct from many areas (Čeřovský & al. 1999; Király 2007). It has only one locality in Greece (Yannitsaros & Vassiliades 1998, 2003) and was reported just recently from a single locality in the valley of Devoll river (affluent of Shkumbin river) in C Albania (Mullaj & Tan 2010).

We add two more records, one also from the Shkumbin river valley, the other from Osum river, also in C Albania. The presence of the species in other river valleys in Albania is most probable and worth to explore.

## Dicotyledons

### Apiaceae

\* *Bupleurum aequiradiatum* (H. Wolff) S. Snogerup & B. Snogerup – loc. 14: 14291, loc. 15: 14206, loc. 26: 18039, loc. 32: 18281, loc. 36: 10339, loc. 37: 18309

According to Snogerup & Snogerup (2001) the species has a very scattered distribution from Croatia to Greece and Bulgaria or perhaps even to NW Anatolia and the Crimea.

Our records are the first from Albania and come from various parts of the S and SE of the country. The observed habitats range from oak forests to dry grasslands

and roadsides, as was reported also by Snogerup & Snogerup (2001) for the species.

\* *Cyclosporum leptophyllum* (Pers.) F. Muell.; *Heliosciadium leptophyllum* (Pers.) DC., *Apium leptophyllum* (Pers.) F. Müller ex Benth – loc. 3: 18377, loc. 6: 18183

Originating from South America, the species is naturalised worldwide as a pantropical and warm-temperate weed (Ronse & al. 2010). It has been present in Europe and the Mediterranean for a long time: it was reported as early as 1661 from Portugal (Almeida & Freitas 2006), in the beginning of the 19th century from Italy and in 1863 from France (Reduron 2007b). It is present today also in Spain (Knees 2003), Corse (Reduron 2007a), Belgium (Fabri & Lambinon 1991), Greece (Yannitsaros 1982; Arianoutsou & al. 2010) and Israel (Danin & Lamond 1995). It is probably one of the most widespread alien species in Europe but is inconspicuous and often casual.

One of our records is from a typical urban habitat, from the very surrounding of a new hotel (loc. 3) with potted and other exotic ornamental plants. The other locality is far from large settlements at the coast of the Adriatic Sea (loc. 6) on disturbed sandy soil. The localities represent short-lived habitats where the presence of *Cyclosporum* may be just temporary, but spreading on both sites is possible.

\* *Sison amomum* L. – loc. 9: 18305

A W and S European species, used in herbal medicine, distributed from the British Isles to Spain, Greece and Romania and furthermore as an introduced plant in the Crimea (Král 1995). It is present in the Balkan Peninsula but has not been known from Albania.

Our record comes from S Albania from a shrubby and moist degraded edge of a riverine woodland.

### Asteraceae

\* *Evax asterisciflora* (Lam.) Pers. – loc. 13: 14795

The species is known from N Africa and in W Mediterranean Europe from Italy westwards, but its distribution is not clear because of the frequent confusion with other *Evax* species (Holub in Tutin & 1976; Bergmeier 2010).

The collecting locality is situated in the apparently homogeneous, extended hilly flysch region from Tepeleň and Fier northwards to Shkodër, thus more new occurrences may be expected. The species is also new for the Balkan Peninsula.

\* *Senecio angulatus* L. – loc. 31: 16436

Originating from South African and cultivated as an ornamental, the species has escaped in Australia (Newton 1996) and Europe. In Australia and New Zealand it has become a noxious invasive weed (FAO 1998+), in Tasmania it is casual (Buchanan 2009) and in Europe it is a

casual or rarely established alien in the W Mediterranean countries from Portugal to France and Italy (Herrero-Borgoñon 2002, 2009). The only report on the escaping of the species in the Balkan Peninsula is from Croatia (Milović & al. 2010).

Our Albanian record from 2010 is from a rock wall in Sarandë, where we observed large escaped populations in different parts of the town, especially on rock walls.

### Brassicaceae

\* *Brassica cretica* subsp. *aegaea* (Heldr. & Hal.) S. Snogerup & al. – loc. 41: 10915, loc. 48: 16546

A chasmophyte, distributed from Greece eastwards (Snogerup & al. 1990), with scattered occurrences also on Corfu (Snogerup & Snogerup 2002).

Two records of maritime *Brassica* species have so far been published from Albania (Paparisto & Qosja 1976), one from Spile as *B. incana*, the other from Vlorë as *B. oleracea* subsp. *oleracea*. Until now we have found chasmophytic *Brassica* species in Albania in three localities, of which two are the same as of Paparisto & Qosja (1976). In loc. 44 we can confirm the occurrence of *B. incana*, while in loc. 41 and loc. 48 we have collected *B. cretica* subsp. *aegaea*. Because the native distribution of *B. oleracea* subsp. *oleracea* is restricted to the Atlantic coasts of Europe (Snogerup & Snogerup 2002) and we revised the only known Albanian occurrence of this taxa as *B. cretica* subsp. *aegaea*, the report of *B. oleracea* subsp. *oleracea* should be deleted from the (native) flora of Albania.

