

NEW AND INTERESTING BRYOPHYTE RECORDS FOR THE FLORA OF SERBIA

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Abstract - During a revision of the bryophyte collections in the Herbarium of the Balkan Peninsula, Natural History Museum of Belgrade (BEO) and the Herbarium of the University of Belgrade (BEOU), as well as historical literature data, four bryophytes were identified as new to the flora of Serbia, namely, the mosses *Fontinalis hypnoides*, *Leucobryum juniperoideum*, *Dicranum spurium* and the hornwort *Phaeoceros laevis*. *Fontinalis hypnoides* is relatively recently recorded in SW Serbia, while *Leucobryum juniperoideum* and *Dicranum spurium* are known from historical collections. The hornwort *Phaeoceros laevis* was cited for SE Serbia in 1907, but up to now not found again.

Key words: The Balkans, Serbia, new national records, mosses; hornwort

INTRODUCTION

Serbia has a rich bryophyte flora (Sabovljević et al. 2001, 2011). It contains 118 liverwort species (Sabovljević and Natcheva 2006) and 555 moss species (Sabovljević et al. 2008). Bryophyte research, however, has in former times received very little attention, until the last decade when recent bryological field investigation started and resulted in the expansion of known bryophytes by 25% (hepatics) and 15% (mosses), respectively (Papp et al. 2009).

Nevertheless, new discoveries are coming and can be expected at a regular pace (Sabovljević 2004), adding almost continually to the existing bryophyte records of Serbia (e.g. Papp et al. 2011, 2012a, b, 2013).

MATERIALS AND METHODS

The studies on bryophyte flora of Serbia, besides

field investigations, include constant activity in the revision of historical literature data and historical collections in official and unofficial collections in and outside the country. Most of the historical collections are unidentified and preserved without precise and detailed labeling.

RESULTS

Four new species are recorded for the bryophyte flora of Serbia (Fig. 1).

Fontinalis hypnoides C. Hartm is a new moss species to Serbia. Two samples unidentified to date were kept in BEOU bryophyte collections (Herb. no. 4965 and 4967). Both are recorded on rocks in and alongside the river Lim, in the town of Priboj in SW Serbia on 06.03.2009 by S. Radović.

Leucobryum juniperoideum (Brid.) Müll. Hal. was recorded as new to Serbia, from the an uniden-

