

Original Research

Significant records of plants, algae, fungi, and animals in SE Europe and adjacent regions, 1

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Abstract

In this paper, we present four significant records of plants in Slovenia: a vascular plant *Calepina irregularis*, and three moss species, *Ptychostomum torquescens*, *Sphagnum papillosum*; *Tortella fasciculata*.

Keywords

Calepina irregularis; *Ptychostomum torquescens*; *Sphagnum papillosum*; *Tortella fasciculata*; vascular plants; bryophytes; mosses, flora; Slovenia

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Citation: Strgulc Krajšek, S., Kocjan, J. M., Kūzmič, F., Marc, L., & Šenk, E. (2023). Significant records of plants, algae, fungi, and animals in SE Europe and adjacent regions, 1. *Acta Biologica Slovenica*, 67 (1)

<https://doi.org/10.14720/abs.671.18967>

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Calepina irregularis (Asso) Thell., fam. Brassicaceae (vascular plant)

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Country	Slovenia
Statement of significance	A very rare occurrence of the species outside of (sub)Mediterranean phytogeographic zone.
Locality description	Dolenjska, Novo mesto, between the streets Na Loko and Defranceschijeva, 166 m a.s.l.
Habitat	lawn border by the trail covered with small stones, partly trampled
Date of observation	2024-04-30
GPS	N 45.803431°, E 15.164150°
Voucher	Herbarium LJS 13123

The species is readily recognisable by its white flowers, small, almost globose fruits, and non-pubescent aboveground organs. In the described locality, all specimens (more than 10) exhibited prostrate growth habit, slightly ascending at the tips of the inflorescences due to trampling.

The species is native to the area from the Mediterranean to Iran. In Slovenia, it was predominantly recorded in the western-most parts of the submediterranean phytogeographic region, mostly in vineyard weed plant communities and ruderal vegetation (Balant, 2011; Glasnović & Jogan, 2009; Lešnik, 2001; Poldini, 1980, 2006; Poldini, Oriolo, & Mazzolini, 1998; Seljak, 1989; Šilc and Čarni, 2007; Trčak, 2014). The only known occurrence in another region is from the vicinity of the Vihre village in Eastern Slovenia (Trčak et al. 2008).

In the currently reported locality, several (more than 10) specimens were found aligning the non-shadowed trail. Species in the plant stand with their Braun-Blanquet abundance values taken in a plot of 10mx0.2m were: *Achillea millefolium* agg. (+), *Allium scorodoprasum* subsp. *scorodoprasum* (+), *Bellis perennis* L. (+), *Calepina irregularis* (Asso) Thell. (2), *Capsella bursa-pastoris* (L.) Med. (1), *Cardamine hirsuta* L. (+), *Carex hirta* L. (2), *Cerastium glomeratum* Thuill. (+), *Convolvulus arvensis* L. (+), *Cynodon dactylon* (L.) Pers. (+), *Geranium pusillum* Burm. fil. (+), *Lysimachia nummularia* L. (+), *Malva sylvestris* L. (+), *Myosotis arvensis* (L.) Hill (+), *Picris hieracioides* agg. (+), *Plantago major* L., s. str. (+), *Poa annua* L. (1), *Poa trivialis* L. (1), Poaceae (seedlings) (+), *Polygonum aviculare* agg. (+), *Potentilla reptans* L. (1), *Ranunculus repens* L. (1), *Taraxacum* sect. *Taraxacum* F. H. Wigg. (3), *Trifolium pratense* L. (+), *Trifolium repens* L. (2), *Veronica arvensis* L. (1), *Veronica persica* Poir. (1).

Acknowledgement

I thank Dr. Branko Vreš for the discussion on the species' identity and occurrences.

Funding

Slovenian Research and Innovation Agency, grant number P1-0236, funded this research.

Ptychostomum torquescens (Bruch & Schimp.) Ros & Mazimpaka, fam. Bryceae (moss)

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Statement of significance	The first recent record of a rare species.
Locality description	Ljubljana, southwest of town Ig, Iški vintgar, Nature Reserve (RS, no. 80/2005), 350 m a.s.l.,
Habitat	soil on calcareous bedrock
Date of observation	2024-05-24
GPS	N 45.9114409°, E 14.4991750° (approximate coordinates)
Voucher	Herbarium LJU

Ptychostomum torquescens (Bruch & Schimp.) Ros & Mazimpaka (synonym, *Bryum torquescens* Bruch & Schimp.) is a rarely encountered moss species that is frequently confused with the much more widespread *P. capillare* (Hedw.) Holyoak & N. Pedersen. The species is found in most European countries and is considered least concern (LC) in the European Red List (Hodgetts et al., 2019). It grows in all neighbouring countries of Slovenia except Austria (Hodgetts & Lochhart, 2020). It is regionally extinct (RC) in Sweden, endangered (EN) in the Netherlands, vulnerable (VU) in Great Britain, Ireland, Bulgaria, and Hungary, and near threatened (NT) in Romania (Hodgetts & Lochhart, 2020). In Slovenia, it is listed as data deficient (DD) (Martinčič, 2024). We report the first data of its occurrence in Slovenia since 1960, the first one in central Slovenia. Two specimens collected by Martinčič are stored in Herbarium LJU (from Bela Krajina, 1955, and Trnovski gozd, 1960). There are also two older published records from the vicinity of the town Nova Gorica (Höhnelt, 1893; Loitlesberger, 1909).