*Diplotaxis viminea* (L.) DC. – loc. 30: 18475, loc. 46: 18498b

A mostly S European coastal species (Tan 2002) with many temporary stations elsewhere. Ascherson & Kuntz (1877) in their list mentioned it from Albania, but the base of their list is unknown and the area encompassed is not congruent with the present day territory of Albania. None of the later publications adopted this record.

Our records confirm its presence, represent native occurrences and fit well to the area and vertical distribution of the species.

\* *Rorippa xarmoracioides* (Tausch) Fuss – loc. 25: 18062

A hybrid spreading independently of its parents (*R. austriaca* (Crantz) Besser and *R. sylvestris* (L.) Besser). Known from N, C and E Europe, and also from Croatia (FCD 2004+), Serbia (Jovanović-Dunjić in Josifović 1972) and Bulgaria (Assyov & Petrova 2006; Ančev 2007), but not reported from the countries neighbouring Albania (Franzén 1986; Micevski & Matevski 1995).

This first Albanian record is from near the Macedonian border. Similar habitats can be found elsewhere in Albania and especially in the Korçë basin.

### Callitrichaceae

***Callitriche lenisulca*** Clavaud – loc. 33: 18329, det. A. Mesterházy

A Mediterranean species that was long overlooked and omitted from most of the national floras and even from Flora Europaea and Euro+Med PlantBase (Euro+Med 2006+). It occurs from the Balearic Islands eastwards in France, Italy, Greece, S Anatolia (Uotila 1988), Palestine and Israel (Danin 2006+), but the area is insufficiently known because of its late recognition and deficient data on its distribution (Landsdown 2006).

Our record from N Albania comes from a protected karst spring within the bed of lake Shkodra, where the species was not noticed before (Dhora & Rakaj 2010). Further occurrences in Albania are likely.

### Caryophyllaceae

***Dianthus myrtinervius*** Griseb. – loc. 20: 13938

This species, related to *Dianthus deltoides* L., was described from Macedonia and known only from Greece and Macedonia (Strid 1997). Ascherson & Kuntz (1877) and Hayek (1927) reported it also from Albania, but both works refer to the territory of historical Albania, thus the records have not been included in later flora works. However, Jávorka (1926) collected and reported the species (under the name *D. oxylepis* Boiss.) from two localities within the current territory of Albania (Gjallicë and Korab Mts).

Our record, confirming its presence in Albania, is from south of the collecting sites of Jávorka and connects the records from NE Albania with the Greek and Macedonian area of the species.

\* ***Sagina maritima*** Don – loc. 21, loc. 42: 16596

A widespread European and Mediterranean coastal plant and perhaps alien in Australia. Known so far from all Balkan coastal countries except Albania (Clapham & Jardine 1993).

Our first records for Albania are from the sandy coast between Vlorë and Shëngjin; further occurrences are expected in this region.

### Convolvulaceae

***Cuscuta monogyna*** Vahl – loc. 17: 17350, loc. 18: 17280

A Eurasian plant with a large distribution range from E Asia (Fang & Staples 1995) to the European Mediterranean with scattered occurrences in the Iberian Peninsula (Guadalupe & Chueca 1978). Demiri (1983) mentioned its presence in Albania without any exact locations, but it is omitted in all more recent floras of Albania.

Our records confirm its presence. In loc. 18 it was found in great number in extended *Cotinus* scrubland parasitic almost exclusively on *C. coggygria*, while in loc.

17 it was also found in mixed shrubland, parasitic mainly on *Cotinus*, but also on various herbaceous plant and other shrubs (*Jurinea mollis*, *Anthericum liliago*, *Ziziphora capitata*, *Convolvulus althaeoides*, *Sorbus torminalis*, *Quercus trojana*, *Fraxinus ornus*, etc.).

### Globulariaceae

\* ***Globularia punctata*** Lapeyr. – loc. 10: 17185

A scattered species in C and S Europe known from all Balkan countries (Millett & Strid 1991; Vandas 1909; FCD 2004+) except Albania.

The locality on Mt Pashtrik is at the border of Albania and Kosovo, where *Globularia punctata* occurs closely together with *Carex michelii* and *Ranunculus illyricus*.

### Orobanchaceae

\* ***Orobanche hederæ*** Duby – loc. 7: 18174

A widely distributed broomrape species, occurring in W Europe and the Mediterranean region, eastwards extending to Iran and the Caucasus (Kreutz 1995) in correlation with the distribution of its only host plant, *Hedera helix* (Metcalfe 2005). In the Balkan Peninsula today it is known from Croatia (FCD 2004+), Montenegro (Pulević 2005) and Greece (Beck 1890).

Our first record from Albania is from a protected lowland riverine woodland, with large plots in the herb layer homogeneously covered by *Hedera helix*. The site was visited in August, when a high number of dry stalks was observed within and collected from the dense mesh of Common Ivy.

