



Original Scientific Paper

## New records and noteworthy data of plants, algae and fungi in SE Europe and adjacent regions, 13

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### ABSTRACT:

This paper presents new records and noteworthy data on the following taxa in SE Europe and adjacent regions: brown alga *Heribaudiella fluviatilis*, red alga *Batrachospermum skujae*, saprotrophic fungus *Gnomonia geranii-macrorrhizi*, mycorrhizal fungi *Amanita alseides* and *Russula griseascens*, liverwort *Ricciocarpos natans*, moss *Blindia acuta*, *Leucodon sciuroides* var. *morensis* and *Pseudostereodon procerrimus*, monocots *Allium ampeloprasum*, *Carex ferruginea* and *Carex limosa* and dicots *Convolvulus althaeoides*, *Fumana aciphylla*, *Hieracium petrovae*, *Lamium bifidum* subsp. *bifidum* and *Ranunculus fontanus* are given within SE Europe and adjacent regions.

### Keywords:

new report, *Allium ampeloprasum*, *Amanita alseides*, *Batrachospermum skujae*, *Blindia acuta*, *Carex ferruginea*, *Carex limosa*, *Convolvulus althaeoides*, *Fumana aciphylla*, *Gnomonia geranii-macrorrhizi*, *Hieracium petrovae*, *Heribaudiella fluviatilis*, *Lamium bifidum* subsp. *bifidum*, *Leucodon sciuroides* var. *morensis*, *Pseudostereodon procerrimus*, *Ranunculus fontanus*, *Ricciocarpos natans*, *Russula griseascens*, SE Europe

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***Allium ampeloprasum* L., fam. Amaryllidaceae  
(monocot, vascular plant)****Contributor:** Georgi KUNEV**Geographical focus:** Bulgaria**New records and noteworthy data:** New region and first record from Pirin Mts. (STOYANOV *et al.* 2021) for a species that has been documented mostly from the Bulgarian Black seacoast while inland gatherings are more seldom.**Specimens data:** SW Bulgaria, Blagoevgrad District, Mts. Pirin Mt (Southern), Kalimantsi, MGRS 35T GL09, 1) N 41.45720°, E 23.45789°; 2) N 41.45766°, E 23.45622°, 212–216 m a.s.l., with flowers, 19 June 2022; leg./det. Kunev G.**Vouchers:** Herbarium at the University of Sofia (SO) 108186, 108187; Herbarium at the Institute of Biodiversity and Ecosystem Research (SOM) 177771.

The species has been observed in several microsites along the main road to the village of Kalimantsi, SW Bulgaria. It was noted in shaded spots under the canopy of *Robinia pseudoacacia* L. plantation, in the ditch of the road shaded by different shrubs or vines as *Prunus spinosa* L. and *Clematis flammula* L., or in full sun along the fence of the vineyards. In total, about 40 individuals were counted, all in flowering state.

***Amanita alseides* Hans, fam. Amanitaceae (fungus, mycorrhizal)****Contributors:** Hatıra TAŞKIN and Fuat BOZOK**Geographical focus:** Eastern Balkan Peninsula and Turkey**New records and noteworthy data:** These are the first records of the species from the region of Thrace and Turkey, and also the third occurrence in Southeastern Europe after Bulgaria and Greece, supported by nrITS-barcoded specimen (SESLI & DENCHEV 2014; ASSYOV *et al.* 2021).**Specimens data:** 1) Saray town of Tekirdağ province, Küçükyoncalı village, N 41.415231°, E 28.012181°, in a forest of *Quercus* sp., ca. 180 m a.s.l., 5 November 2021; leg. Taşkın H, Bozok F.; det. Taşkın H, Bozok F.; 2) Saray town of Tekirdağ province, Saray Çamlıköy Natural Park, N 41.5745°, E 28.100867°, in a forest of *Quercus* sp., ca. 90 m a.s.l., 5 November 2021; leg. Taşkın H, Bozok F.; det. Taşkın H, Bozok F.; 3) Babaeski town of Kırklareli province, Çavuşköy village, N 41.508131°, E 27.187281°, in a forest of *Quercus* sp., ca. 111 m a.s.l., 13 June 2021; leg. Taşkın H, Bozok F.; det. Taşkın H, Bozok F.; 4) Edirne province, between Doğanköy and Demirköy villages, N 41.9444°, E 26.68555°, in a forest of *Quercus* sp., ca. 180 m a.s.l., 5 November 2021; leg. Taşkın H, Bozok F.; det. Taşkın H, Bozok F.**Vouchers:** Mycological Collection of the Department of Biology, Osmaniye Korkut Ata University, FBozok1146 (GenBank OQ346095), FBozok1149 (GenBank

OQ440801), FBozok1155 (GenBank OQ448207), FBozok1075 (GenBank OQ440779), FBozok1095 (GenBank OQ440800).

The pileus color of *A. alseides* may apparently vary considerably, ranging from gray to dark brown (HANSS & MOREAU 2020; ASSYOV *et al.* 2021; KIBBY & ROGERSON 2021) and this corresponds to the variability observed in the Turkish specimens. HANSS & MOREAU (2020) and ASSYOV *et al.* (2021) found that brownish-colored specimens differ by one insertion and it was suggested by the latter paper that this coloration may be due to environmental factors. ITS sequences of our brownish-colored collections include one insertion as well, but in different position than in the original specimens.

The protocol of BOZOK *et al.* (2020) was followed for DNA isolation and sequencing of the nrITS-region from Turkish material. Four of the sequences are completely identical and FBozok1095 differs from the rest by three base pairs. The initial BLAST search returned as close matches several publicly available on GenBank sequences of *A. alseides*. Among these, MN490649 from the holotype showed 99.83% identity at 94% cover, with one indel for the four sequences and 99.31% identity at 92% cover, with three indels for FBozok1095. These differences are negligible and the comparison confirms the identity of our collection as *A. alseides*.

This still little-known species has been reported from Bulgaria (ASSYOV *et al.* 2021), France (HANSS & MOREAU 2020), Greece (ASSYOV *et al.* 2021), Italy (HANSS & MOREAU 2020; NICOLETTI *et al.* 2021), and the United Kingdom (KIBBY & ROGERSON 2021), all molecularly confirmed. In this study, the first record of *A. alseides* from Türkiye is presented, with all collections originating from the European part of this country. This, along with the previously reported specimens (ASSYOV *et al.* 2021), suggests that *A. alseides* is probably widespread species in the Balkan countries, which remained unnoticed so far.

***Batrachospermum skujae* Geitler, fam. Batrachospermaceae (red algae)****Contributors:** Sanja ŠOVVAN and Ana KNEŽEVIĆ**Geographical focus:** Bosnia and Herzegovina**New record and noteworthy data:** The first record for Bosnia and Herzegovina.**Specimen data:** Crna Rijeka River, N 45.040556°, E 16.910556°, 561 m.a.s.l.; 27 May 2022; leg. Šovran S.; det. Knežević A.**Voucher:** Herbarium of the Institute of Botany and Botanical Garden Jevremovac, University of Belgrade, Department of Algology, Micology and Lichenology – algae wet collection (BEOU) 6641.

This is the first record of freshwater red algae *B. skujae* in Bosnia and Herzegovina. The material was sampled

in May, in Crna Rijeka River. In the moment of sampling the water was neutral (7.22), well-aerated (9.43) and moderately cold (14.3°C). *B. skujae* has been recorded in clean and fast flowing water in some European countries: Germany, Latvia, Spain, Finland, Portugal, Sweden (KUMANO 2002; ELORANTA *et al.* 2011; KNAPPE & HUTH 2014) so far.

Plants were monoceius, green-gray to green-purple, very branched and extremely mucilaginous. The thallus length ranged 1,5 to 5 cm. The length of internodes ranges from 120 to 430 µm and the width varies from 40 to 60 µm. Nodi were spherical to barrel shaped. 280–600 µm in diameter. Carpogonium was 23–30 µm long and 3–6 µm wide. Carposporophytes were spherical, 50–135 µm in diameter.