We sampled a few specimens on soil on calcareous bedrock in Iški Vintgar nature reserve. For species identification, we used identification keys from Holoyak (2021) and Frey et al. (2006). The species is morphologically similar to *P. capillare*. The only reliable differences between them are that *P. torquescens* is sinoicous and has pointed apical cells of paraphyses, and *P. capillare* is dioicous and has rounded apical cells of paraphyses (Holoyak, 2012). Both species also have similar habitat preferences. They grow in patches on calcareous rock or soil, usually in bright to moderately shaded places. In a dry state, both species are recognised by leaves that are spirally twisted like a screw. *B. capillare* also grows on bark, moderately acidic rock, and is common in urban areas, too (Holoyak, 2012). Identification of the species in the field is not possible. We presume that *P. torquescens* might be overlooked in Slovenia due to its similarity to *P. capillare*.

Funding

The Slovenian Research Agency (grant no. P1-0212) financially supported the study.

Sphagnum papillosum Lindb., fam. Sphagnaceae (moss)

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Statement of significance	Rarely reported taxon, listed in the near threatened (NT) category of the Slovenian Red List.
Locality description	Gorenjska, near Komenda, NE of the village Mlaka pri Komendi, left side of stream, 350 m a.s.l.
Habitat	alder forest, transitional mire
Date of observation	2023-01-01
GPS	N 46.216944°, E 14.566389°
Voucher	Herbarium LJU

Sphagnum papillosum (sect. *Sphagnum*) was recently found growing in a transitional mire in the Gorenjska region of Slovenia. The species has a known distribution in the Alpine (Julian Alps and Pohorje) and the pre-Alpine regions (Martinčič, 2024). It is listed as a near threatened (NT) taxon on the national Red List (Martinčič, 2016, 2024). The species is also present in Croatia, Italy, and Austria, in the latter being considered vulnerable (category 3, which roughly translates into VU using the IUCN system) (Hodgetts and Lockhart, 2020). In the year 1987, the dynamics of net photosynthesis of *Sphagnum papillosum* were investigated on a relic of the raised bog Goričica near Ljubljana, Slovenia (Gaberščik and Martinčič, 1987). Whether that population is still present up to the present day remains a question.

According to Martinčič (2024) the species is an exclusive element of raised bogs in Slovenia. Generally, it is known in Europe as a species of open acidic peatlands growing in distinct hummocks or more extensive carpets. It grows beside streams or in flushes in upland areas and transitional mires with a deep peat layer in the lowlands (Daniels and Eddy, 1990).

The unique cell morphology of *Sphagnum papillosum* gives rise to its name; hence, the surface of the chlorocysts on a cross-section of the branch leaves appears to be rough with minute projections. This is due to cell wall protrusions that form papillae (Anderson and Ammann, 1991). The fascicles consist of 4 branches, with usually two being pendent and two divergent. The whole plant is green, yellowish, or ochre (Daniels and Eddy, 1990).

Similar but with longer outgrowths on the surface of chlorocysts, commonly referred to as transverse lamellae or comb-fibrils, are also present in two other species, those being *S. austinii* and *S. affine*. Still, they have a wider distribution in northern European countries (Smith, 2004).

Tortella fasciculata (Culm.) Culm., fam. Pottiaceae (moss)

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Country	Slovenia
Statement of significance	The first recent report for Slovenia.
Locality description	Gorenjska, Kranj, Nemilje, in the front yard of Nemilje 1504 m a. s. l.
Habitat	at the top of the stone wall
Date of observation	2024-05-28
GPS	N 46.2648756°, E 14.2297790°
Voucher	Herbarium LJU

Tortella fasciculata (Culm.) Culm. is a species from *T. bambergeri* agg. In the Red List of Bryophytes of Slovenia (Martinčič, 2016), *T. bambergeri* (Schimp.) Broth. s. lat. is listed as a data deficient species. It was found in the Alpine (Glowacki, 1908, 1910; Breidler 1891), Dinaric (Glowacki, 1913), and Pre-Alpine phytogeographical regions (Glowacki, 1910), but all records are more than 100 years old. As the recent molecular research by Köckinger and Hedenäs (2017) showed, *T. bambergeri* agg. consists of two species, namely *T. fasciculata* and *T. pseudofragilis* (Thér.) Köckinger & Hedenäs. *T. pseudofragilis* was already collected in Slovenia (Plemenice under Triglav) by I. Dakskobler (Martinčič, 2024) and Martinčič (2024) comments that the specimens reported by Glowacki (1910) could also refer to this species. The presence of *T. fasciculata* was not confirmed in Slovenia until our findings. However, Martinčič (2024) comments that the specimens reported by Glowacki (1910) from Kanal at Soča Valley might refer to *T. fasciculata*.

We sampled the species on the top of the rock wall near the stream in the front yard of Nemilje 1, where humidity is high for most of the year. According to the literature, the ecology is not typical, as the species is believed to be thermophyllous (Köckinger and Hedenäs, 2017). We used Köckinger and Hedenäs (2017) and Ottley and Blockeel (2019) for identification. The central strand was well-developed and composed of several cells. The leaves in the dry state were incurved up to the apex. Marginal cells were very papillose and mostly isodiametric. The plants were without sporophytes.

According to Köckinger and Hedenäs (2017), the species has a suboceanic-submediterranean distribution. Up to now, it has been recorded in several European countries, but in several European regions, its status is still unclear (Hodgetts & Lockhart, 2020). This species is considered the least concerned (LC) in the European Red List (Hodgetts & al. 2019).

The species is expected to be more widespread in Slovenia. Until we collect more distribution data, we suggest listing the species as data deficient with recent records (DD-n) in the Slovene Red List.

Funding

The Slovenian Research Agency (grant no. P1-0212) financially supported the study.

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