### Ranunculaceae

\* ***Ranunculus illyricus*** L. – loc. 10: 17186

A C and SE European species with many records from the neighbouring Greece and Macedonia. Albania so far was the only Balkan country without any report of the species.

Our record comes from the mountainous border area of Albania and Kosovo, just a few hundred metres from the borderline. Only vegetative plants were observed and dug out and have been partly preserved as herbarium specimens, partly cultivated at BP. *Ranunculus illyricus* has a very characteristic appearance even in young, vegetative state. Its basal leaves are sericeous and 3-fid with long linear-lanceolate segments and it has ovoid tubers, upon which it can be easily distinguished from any other taxon even without flowers.

The flora of Mt Pashtrik comprises many E European species and is unique in Albania (Rakaj 2009; see also *Globularia punctata* and *Carex michelii*). *Ranunculus illyricus* fits into this floristic group, which appears to be restricted to a small area in or around Mt Pashtrik in NE Albania.



### Scrophulariaceae

#### \* *Veronica peregrina* L. – loc. 28: 18469

An American species widely naturalised and scattered in W and C Europe. While the species is known from the Hungarian section of river Danube (Polgár 1927) and is a rare but scattered species in the mud vegetation of especially the Danube in Hungary (Király & Fischer 2009), it was discovered in the lower section of Danube in Croatia only in the recent past (Topić & Ilijanić 2003) and is known from the Balkan Peninsula only from Bulgaria (Assyov & Petrova 2006).

Our record is from the southernmost part of Albania from the dried shore of a natural lake with a number of mud species rare in Albania (*Corrigiola litoralis* L., *Crypsis alopecuroides* (Piller & Mitterp.) Schrad., *C. schoenoides* (L.) Lam., *Cyperus michelianus* (L.) Link, *Filaginella uliginosa* (L.) Opiz and *Glinus lotoides* L.). The isolated occurrence of this alien plant increases the possibility of its occurrence also in other parts of Albania.

### Thymelaeaceae

#### *Thymelaea hirsuta* (L.) Endl. – loc. 39: 14473, loc. 41: 13065

A Mediterranean species known in the Balkan Peninsula only from Greece and Croatia (FCD 2004+). It is a threatened and declining species in many parts of its European area (Minuto & al. 2004; FCD 2004+; Euro+Med 2006+).

Although Dimitrov (1997) reported it from the vicinity of Vlorë, it is omitted in more recent Albanian floras. Our records confirm its presence in Albania and are from only c. 5–6 km NW of the occurrence reported by Dimitrov (1997).

### Valerianaceae

#### *Valerianella turgida* (Steven) Betcke – loc. 8: 15027, loc. 24: 9355

A sub-Mediterranean–SE European species more frequent in the eastern Balkan Peninsula, in Bulgaria, Serbia, Kosovo and Greece (Assyov & Petrova 2006; Stanković & al. 2008), but missing from Croatia and Montenegro (FCD 2004+).

Although Paparisto & Qosja (1978) reported this species from Tirana, and Qosja & al. (1996) and Vangjeli (2003) both adopted this record, Demiri (1983) omitted it. Our records confirm its presence in Albania.

### Discussion

Many of our new records come from the NE part of Albania, a region studied by many botanists in the 20th century (Jávorka 1926; Košanin 1913; Markgraf 1931; Bornmüller 1937; Dörfler & Zerny in Hayek 1924). Most of these visits were connected to the operations of the

Austro-Hungarian army in World War I, thus were not long-lasting and mainly restricted to the (late) summer. Our field trips to the same places in May resulted in several new species for the Albanian flora. The phytogeographic significance of this region is its high number of eastern, continental or Central European species, most of them restricted to the Kukës region. Among our new records these are *Carex michelii*, *Agropyron pectinatum*, *Cuscuta monogyna*.

The coasts of Albania were studied mainly by local botanists in the second half of the 20th century, but from the c. 476 km long coastline still some new occurrences were reported in the recent past (Barina & al. 2010). Also the present paper adds more species from the coast to the flora of the country. A few of them are widely distributed coastal plants, known from all neighbouring countries (*Sagina maritima*) or scattered along the Balkan coasts (*Diplotaxis viminea*, *Ophioglossum lusitanicum*, *Heteropogon contortus*), while others have a restricted distribution in coastal areas of the Balkan Peninsula (the chasmophyte *Brassica cretica* subsp. *aegaea*, *Callitriche lenisulca*, *Colchicum bivonae*, *Orobancha hederæ*, *Thymelaea hirsuta*) or were not known from there earlier (*Evax asterisciflora*).

More adventive species are also reported. While the escaping of *Commelina communis* also in Albania is not surprising, the discoveries of *Senecio angulatus*, *Cyclospermum leptophyllum* and *Veronica peregrina* are significant reports for the distribution of these species in Europe.

The other reported taxa differ with respect to ecology and distribution. The discovery of *Lycopodium annotinum* in Albania represents only a slight extension of its range, whereas the localities for *Eleocharis carniolica* and *Rorippa xarmoracioides* in S Albania are quite isolated.

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