This species is considered rare in Europe (KUMANO 2002; ELORANTA *et al.* 2011; KNAPPE & HUTH 2014) and it is included on the Red Lists of some European countries (SIEMIŃSKA *et al.* 2006; FOERSTER *et al.* 2018). At present, there are no protected species of freshwater red algae in Bosnia and Herzegovina, although their habitats are highly threatened.

***Blindia acuta* (Hedw.) Bruch & Schimp., fam. Seligiariaceae (moss, bryophyte)**

**Contributors:** Žan L. CIMERMAN and Simona STRGULC KRAJŠEK

**Geographical focus:** Slovenia

**New record and noteworthy data:** Confirmation of old records from Pohorje.

**Specimen data:** Štajerska, Pohorje, NW of Rogla, N 46.468212°, E 15.305321°, overhanging cliff along a forest path, wet silicious rocks, 1400 m a.s.l.; 2 September 2021; leg./det. Cimerman ŽL.

**Voucher:** Herbarium of the University of Ljubljana (LJU), s/n.

*Blindia acuta* forms dark green or yellowish-green tufts on moist acidic rocks frequently washed over by water. It can also be found on rocks beside streams and flushes. Its leaves are lanceolate to subulate and 2–3 mm long, with minute differences between the dry and fresh states. The costa is the main constituent of the narrow entire or finely denticulate subula that arises from the ovate basal part of the leaf. It has distinctive orange-brown alar cells. Unlike the other species of this genus, *B. caespiticia* (F. Weber & D. Mohr) Müll. Hal., the capsules of *B. acuta* are more or less exserted and have an ovoid or pyriform shape (SMITH 2004; HODGETTS 2010).

*Blindia acuta* is a Circumpolar Boreo-arctic Montane species (SMITH 2004) present in many European countries. Its conservation status on the European level is of Least Concern (LC), which is the case also in Slovenia and its neighbouring countries, except in Hungary, where it is considered DD (HODGETTS & LOCKHART 2020).

Until now, there were only 4 recent records for *B. acuta* in Slovenia, one from Karavanke Alps (MARTINČIČ 2014), one from Kozjak (MARTINČIČ 2010) and two from Smrekovec, Kamnik-Savinja Alps (MARTINČIČ 1992, 2008). We found *B. acuta* on Pohorje, where all records are more than 100 years old (BREIDLER 1891; GLOWACKI 1908). We assume the species is more common in Slovenia in areas with siliceous bedrock but probably overlooked, mainly because of its superficial resemblance to some other moss species.

***Carex ferruginea* Scop., fam. Cyperaceae (monocot, vascular plant)**

**Contributors:** Nevena KUZMANOVIĆ and Predrag LAZAREVIĆ

**Geographical focus:** Serbia

**New records and noteworthy data:** These are the first records for Serbia (out of Kosovo and Metohija province), and confirmation of its presence for the Kosovo and Metohija province (Metohija region).

**Specimens data:** 1) Central Serbia, Mt. Kopaonik, Nebeske stolice, N 43.264944°, E 20.834254°, spring vegetation, 1762 m a.s.l., 22 July 2020; leg. Kuzmanović N, Lazarević P, Stevanoski I.; det. Kuzmanović N, Lazarević P.; 2) Central Serbia, Mt. Kopaonik, Nebeske stolice, N 43.263388°, E 20.835804°, spring vegetation, 1746 m a.s.l., 22 July 2020; leg. Kuzmanović N, Lazarević P, Stevanoski I.; det. Kuzmanović N, Lazarević P.; 3) Kosovo & Metohija province, Metohija, Mt. Šar Planina, Prevalac, from hunting house towards Virovi, N 42.160092°, E 21.001745°, mire, 2040 m a.s.l., 24 July 2009; leg./det. Lazarević P.; 4) Kosovo & Metohija province, Metohija, Mt. Šar planina, Ošljak, Virovi, MGRS 34T DM87, 12 July 1997; leg. Petković B, Krivošej Z.; det. Kuzmanović N.

**Vouchers:** Herbarium of the Institute of Botany and Botanical Garden “Jevremovac”, University of Belgrade (BEOU), vascular plant collection, Department of Plant Ecology and Phytogeography 54945, 54946, 54497; Department of Morphology and Systematics of Plants 61399.

*Carex ferruginea* is a perennial, usually with creeping rhizomes, distributed in the Alps, the Jura Mountains, the Southern Carpathians, mountains of South Europe from N Spain to SW Bulgaria and part of the Balkan Peninsula (CHATER 1980). It inhabits grassy and rocky habitats in the subalpine and alpine belts, on steep, seasonally wet slopes, and is the dominant species of the Alpine-Carpathian *Caricion ferruginae* G. Br.-Bl. et Br.-Bl. in G. Br.-Bl. 1931 alliance (MUCINA *et al.* 2016). In Serbia, it was known only from several localities in Kosovo & Metohija province, Metohija region: Mts. Prokletije – Alm Kurvala, Mt. Šar planina: Stojkova Kuća – Jezerska Čuka, Jezerska Planina (Kodža Balkan) (RECHINGER 1935; JOVANOVIĆ-DUNJIĆ 1976; NIKOLIĆ & DIKLIĆ 1979; BUDAK 1986). In the latest checklist of vascular plants of

Serbia, for the Kosovo & Metohija province only literature records were cited, while for the rest of the Serbian territory it is classified as not being present (NIKETIĆ & TOMOVIĆ 2018). During the field surveys of wetlands on Mt. Kopaonik, it was found in small fragments of the vegetation of springs (*Caricetum ferrugineae* prov., *Carici ferrugineae-Willemetietum stipitatae* prov.). It was also recorded and observed as scattered within mire and spring vegetation on Mt. Šar Planina. The records provided here based on the herbarium specimen deposited at BEOU are the first records for Serbia proper and confirmation of its presence in the Kosovo & Metohija province.

***Carex limosa* L., fam. Cyperaceae (monocot, vascular plant)**

**Contributor:** Boris ASSYOV

**Geographical focus:** Bulgaria

**New records and noteworthy data:** This is the third locality of *Carex limosa* in Bulgaria (STOEVA 2015).

**Specimen data:** Blagoevgrad Province, Yakoruda municipality, Mts. Rila, Yakorudski Ezera lakes circus, N 42.083217°, E 23.611758°, in a *Sphagnum* mire, ca. 2005 m a.s.l.; 29 July 2019; leg./det. Assyov B. The species was further observed through 2020 and 2022.

**Voucher:** Herbarium of the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences (SOM) 178101.

*Carex limosa* is known to be extremely rare species in the Balkan Peninsula, with about 15 extant localities known in Bosnia and Herzegovina, Bulgaria, Croatia, Serbia, Greece and Montenegro (PERIĆ *et al.* 2018). In Bulgaria it was recorded so far from merely two sites – in Mt. Vitosha and Mts. Central Rodopi (STOEVA 2015) and is considered to be with threat category ‘endangered at national level’ (ANCHEV *et al.* 2009; STOEVA 2015). Here we present a new Bulgarian locality, in Mts. Rila, considerably distant from the two known. In the Balkans, the species is apparently relict, documented to inhabit mostly secluded glacial refugia in high mountains (PERIĆ *et al.* 2018) and the new population conforms well to this habit. It covers about 200 m<sup>2</sup> and seems vulnerable due to ongoing natural succession and widespread in the area grazing of livestock, the latter being particularly possible in this mire during years with low water-table.

***Convolvulus althaeoides* L., fam. Convolvulaceae (dicot, vascular plant)**

**Contributor:** Georgi KUNEV

**Geographical focus:** Bulgaria

**New records and noteworthy data:** New site for a ‘Critically Endangered’ species in Bulgarian flora.

**Specimen data:** NW Bulgaria, Vidin District, The Danubian Plain, SW from Florentin, MGRS 34T FP48, N 44.13477°, E 22.83786°, in pastures and abandoned crop

fields, 80 m a.s.l., with flowers, 28 June 2022, leg./det. Kunev G.