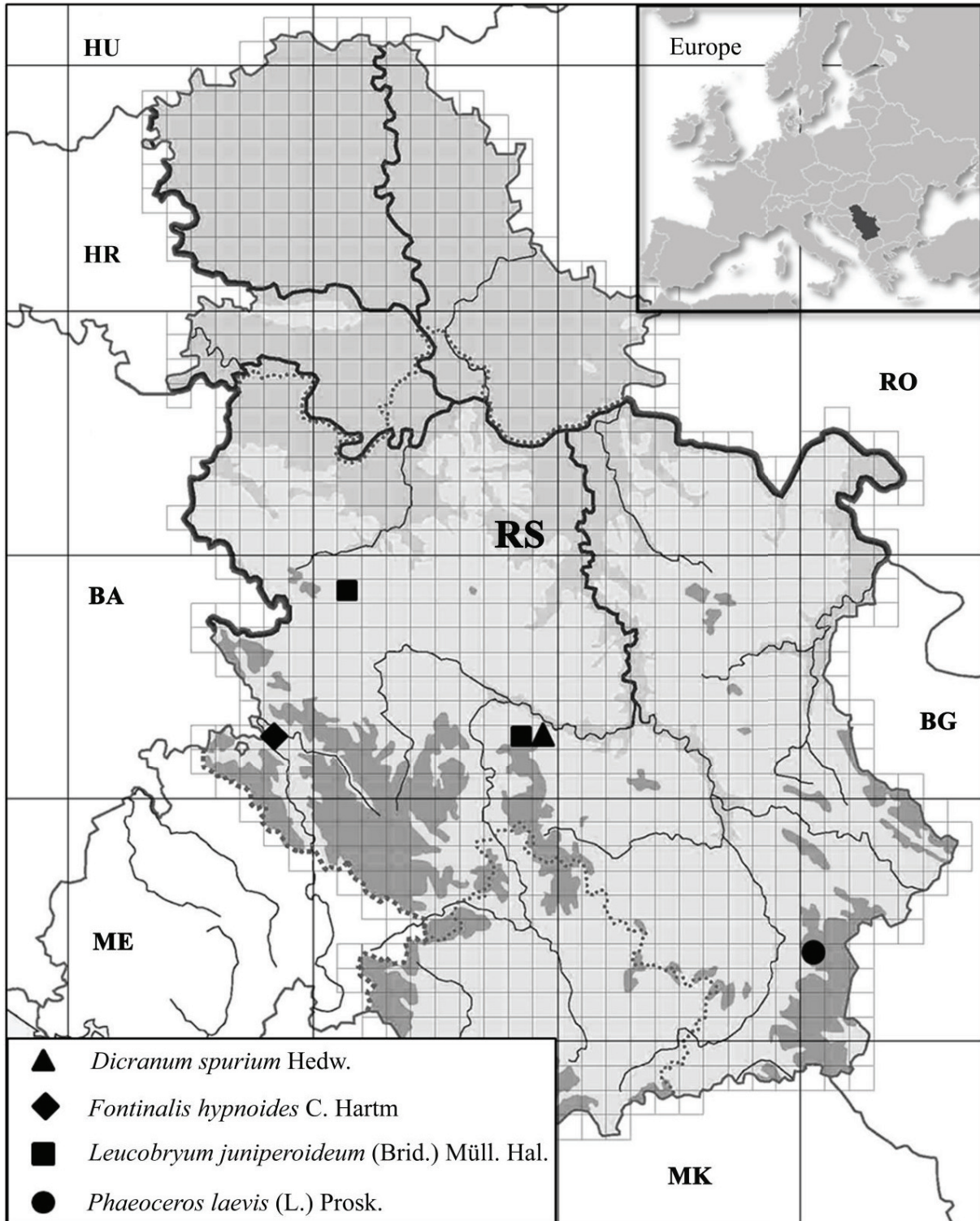


Fig. 1. Map of Serbia with new bryophyte records

tified collection of the BEO. It was kept with dozens of other samples labeled *Leucobryum*. Among these samples, there were five samples of *Leucobryum juniperoideum*, made by three different collectors in two macro-localities: Central Serbia: – Goč Mt., Vrnjačka banja, Kraljevo; leg. M. Glišić, 08.1946 (BEO s/n); Western Serbia: – Divčibare Mt., on an open slope; leg. P. Černjavski, 28.09.1946 (BEO s/n); Divčibare Mt., on an open slope under *Pinus sylvestris*; leg. V. Lindtner, 27.09.1946 (BEO s/n); Divčibare Mt., in a forest of *Pinus sylvestris*, leg. P. Černjavski, 28.09.1946 (BEO s/n), and Divčibare Mt., in a pasture and forest of *Pinus sylvestris*, leg. P. Černjavski, 29.09.1946 (BEO s/n)

Dicranum spurium Hedw., from an unidentified collection of BEO, was recorded as new to Serbia. It was kept in a historical collection labeled as *Encalypta*. The sample dates from 15.09.1937, collected by P. Černjavski in central Serbia (*Serbia: in a beech forest, on a southern slope ca. 2 hours walk through the gorge, south from Trstenik, schist with Leucobryum* – in Serbian; *su Fagetis, prope Trstenik, schistoso* – in Latin) (BEO s/n).

Phaeoceros laevis (L.) Prosk. is reported as *Anthoceros laevis* L. in Katić (1907) for Serbia. The record was made more than 100 years ago, but is still unique. We were not able to locate the herbarium of D. Katić. Katić (1907) wrote in Serbian: *on wet soil, by the river Vrla from Surdulica to Vlasina, locally quite common*.

DISCUSSION

Fontinalis hypnoides is a medium-sized to robust pleurocarpous moss, often submerged. Its appearance in Serbia is not unexpected since it is present in almost all Balkan countries (Sabovljević et al. 2008). It is expected that there will be more records of this species with further bryological investigations in Serbia.

Leucobryum juniperoideum is newly reported for Serbia although all the records (five samples in total) were made in 1946 by various collectors. Two distant

localities for these species infer that it could be more spread in Serbia, but overlooked. However, the genus *Leucobryum*, although present in Serbia, is not widespread. Thus, the records from a historical collection are also significant from the conservation point of view. In the Balkans, it is present in Slovenia, Croatia, Bulgaria and Romania (Düll et al. 1999, Sabovljević et al. 2008), so it is not strange to find it also in Serbia. As it was included into its relative *L. glaucum* until the 1960s, it is not surprising it is absent from all historical literature data.

Dicranum spurium is newly reported for Serbia. Its presence in Serbia is rather unexpected since it is not common in the Balkans. It is known from Slovenia, Montenegro, Bosnia-Herzegovina, Romania, and possibly Greece (Sabovljević et al. 2008). This species prefers acidic substrata and therefore needs special attention in Serbia where basic habitats are dominant.

The only hornwort reported for Serbia, *Phaeoceros laevis* is a forgotten species, since the only citation was made more than 100 years ago (Katić, 1907) and it has not been seen since then, although the area of its appearance was recently bryologically investigated (Papp et al. 2012c). However, it is not reported for Serbia in Pavletić (1955), Düll et al. (1999), Sabovljević (2000), Söderström et al. (2002), Sabovljević and Natcheva (2006) and ROS et al. (2007). This forgotten reference is the only citation of this species in Serbia and the only record of hornworts in Serbia. There is a possibility that this species disappeared, but also that it has been overlooked due to its seasonal growth. According to Sabovljević and Natcheva (2006), it is present in the Balkans (Albania, Bulgaria, Croatia, Greece, Romania and Slovenia) and also common around the Mediterranean (Ros et al. 2007). It is taxonomically problematic and not always separated from *P. carolinianus* (Söderström et al. 2002), and therefore the confirmation of its presence and identity is needed.

All species mentioned, need further study of their distribution, biology and conservation.

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