**Vouchers:** Herbarium at the University of Sofia (SO) 108190.

In Bulgaria, the species has been known up to now from two localities with 100-150 and 1500-2000 individuals respectively (VLADIMIROV & VELEV 2014), which underlines its ‘Critically Endangered’ status (VLADIMIROV 2015). The current report discusses a new local population of the species. It was observed approximately 1.5 km in SE direction from the already know locality between Novo selo and Florentin villages, Vidin District (VLADIMIROV & VELEV 2014), less than 20 km in East from the borderline with Serbia. The subpopulation is delimited by the loci with coordinates in WGS 84: 1) N 44.13476°, E 22.83283°; 2) N 44.13451°, E 22.83281°; 3) N 44.13416°, E 22.83900°; 4) N 44.13521°, E 22.83812°. It covers approximately 3 ha and has mosaic structure with groups of several tens to several hundreds of individuals. The population density at certain spots reaches up to 20 ind./m<sup>2</sup>. Based on approximation, it could be concluded, that the total number of individuals for the whole area reaches 3000. However, additional research based on the standard methodology for monitoring of the National Biodiversity Monitoring System (ExEA: <https://eea.government.bg/bg/bio/nsnbr>) is required in order to estimate its actual population density and to re-evaluate extinction risk.

At the newly established area the species inhabits pastures, abandoned crop fields and waste places, associate with *Chrysopogon gryllus* (L.) Trin., *Bothriochloa ischaemum* (L.) Keng, *Galium verum* L., *Daucus carota* L., *Xeranthemum annuum* L., *Euphorbia cyparissias* L., *Festuca valesiaca* agg., *Medicago falcata* L., *Consolida regalis* Gray, *Petrorhagia prolifera* (L.) P.W. Ball & Heywood, *Silene gallinyi* Heuff. ex Rchb., *S. conica* L., and some others. Moderate grazing of goats has been observed at the area. Garden and solid waste dumpsite is also situated within the borders delimited by the above-mentioned coordinates.

***Fumana aciphylla* Boiss., fam. Cistaceae (dicot, vascular plant)**

**Contributor:** Georgi KUNEV

**Geographical focus:** Bulgaria

**New records and noteworthy data:** The second locality for the species in the country.

**Specimen data:** S Bulgaria, Kardzhali District, The Rhodopes (Eastern), SW from Golyamo Kamenyane, MGRS 35T LF98, N 41.40165°, E 25.70014°, open stony slopes, serpentine substrate, 325 m a.s.l.; with flowers and unripe fruits, 28 May 2022; leg./det. Kunev G.

**Vouchers:** Herbarium at the University of Sofia (SO) 108179; Herbarium at the Institute of Biodiversity and Ecosystem Research (SOM) 177693.

*Fumana aciphylla* is an East Mediterranean element described from Asiatic Turkey (BOISSIER 1867). The western border of its range reaches SE Europe, on the Balkans. On the European continent, it is known from few localities in North and Central Greece (HAUSSKNECHT 1893; GREUTER W & RAUS 1984; BABALONAS 1989; TAN & STRID 2008; CARRIÓ *et al.* 2020; GBIF 2022) and just one in South Bulgaria (KUNEV 2020), where it is found exclusively on ophiolitic substrates.

In its second locality in the country, the species is presented with numerous individuals and stable local populations. It forms small monodominant stands of up to 10 m<sup>2</sup>, diffusely dispersed on slopes with inclination between 5–50° or it is associated with some typical serpentinophytes in chamaephytic communities. The general physiognomy of these communities is defined by the participation of several local endemics and species with restricted distribution in Bulgaria, such as *Convolvulus boissieri* Steud. subsp. *compactus* (Boiss.) Stace, *Fumana bonapartei* Maire & Petitm., *Thymus jalsianus* Soyanov & Marinov, *Onosma kittanae* Strid, *Aethionema rhodopaeum* D.K. Pavlova, *Silene fetlerii* D. Pavlova, *Linum tauricum* Willd. subsp. *bulgaricum* (Podp.) Petrova and *Cerastium bulgaricum* Uechtr. Constant at these communities were some common species with wider range as *Juniperus communis* L., *Chrysopogon gryllus* (L.) Trin. and *Agropyron cristatum* (L.) Gaertn. subsp. *pectinatum* (M.Bieb.) Tzvelev.

***Gnomonia geranii-macrorrhizi* Fakirova, fam. Gnomoniaceae (fungus, saprotrophic)**

**Contributor:** Dimitar STOJKOV

**Geographical focus:** Greece

**New records and noteworthy data:** This is the first record of *Gnomonia geranii-macrorrhizi* in Greece, and the southernmost collection known so far from the Balkans (FAKIROVA 1995; STOJKOV 2000, 2002; STOJKOV & ASSYOV 2006, 2009; STOJKOV 2005, 2012, 2017).

**Specimen data:** Greece, Mt Olympus, Prionia area, N 40.085167°, E 22.407361°, on petioles from overwintered leaves of *Geranium macrorrhizum* L., alt. 1065 m, 7 June 2018; leg. Assyov B.; det. Stoykov D.

**Voucher:** Bulgarian Academy of Sciences, Mycological Collection of the Institute of Biodiversity and Ecosystem Research (SOMF) 31147.

The first collection of *G. geranii-macrorrhizi* from Greece is composed of dark brown ascomata. It agrees well with the existing data on the species morphology and ecology in the published sources up to date, concerning the form, size, position and morphology of the perithecia and beaks (FAKIROVA 1995; STOJKOV 2012). The examined ascomata in water, under LM, are about 400–560 µm in diameter, with central, dark brownish beaks about 600–700 µm long and up to (65–) 70–90 (–100) µm wide. Peridium cells of the outer layer from the studied asco-

mata are light brown, angular, and generally vary within (3.6–) 5–13 µm in diameter. Another diaporthelean species developed on overwintered stems of *Geranium* L., *Plagiostoma geranii* (Hollós) Sogonov, has smaller ascomata, about (240–) 430–560 µm in diameter, shorter and thinner beaks, generally about 340–550 (–650) × 30–65 (–80) µm, and is restricted in Europe to *Geranium sanguineum* L., *G. sylvaticum* L., and *Geranium* sp. (MONOD 1983; STOJKOV 2000; STOJKOV 2005, 2012; STOJKOV & ASSYOV 2006, 2009; SOGONOV *et al.* 2008).

In Bulgaria, from where the species was first described, *G. geranii-macrorrhizi* is known so far on *Geranium macrorrhizum* from different locations, situated in natural habitats in the Forebalkan, Sofia region, Vitosha region (Vitosha and Ljulin Mts.), Belasitsa Mt., Slavyanka Mt., Pirin Mts., Rila Mts, Sredna Gora Mts., and Rhodopi Mts. (FAKIROVA 1995; STOJKOV 2000, 2002; STOJKOV & ASSYOV 2006; STOJKOV 2012, 2017). Solitary collections occasionally exist in some urban areas, where they were found in private gardens and parks (STOJKOV 2002; STOJKOV 2005, 2012). Outside this country *G. geranii-macrorrhizi* was only documented with one collection in France made by Alain Gardienet (pers. comm.).

***Hieracium petrovae* Vladimirov & Szelağ, fam. Asteraceae (dicot, vascular plants)**

**Contributors:** Zbigniew SZELAĞ and Vladimir VLADIMIROV

**Geographical focus:** Greece

**New record and noteworthy data:** First record from the Island of Thasos.

**Specimens data:** 1) Thasos Island, Mt. Toumpa, SW of TV station, N 40.730°, E 24.665°, calcareous south-facing slope along a road, 1090 m a.s.l., 7 August 2019; leg./det. Szelağ Z, Vladimirov V.; 2) Thasos Island, Mt. Profitis Ilias, N 40.722°, E 24.693°, *Pinus nigra* forest margin on western slope calcareous crevices, 980 m a.s.l., 7 August 2019; leg./det. Szelağ Z, Vladimirov V.; 3) Thasos Island, Mt. Pefkos along a road from Monastery of Agios Pantaleimonas to Mt. Toumpa, N 40.705°, E 24.615°, eroded siliceous slope, 810 m a.s.l. 7 August 2019; leg./det. Szelağ Z, Vladimirov V.; 4) Thasos Island, Mt. Ipsarion, N 40.700°, E 24.705°, siliceous rocks on eastern slope, 1170 m a.s.l., 8 August 2019; leg./det. Szelağ Z, Vladimirov V.; 5) Thasos Island, along a road from Skala Marion village to Mt. Ipsarion, N 40.703°, E 24.648°, calcareous rocks above the Maries Waterfall, 520 m a.s.l., 8 August 2019; leg./det. Szelağ Z, Vladimirov V.

**Vouchers:** Herbarium of the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences (SOM), s/n.

*Hieracium petrovae* is the only diploid species of *Hieracium* sect. *Pannosa* Zahn (VLADIMIROV & SZELAĞ 2003). This Balkan endemic is known from several localities in the Rhodope Mts., both in Bulgaria and Greece (SZELAĞ

& VLADIMIROV 2019). Plants from reported here localities were analyzed kariologically and have been found to be diploid. The occurrence of *H. petrovae* on the Island of Thasos is the southernmost in all geographical range of the species and is disjoined ca. 50 km from the nearest known localities in the Rhodopes.

***Heribaudiella fluviatilis* (Areschoug) Svedelius fam. Lithodermataceae (brown algae)**

**Contributors:** Aleksandra B. RAKONJAC and Snežana B. SIMIĆ

**Geographical focus:** Serbia

**New records and noteworthy data:** The first record for Serbia.

**Specimens data:** 1) Eastern Serbia, Mt. Stara planina, the Rakitska River in the Topli Do village, N 43.343217°, E 22.677865°, 734 m a.s.l.; 20 August 2019, 29 October 2020, 21 October 2021; leg./det. Rakonjac A.; 2) Eastern Serbia, Mt. Stara planina, the Temštica River (upper stream), N 43.296894°, E 22.610648°, 620 m a.s.l.; 29 October 2020, 21 October 2021; leg./det. Rakonjac A.; 3) Eastern Serbia, Mt. Stara planina, the Temštica River in the Temska village, N 43.263317°, E 22.550843°, 393 m a.s.l.; 29 October 2020, 21 October 2021; leg./det. Rakonjac A.

**Vouchers:** Cyanobacteria and algae wet collection (Simić S., Rakonjac A.), Laboratory of the Center for Fishery and Biodiversity Conservation of Inland Waters – Aquarium, Department of Biology and Ecology, Faculty of Science, University of Kragujevac.

*Heribaudiella fluviatilis* is the most widely recognized freshwater brown alga, currently known to be distributed in North America (WEHR 2015; WEHR *et al.* 2019), Europe (ELORANTA *et al.* 2011; WEHR 2016; KOLETIĆ *et al.* 2018), Russia (VISHNYAKOV 2018), Japan (KUMANO & HIROSE 1959) and China (JAO 1941). However, despite wide distribution, the number of its findings is generally low, so the species is usually referred to as a rare species (WEHR 2015).

This is the first record of *H. fluviatilis*, and the second record of freshwater brown algae in Serbia in general (SIMIĆ *et al.* 2019). The species was found as macroscopic aggregations on stony substrates in partial shaded or full sunlight rivers, in fast flowing (1.5–1.8 m/s), cold to moderately cold (5.7–13.2°C), slightly alkaline (7.15–7.63), well aerated (9.47–9.93 O<sub>2</sub> mg/l) waters, with low to moderate conductivity and hardness, and with low concentrations of inorganic nutrients.

The macroscopic thalli were in a form of small disc-shaped brown crusts, 0.5–5 cm in diameter. The entire underside of the thalli adhered to the substratum, and sometimes individual colonies coalesced to cover entire rocky surface. Microscopically, thalli consisted of irregularly branched filaments, densely arranged into several layers of cells, forming a closed crusts. The filament cells

were elongated (20–37 µm long × 9–20 µm wide), containing numerous disc-shaped, rounded or polygonal plastids. Unilocular sporangias were ellipsoid, approximately 20–28 µm long and 15–20 µm wide, containing several plastids, arranged in the apical part of the cell.

Along with *H. fluviatilis*, populations of *Paralemanea annulata* (Kützing) M.L. Vis & R.G. Sheath were detected at all localities. *Hildenbrandia - Heribaudiella* association was detected at the Rakitska and Temštica (downstream) rivers.

Data on the distribution of *H. fluviatilis* in Southeast Europe are very rare. It is known from Greece (ANAGNOSTIDIS 1968), Bulgaria (STOYNEVA *et al.* 2003) and Croatia (KOLETIĆ *et al.* 2018).

***Lamium bifidum* Cirillo subsp. *bifidum*, fam. Lamiaceae (dicot, vascular plant)**

**Contributor:** Georgi KUNEV

**Geographical focus:** Bulgaria

**New records and noteworthy data:** the second floristic region in the Bulgaria where the taxon has been recorded.

**Specimen data:** SE Bulgaria, Blagoevgrad District, Pirin Mt (Southern), W from Rozhen Monastery, MGRS 35T GM00, N 41.53076°, E 23.42082°, 650 m a.s.l., with flowers, 25 April 2022, leg./det. Kunev G.

**Vouchers:** Herbarium at the Institute of Biodiversity and Ecosystem Research (SOM) 177692.

This subspecies has been known up to now only from the Struma Valley (Southern) floristic subregion (STOYANOV *et al.* 2021). At the new locality, a group of five individuals was recorded in a shaded spot at the edge of open woods and shrubs with *Quercus pubescens* Willd., *Carpinus orientalis* Mill. and *Syringa vulgaris* L.

***Leucodon sciuroides* (Hedw.) Schwaegr. var. *morensis* (Schwaegr.) De Not., fam. Leucodontaceae (moss, bryophyte)**

**Contributors:** Aneta D. SABOVLJEVIĆ and Marko S. SABOVLJEVIĆ

**Geographical focus:** Montenegro

**New record and noteworthy data:** Confirmation of presence and the first report for Montenegro after more than 50 years.

**Specimen data:** Forest around fortress Besac near Virpazar, N 42.244295°, E 19.093073°, tree bark, 12 m a.s.l.; 17 Februar 2023; leg./det. Sabovljević AD, Sabovljević MS.

**Voucher:** Herbarium of the Institute of Botany and Botanical Garden Jevremovac, University of Belgrade (BEOU), bryophyte collection Bryo s/n.

*Leucodon sciuroides* var. *morensis* (syn. *Leucodon morensis* Schwaegr.) is a moss taxon morphologically distinguished easily from the typical *Leucodon sciuroides* (Hedw.) Schwaegr. by robustness and cylindrical capsules (FREY *et al.* 2006). In contrast, *L. sciuroides* is

smaller and have oval capsules. This variety is known to be present mainly in Mediterranean to sub-Atlantic region. Molecular analyses showed to have rather few differences and thus it should be considered the same as type species (STECH *et al.* 2011). However, these are based on small number of samples from Spain and UK, and the samples from areas apart from the North Atlantic one were not in focus of this study.

The samples collected in various trunks were significantly bigger compared to those of *L. sciuroides* collected some kilometers away. Additionally they had well developed cylindrical capsule and were easily distinguishable in the field. So the two morphs thrive in some kind of sympatry in this wider area.

With aim to stress diversity of bryophyte flora of Montenegro, we confirm presence of this taxa and report new site since previously it was reported more than 50 years ago. Up to date known localities include Rijeka Crnojevića and Kotor (HÖHNEL 1894) and Prokletije Mt. (Treskavička rijeka) from the collection made between 1961 and 1973 and later reported in MARTINČIČ (2006).

***Pseudostereodon procerrimus* (Molendo) M.Fleisch., fam. Hypnaceae (moss, bryophyte)**

**Contributors:** Beata PAPP and Jovana PANTOVIĆ

**Geographical focus:** North Macedonia

**New record and noteworthy data:** New record for the bryophyte flora of North Macedonia

**Specimen data:** Mts. Jablanica, from Gornja Belica towards Čumin vrv, N 41.221694°, E 20.539889°, alpine zone with limestone rocks, 1723 m a.s.l., 24 June 2018; leg. Papp B, Pantović J, Sabovljević MS.; det. Papp B.

**Voucher:** Department of Botany, Hungarian Natural History Museum, (B) s/n.

*Pseudostereodon procerrimus* is rather rarely reported moss species with circumpolar range. It inhabits wide area from Arctic-montane to southern high mountains. In Europe, it is known from the Apennine and Iberian peninsula, and there is even reports from Sicilian highland (HODGETTS *et al.* 2019). In the Balkans, it is known from Bulgaria, Bosna and Herzegovina, Croatia, Serbia, Slovenia and Romania (ROS *et al.* 2013). The new locality is not only new for the North Macedonia but the southernmost in the Balkans. Since the overall European population seems to be stable (HODGETTS *et al.* 2019), it is not threatened in Europe and no special protection measures are needed apart from monitoring it. The climate change and prolonged drought are considered to have high impact on high mountain species which have no possibility to shift upwards, and this is the case with *P. procerrimus*. Thus, monitoring program is welcomed. In Bulgaria, this species is Critically Endangered (CR), it is Vulnerable (VU) in Britain and Spain, and Data Deficient in Slovenia (HODGETTS 2015).

***Ranunculus fontanus* C. Presl, fam. Ranunculaceae (dicot, vascular plant)**

**Contributor:** Georgi KUNEV

**Geographical focus:** Bulgaria

**New records and noteworthy data:** New sites for an 'Endangered' species in Bulgarian flora.

**Specimens data:** 1) W Bulgaria, Mts. Balkan (Western), E from Petrohan pass, at the side of a rivulet, MGRS 34T FN77, N 43.10581°, E 23.16224°, 1400 m a.s.l., with flowers, 3 July 2022; leg./det. Kunev G.; 2) SW Bulgaria, Mts. Pirin (Northern), on the trail from Bezbog chalet to Popovo lake, damp place near a rivulet, MGRS 35T GM02, N 41.71598°, E 23.51054°, 2240 m a.s.l., with flowers and fruits, 4 August 2022, Kunev G., pers. obs.

**Vouchers:** Herbarium at the University of Sofia (SO) 108188.

The global range of the species is restricted to the Balkans, the South Apennine Peninsula and the islands of Sicily, Malta and Crete (GREUTER & RAUS 2010; BAZOS *et al.* 2011). It is a species of conservation significance being included in Annex I of the Bern Convention. It has been evaluated as 'Data Deficient', although decreasing trends in its global distribution has been also noted (BAZOS *et al.* 2011). The species is rare across its range and it has been given threatened category of 'Endangered' for the territory of Serbia and Bulgaria (RANĐELOVIĆ *et al.* 2010; BAZOS *et al.* 2011; BANCHEVA 2015; VLADIMIROV *et al.* 2015; BERISHA *et al.* 2020). In Bulgaria, it is also listed in Annex 3 of Biological Diversity Act.

The current report concerns four subpopulations within two floristic regions of the country from which no previous records of the species were traced back in floristic references (STOJANOV *et al.* 2021). It is quite possible that the historical data for the occurrence of *Ranunculus ophioglossifolius* Vill. in Petrohan area (STOJANOV *et al.* 1966) concerns actually misidentified individuals of *R. fontanus*. However, no collections from that area were found in the indexed Bulgarian Herbarium institutions for reference and revision.

At the Western Balkan Mts. three microsites were recorded on south facing slopes near Petrohan pass. Not more than 30 individuals in total were noted, all of which were in flowering state. In this particular area, there are many suitable microsites as periodically flooded stream sites, where it is possible for the species to be found.

On the other hand, the subpopulation at Pirin Mts. is extremely vulnerable due to the small numbers of individuals, which were observed on a main touristic trail. It consisted of seven individuals – 5 in flowering and fruiting state and 2 in vegetative state. Interestingly, this particular subpopulation was noted at 2240 m., which extends the vertical limits of the species from previously reported 1900–2000 m (PENEV 1970; BAZOS *et al.* 2011).

***Ricciocarpos natans* Hedw., fam. Ricciaceae (liverwort, bryophyte)****Contributors:** Mihajlo STANKOVIĆ and Marko S. SABOVLJEVIĆ**Geographical focus:** Serbia**New records and noteworthy data:** Species of high conservation interest**Specimen data:** Northwestern Serbia, Zasavica Special Nature Reserve, Ravnje – Prekopac, N 44.9277°, E 19.4175°, on the wet soil in channel, 9 September 2022; leg. Stanković M.; det. Sabovljević MS.**Voucher:** Herbarium of the Institute of Botany and Botanical Garden Jevremovac, University of Belgrade (BEOU), bryophyte collection Bryo s/n.

*Ricciocarpos natans* is a rare floatant thalloid liverwort, found floating in sheltered shallow water of ponds, pools, and swamps that tend to be warm or nutrient enriched, but also terrestrial form could be seen. In Serbia, it was reported from a very few known localities (5), mainly north from the Danube and Sava rivers (PANTOVIĆ *et al.* 2020). The research in some of the known sites did not bring reconfirmation and thus raise the concern of its extinction risk in Serbia. The species is candidate for the new red list of Serbian bryophytes that is in preparation.

This sub-cosmopolitan species of temperate distribution type seems to be infrequent in southern Europe (SERGIO & PORLEY 2019). The appearance of the species is inconsistent over the years due to its habitat requirements, and BISCHLER (2004) reported huge decline in the Mediterranean area. SERGIO & PORLEY (2019) stated confirmation of the species occurrence and distribution in all parts of its known range is needed for the conservation purposes.

The main threat are habitat destruction, climate change and water captivity, but also changes to natural seasonal water-level fluctuations, water quality problems and loss of ponds across its range could be regarded as a problem for the species survival. The species does not tolerate excessive eutrophication competition and natural succession of pools (SERGIO & PORLEY 2019).

In some regions of Europe, gametangia and sporophytes are rarely seen (e.g. Britain and Ireland), and the spread is believed to occur clonally (SERGIO & PORLEY 2019). Though, the Serbian specimen collected in Zasavica Special Nature Reserve beard a lot of sporophytes.

The overall European population trends is reported to be stable (SERGIO & PORLEY 2019), but subpopulations at national and regional level it seems to be in threat i.e. decreasing or unstable and thus are reported to be critically endangered (CR) in Luxembourg and Slovenia; endangered (EN) in Austria, Germany, Latvia and Spain; vulnerable (VU) in Great Britain, Slovakia and Switzerland; near threatened (NT) in Czechia, Hungary, Ireland and Italy; and data deficient (DD) in Bulgaria (HODGETTS & LOCKHART 2020).

***Russula griseascens* (Bon & Gaugué) Marti, fam. Russulaceae (fungus, mycorrhizal)****Contributor:** Boris ASSYOV**Geographical focus:** Bulgaria**New records and noteworthy data:** This is the first record of *Russula griseascens* in Bulgaria (DENCHEV & ASSYOV 2010).**Specimen data:** Mts. Rila, below Malyovitsa ski resort, N 42.218625°, E 23.398214°, in a wooded *Sphagnum* mire, under *Picea abies* H. Karst and *Pinus sylvestris* L., ca 1570 m a.s.l.; 6 October 2021; leg./det. Assyov B.**Voucher:** Mycological Collection of the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences (SOMF) 30816.

Originally described as a variety of *R. emetica* (Schaeff.) Pers. by BON & GAUGUÉ (1975), the self-standing status of *R. griseascens* was demonstrated by VAURAS *et al.* (2016) by the means of molecular phylogenetic analysis of ITS-sequences. It is still a little-known species, preliminary identified in the field by the combination of red pileus, white lamellae, greying stipe and context and acrid taste, as well as by its habitat, i.e. humid places with *Picea* and *Betula*, and *Sphagnum* mosses (BON & GAUGUÉ 1975; BON 1988; SARNARI 1998). The species is reported here for the first time from Bulgaria (DENCHEV & ASSYOV 2010), with the closest so far known record being the one from the Eastern Carpathians in Romania (CHINAN 2010). It is apparently a taxon characteristic for wooded *Sphagnum* mires.

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## REFERENCES

- ANAGNOSTIDIS K. 1968. Untersuchungen über die Salz- und Süßwasser-Thiobiocönosen (Sulphuretum) Griechenlands. *Wissenschaftliches Jahrbuch der Physiko-Mathematischen Fakultät Aristoteles-Universität Thessaloniki* **1**: 406–860.
- ANCHEV M, APOSTOLOVA I, ASSYOV B, BANCHEVA S, DENCHEV CM, DIMITROV D, DIMITROVA D, EVSTATIEVA L, GENOVA E, GEORGIEV V, GORANOVA V, GUSSEV C, IGNATOVA P, IVANOVA D, MESHINEV T, PEEV D, PETROVA A, PETROVA AS, Sopotlieva D, STANEV S, STOEVA M, STOYANOV S, TASHEV A, TOSHEVA A, TSONEVA S, TZONEV R, VITKOVA A & VLADIMIROV V. 2009. Red List of Bulgarian vascular plants. *Phytologia Balcanica* **15**: 63–94.
- ASSYOV B, BOZOK F, YARAR M, SLAVOVA M & TAŞKIN H. 2021. A contribution to *Amanita alseides*, a recently described European species in the section *Vaginatae*. *Botanica Serbica* **45**: 143–148.
- BABALONAS D. 1989. Beitrag zur Flora des serpentinischen Vourinos-Gebirges (Nordgriechenland). *Willdenowia* **18**: 387–398.
- BANCHEVA S. 2015. *Ranunculus fontanus* C. Presl. In: PEEV D, PETROVA AS, ANCHEV M, TEMNISKOVA D, DENCHEV CM, GANEVA A, GUSSEV C & VLADIMIROV V (eds.), *Red Data Book of the Republic of Bulgaria* **1**, p. 588, BAS & MoEW, Sofia, Bulgaria.
- BAZOS I, BUORD S, DELIPEIROU P, GARGANO D, GIGOT G & MONTAGNANI C. 2011. *Ranunculus fontanus*. *The IUCN Red List of Threatened Species* **2011**: e.T165137A5981497. Available at: <https://dx.doi.org/10.2305/IUCN.UK.2011-1.RLTS.T165137A5981497.en> [Accessed 20 December 2022].
- BERISHA N, ČUŠTEREVSKA R, MILLAKU F, KOSTADINOVSKI M & MATEVSKI V. 2020. Contribution to the knowledge on the flora of Mt. Luboten, Sharri Mts., Kosovo. *Thaiszia – Journal of Botany* **30**: 115–160.
- BISCHLER H. 2004. *Liverworts of the Mediterranean. Ecology, diversity and distribution*. J. Cramer, Berlin/Stuttgart, Germany.
- BOISSIER E. 1867. *Flora Orientalis* **1**, (*Fumana* Spach.). Basel/Genève, Switzerland.
- BON M. 1988. Monographic key for European *Russulae*. *Documents Mycologiques* **18**: 1–125.
- BON & GAUGUÉ C. 1975. Novitates: *Russula emetica* var. *griseascens* var. n. *Documents Mycologiques* **5**: 11–13.
- BOZOK F, ASSYOV B, TASKIN H, DOGAN HH & BUYUKALACA S. 2020. Molecular phylogenetic studies of Turkish boletes with emphasis on some recently described species. *Nova Hedwigia* **110**: 99–129.
- BREIDLER J. 1891. Die Laubmoose Steiermarks und ihre Verbreitung. *Mitteilungen des Naturwissenschaftlichen Vereines für Steiermark* **28**: 3–234.
- BUDAK V. 1986. Dopuna flori SR Srbije novim podacima o biljnim vrstama: Flora SR Srbije **8**. In: SARIĆ MR (ed.), *Flora SR Srbije* **10**, pp. 327–336, Srpska Akademija nauka i umetnosti, Beograd, Serbia.
- CARRIÓ E, ENGELBRECHT M, GARCÍA-FAYOS P & GÜEMES J. 2020. Phylogeny, biogeography, and morphological ancestral character reconstruction in the Mediterranean genus *Fumana* (Cistaceae). *Journal of Systematics and Evolution* **58**: 201–220.
- CHATER AO. 1980. *Carex* L. In: TUTIN TG, HEYWOOD VH, BURGESS NA, MOORE DM, VALENTINE DH, WALTERS SM & WEBB DA (eds.), *Flora Europaea* **5**, pp. 290–323, Cambridge University Press, Cambridge, UK.
- CHINAN VC. 2010. Macrofungi from „Tinovul de la Româneşti” peat bog (Dornelor Depression, Romania). *Advances in Agriculture & Botany* **2**: 65–70.
- DENCHEV CM & ASSYOV B. 2010. Checklists of the larger basidiomycetes in Bulgaria. *Mycotaxon* **111**: 297–282 + on-line version. *Mycotaxon Checklists Online* (<http://www.mycotaxon.com/resources/checklists/denchev-v111-checklist.pdf>): 1–76.
- ELORANTA P, KWANDRANS J & KUSEL-FETZMANN E. 2011. Rhodophyta and Phaeophyceae. In: BÜDEL B, GÄRTNER G, KRIENITZ L, PREISIG HR & SCHAGERL M (eds.), *Süßwasserflora von Mitteleuropa*, pp. 1–155, Spektrum Akademischer Verlag Heidelberg/Berlin, Germany.
- FAKIROVA VI. 1995. *Gnomonia geranii-macrorrhizi* sp. nov. from Bulgaria. *Mycotaxon* **54**: 329–334.
- FOERSTER J, KNAPPE J & GUTOWSKI A. 2018. Rote Liste und Gesamtartenliste der limnischen Braunalgen (Phaeophyceae) und Rotalgen (Rhodophyta) Deutschlands. *Naturschutz und Biologische Vielfalt* **70**: 535–564.
- FREY W, FRAHM JP, FISCHER E & LOBIN W. 2006. *The liverworts, mosses and ferns of Europe*. Colchester, Harley, UK.
- GBIF 2022. *Fumana aciphylla* Boiss. In: GBIF SECRETARIAT, GBIF Backbone Taxonomy. Checklist dataset. Available at: <https://doi.org/10.15468/390mei> [Accessed 02 December 2022].
- GLOWACKI J. 1908. Ein Beitrag zur Kenntnis der Laubmoosflora von Kärnten. *Jahrbuch des Naturhistorischen Landesmuseums von Kärnten, Klagenfurt* **28**: 165–186.
- GREUTER W & RAUS T. 1984. Med-Checklist Notulae 9. *Willdenowia* **14**: 37–54.
- GREUTER W & RAUS T. 2010. Med-Checklist Notulae 29. *Willdenowia* **40**: 189–204.
- HANSS JM & MOREAU PA. 2020. Une révision des Amanites «vaginées» (*Amanita* sect. *Vaginatae*) en Europe, 1<sup>re</sup> partie: quelques Amanites argentées. *Bulletin Trimestriel de la Société Mycologique de France* **133**: 67–141.
- HAUSKNECHT C. 1893. Symbolae ad floram graecam: Aufzählung der im Sommer 1885 in Griechenland gesammelten Pflanzen. *Mitteilungen des Thüringischen Botanischen Vereines* **5**: 1–88.
- HODGETTS N. 2010. *Blindia acuta*. In: ATHERTON I, BOSANQUET S & LAWLEY M (eds.), *Mosses and liverworts of Britain and Ireland, A field guide*, p. 544, British Bryological Society, Plymouth.
- HODGETTS NG. 2015. Checklist and country status of European bryophytes – towards a new Red List for Europe. *Irish Wildlife Manual* **84**: 1–125.
- HODGETTS N, BLOCKEEL T, KONSTANTINOVA N, PAPP B, SCHNYDER N, SCHRÖCK C, SERGIO C & UNTEREINER A. 2019. *Pseudostereodon procerrimus* (Europe assessment). *The IUCN Red List of Threatened Species* **2019**: e.T87463049A87796019. Available at: <https://www.iucnredlist.org/species/87463049/87796019> [Accessed 26 November 2022].
- HODGETTS NG & LOCKHART N. 2020. *Checklist and country status of European bryophytes –update 2020*. Irish Wildlife Manuals. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland.
- HÖHNEL F. 1894. Beitrag zur Kenntnis der Laubmoosflora des Kuestenstrisches von Görzer Becken bis Scutari in Albanien. *Oesterreichische Botanische Zeitschrift* **44**: 23–27.
- JAO C-C. 1941. Studies on the freshwater algae of China. VII. *Lithoderma zonatum*, a new freshwater member of the Phaeophyceae. *Sinensia* **12**: 239–244.
- JOVANOVIĆ-DUNJIĆ R. 1976. Rod *Carex* L. In: JOSIFOVIĆ M (ed.), *Flora SR Srbije* **8**, pp. 182–259, Srpska Akademija nauka i umetnosti, Beograd, Serbia.

- KIBBY G & ROGERSON S. 2021. Two *Amanita* species new to Britain. *Field Mycology* **22**: 12–15.
- KNAPPE J & HUTH K. 2014. *Rotalgen des Süßwassers in Deutschland und angrenzenden Gebieten*. Bibliotheca Phycologica 118. J. Cramer, Stuttgart, Germany.
- KOLETIĆ N, ALEGRO A, VUKOVIĆ N, RIMAC A & ŠEGOTA V. 2018. Spotting the Spots: the Freshwater Brown Alga *Heribaudiella fluviatilis* (Areschoug) Svedelius within stream communities of Southeastern Europe. *Cryptogamie, Algologie* **39**: 449–463.
- KUMANO S. 2002. *Freshwater Red Algae of the World*. Biopress Limited, Bristol, UK.
- KUMANO S & HIROSE H. 1959. On the swarmers and reproductive organs of a phaeophyceous fresh-water alga of Japan, *Heribaudiella fluviatilis* (Areschoug) Svedelius. *Bulletin of the Japanese Society of Phycology* **7**: 45–51.
- KUNEV G. 2020. *Fumana bonapartei* and *F. aciphylla* (Cistaceae), new additions to the Bulgarian flora. *Flora Mediterranea* **30**: 339–345.
- MARTINČIČ A. 1992. The Red List of Threatened Mosses (*Musci*) in Slovenia. *Varstvo Narave* **18**(18): 7–166.
- MARTINČIČ A. 2006. Moss flora of the Prokletije mountains (Serbia, Montenegro). *Hacquetia* **5**: 113–130.
- MARTINČIČ A. 2008. Mahovna flora Smrekovškega pogorja (Kamniško-Savinjske Alpe, Slovenija). *Hacquetia* **7**(1): 33–46.
- MARTINČIČ A. 2010. Mahovna flora fitogeografskega podobmočja Dravski Kozjak (Slovenija). *Hladnikia* **25**: 13–30.
- MARTINČIČ A. 2014. Mahovna flora fitogeografskega podobmočja Karavanke (Slovenija). *Hacquetia* **13**(2): 307–353.
- MONOD M. 1983. Monographie taxonomique des *Gnomoniaceae* (Ascomycètes de l'ordre des Diaporthales). I. *Beihefte zur Sydowia* **9**: 1–315.
- MUCINA L, BÜLTMANN H, DIERßEN K, THEURILLAT J, RAUS T, ČARNI A, ŠUMBEROVÁ K, WILLNER W, DENGLER J, GAVILÁN GARCÍA R, CHYTRÝ M, HÁJEK M, DI PIETRO R, LAKUSHENKO D, PALLAS J, DANIÉLS F, BERGMEIER E, SANTOS GUERRA A, ERMAKOV N, VALACHOVUČ M, SCHAMINÉE J, LYSENKO T, DIDUKH Y, PIGNATTI S, RODWELL J, CAPELO J, WEBER H, SOLOMESHCH A, DIMOPOULOS P, AGUIAR C, HENNEKENS S & TICHÝ L. 2016. Vegetation of Europe: hierarchical floristic classification system of vascular plant, bryophyte, lichen, and algal communities. *Applied Vegetation Science* **19**(S1): 3–264.
- NICOLETTI L, GENNARI A, ATZENI M & CORSANICI S. 2021. *Amanita alseides* segnalata in Toscana (Italia). *Micologia e Vegetazione Mediterranea* **36**: 123–130.
- NIKETIĆ M & TOMOVIĆ G. 2018. *Kritička lista vrsta vaskularne flore Srbije 1. Lycopodiopsida, Polypodiopsida, Gnetopsida, Pinopsida i Liliopsida*. Srpska akademija nauka i umetnosti, Beograd, Serbia.
- NIKOLIĆ V & DIKLIĆ N. 1979. Novi podaci o nalazištu biljnih vrsta u Srbiji (VIII). *Glasnik Prirodnjačkog muzeja u Beogradu, Serija B* **34**: 31–44.
- PANTOVIĆ J, VELJIĆ M, GRDOVIĆ S & SABOVLJEVIĆ M. 2020. An annotated list of hornwort and liverwort species of Serbia. *Cryptogamie, bryologie* **41**: 35–48.
- PENEV I. 1970. *Ranunculus* L. In: JORDANOV D (ed.), *Flora Republicae Popularis Bulgaricae* **4**, pp. 119–185, Academiae Scientiarum Bulgaricae, Serdicae, Bulgaria.
- PERIĆ R, ŠKONDRIĆ S & KNEŽEVIĆ J. 2018. First confirmed record of *Carex limosa* L. (Cyperaceae) and community *Caricetum limosae* Br.–Bl. for Nevesinjsko polje (Bosnia & Herzegovina). *Ecologica Montenegrina* **19**: 152–158.
- RANĐELOVIĆ V, ZLATKOVIĆ B, DIMITRIJEVIĆ D & VLAHOVIĆ T. 2010. Phytogeographical and phytocoenological analysis of the threatened plant taxa in the flora of the Vlasina plateau (SE Serbia). *Biologica Nyssana* **1**: 1–7.
- RECHINGER KH. 1935. Ergebnisse einer botanischen Reise in den Bertiscus (Nordalbanische Alpen). *Repertorium Novarum Specierum Regni Vegetabilis* **38**: 319–389.
- ROS RM, MAZIMPAKA V, ABOU-SALAMA U, ALEFFI M, BLOC-KEEL TL, BRUGUÉS M, CROS RM, DIA MG, DIRKSE GM, DRAPER I, EL SAADAWI W, ERDAĞ A, GANEVA A, GABRIEL R, GONZÁLEZ-MANCEBO JM, HERNSTADT I, HUGONNOT V, KHALIL K, KÜRSCHNER H, LOSADA LIMA A, LUÍS L, MIFSUD S, PRIVITERA M, PUGLISI M, SABOVLJEVIĆ M, SÉRGIO C, SHABBARA HM, SIM-SIM M, SOTIAUX A, TACCHI R, VANDERPOORTEN A & WERNER O. 2013. Mosses of the Mediterranean, an annotated checklist. *Cryptogamie, Bryologie* **34**: 99–283.
- SARNARI M. 1998. *Monografia illustrata del Genere Russula in Europa*. Associazione Micologica Bresadola, Trento, Italy.
- SERGIO C, PORLEY RD. 2019. *Riccocarpos natans* (Europe assessment). *The IUCN Red List of Threatened Species* **2019**: e.T168892A87730535. Available at: <https://www.iucnredlist.org/species/168892/87730535> [Accessed 05 January 2023]
- SESLI E & DENCHEV CM. 2008 (2014). Checklists of the myxomycetes, larger ascomycetes, and larger basidiomycetes in Turkey. *Mycotaxon* **106**: 65–67 (1–136, 6th updated edition updated 2014 + Online version at: <http://www.mycotaxon.com/resources/checklists/sesli-v106-checklist.pdf>
- SIEMIŃSKA J, BĄK M, DZIEDZIC J, GĄBKA M, GREGOROWICZ P, MROZIŃSKA T, PEŁECHATY M, OWSIANNY PM, PLIŃSKI M, & WITKOWSKI A. 2006. Red list the algae in Poland. In: MIREK Z, ZARZYCKI K, WOJEWODA W & SZELĄG Z (eds.), *Red list of plants and fungi in Poland*, pp. 35–52, W. Szafer Institute of Botany, Polish Academy of Sciences, Krakow, Poland.
- SIMIĆ SB, MITROVIĆ AB & ĐORĐEVIĆ NB. 2019. New data on the morphology, reproduction and distribution of a freshwater brown alga *Porterinema fluviatile* (Porter) Waern (Phaeophyceae). *Cryptogamie, Algologie* **40**: 95–103.
- SOGONOV MV, CASTLEBURY LA, ROSSMAN AY, MEJÍA LC & WHITE JF. 2008. Leaf-inhabiting genera of the *Gnomoniaceae*, *Diaporthales*. *Studies in Mycology* **62**: 1–79.
- STECH M, WERNER O, GONZALEZ-MANCEBO JM, PATINO J, SIM-SIM M, FONTINHA S, HILDEBRANDT I & ROS RM. 2011. Phylogenetic inference in *Leucodon* Schwägr. subg. *Leucodon* (Leucodontaceae, Bryophyta) in the North Atlantic region. *Taxon* **60**: 79–88.
- STOEVA V. 2015. *Carex limosa* L. In: PEEV D, PETROVA AS, ANCHEV M, TEMNISOVA D, DENCHEV CM, GANEVA A, GUSSEV C & VLADIMIROV V (eds.), *Red Data Book of Republic of Bulgaria* **1**, p. 433, BAS & MOEW, Sofia, Bulgaria.
- STOIKOV D. 2000. New data on family *Gnomoniaceae* in Bulgaria. *Phytologia Balcanica* **6**: 301–305.
- STOIKOV D. 2002. New records of Bulgarian *Diaporthales* (Ascomycota). In: TEMNISOVA D (ed.), *Proceedings of Sixth National Conference of Botany*, p. 169–173, Sofia University “St. Kliment Ohridski” Press, Sofia.
- STOJANOV N, STEFANOV B & KITANOV B. 1966. *Flora of Bulgaria* **1** (4. ed). Nauka & Izkustvo, Sofia, Bulgaria.
- STOYANOV K, RAYCHEVA TS & CHESCHMEDZHIEV I. 2021. *Key to the native and foreign vascular plants in Bulgaria*. Agricultural University Plovdiv Academic Press, Plovdiv, Bulgaria.

- STOYNEVA MP, STANCHEVA R & GÄRTNER G. 2003. *Heribaudiella fluviatilis* (Aresch.) Sved. (Phaeophyceae) and the *Hildenbrandia rivularis* (Lieb.) J. Ag. - *Heribaudiella fluviatilis* (Aresch.) Sved. association newly recorded in Bulgaria. *Berichte des Naturwissenschaftlichenmedizinischen Verein Innsbruck* **90**: 61–71.
- STOYKOV D. 2005. New records of *Diaporthales* in Bulgaria. I. *Mycologia Balcanica* **2**(2): 69–74.
- STOYKOV D. 2012. *Diaporthales*. In: DENCHEV CM (ed.), *Fungi of Bulgaria*. Vol. **8**, pp. 1–319, Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences. Sofia, Bulgaria.
- STOYKOV D. 2017. New data on the distribution of *Dothideomycetes* and *Sordariomycetes* (Ascomycota) in Bulgaria. *Proceedings of Seminar of Ecology – 2016, with international participation*. Farago Press, Sofia, Bulgaria, pp. 61–67.
- STOYKOV DY & ASSYOV B. 2006. New data on *Diaporthales* from Southwest Bulgaria. *Trakia Journal of Sciences* **4**: 1–6.
- STOYKOV DY & ASSYOV BG. 2009. New data on pyrenomycetous fungi of Bulgaria. In: VELCHEVA IG & TSEKOV AG (eds.), *Proceedings of the Anniversary Scientific Conference of Ecology*, pp. 11–20, “Paisii Hilendarski” University Press. Plovdiv, Bulgaria.
- SZELĄG Z & VLADIMIROV V. 2019. The species intermediate between *Hieracium petrovae* and *H. olympicum* (Asteraceae): a treatment of *H. kritschimanum* and description of a new species from Greece. *Phytotaxa* **402**: 107–113.
- TAN K & STRID A. 2008. *Paronychia manfrediana* (Caryophyllaceae), a new species from northeast Greece. *Phytologia Balcanica* **14**: 41–44.
- VAURAS J, RUOTSALAINEN J & LIIMATAINEN K. 2016. *Russula suecica*, a new red species from Northern Fennoscandia. *Karstenia* **56**: 5–12.
- VISHNYAKOV V. 2018. On the first record of *Heribaudiella fluviatilis* (Phaeophyceae), a freshwater brown alga in Sibera. *Algologia* **28**: 78–88.
- VLADIMIROV V. 2015. *Convolvulus althaeoides* L. In: PEEV D, PETROVA AS, ANCHEV M, TEMNISKOVA D, DENCHEV CM, GANEVA A, GUSSEV C & VLADIMIROV V (eds.), *Red Data Book of the Republic of Bulgaria* **1**, p. 220, BAS & MoEW, Sofia, Bulgaria.
- VLADIMIROV V, DANE F, MATEVSKI V & TAN K. 2015. New floristic records in the Balkans: 27. *Phytologia Balcanica* **21**: 189–219.
- VLADIMIROV V & SZELĄG Z. 2006. A new diploid species of *Hieracium* sect. *Pannosa* (Asteraceae) from Bulgaria. *Botanical Journal of the Linnean Society* **150**: 261–265.
- VLADIMIROV V & VELEV N. 2014. *Action plan for conservation of the Mallow Bindweed (Convolvulus althaeoides L.) in Bulgaria 2014 – 2023*. MoEW, Sofia.
- WEHR JD. 2015. Brown Algae. In: WEHR JD, SHEATH RG & KOCCIOLEK JP (eds.), *Freshwater algae of North America, ecology and classification*, pp. 851–871, Academic Press, San Diego, USA.
- WEHR JD. 2016. Brown Algae (Phaeophyceae) in Rivers. In: NECCHI OJR (ed.), *River Algae*, pp. 129–151, Springer International Publishing, Switzerland.
- WEHR JD, STEIRER SE & SLEITH RS. 2019. Rediscovery of the Freshwater brown Alga *Heribaudiella* in Connecticut after 100 Years. *Northeastern Naturalist* **26**: 343–361.



## REZIME

## Novi i značajni podaci o biljkama, algama i gljivama iz JI Evrope i susjednih regiona, 13

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U radu su prikazani novi i značajni podaci sa područja JI Evrope i susjednih regiona o sledećim taksonima: braon algi *Heribaudiella fluviatilis*, crvenoj algi *Batrachospermum skujae*, saprofitskoj gljivi *Gnomonia geranii-macrorrhizi*, mikoriznim gljivama *Amanita alseides* i *Russula griseascens*, jetrenjači *Ricciocarpos natans*, mahovinama *Blindia acuta*, *Leucodon sciuroides* var. *morensis* i *Pseudostereodon procerrimus*, monokotilama *Allium ampeloprasum*, *Carex ferruginea* i *Carex limosa* i dikotilama *Convolvulus althaeoides*, *Fumana aciphylla*, *Hieracium petrovae*, *Lamium bifidum* subsp. *bifidum* i *Ranunculus fontanus*.

**Ključne reči:** novi nalaz, *Allium ampeloprasum*, *Amanita alseides*, *Batrachospermum skujae*, *Blindia acuta*, *Carex ferruginea*, *Carex limosa*, *Convolvulus althaeoides*, *Fumana aciphylla*, *Gnomonia geranii-macrorrhizi*, *Hieracium petrovae*, *Heribaudiella fluviatilis*, *Lamium bifidum* subsp. *bifidum*, *Leucodon sciuroides* var. *morensis*, *Pseudostereodon procerrimus*, *Ranunculus fontanus*, *Ricciocarpos natans*, *Russula griseascens*, JI Evropa