

***Splachnum pensylvanicum*. Rare or neglected? History of the species discovery in Lithuania**

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When I first learned that there were historical records of *Splachnum pensylvanicum* from East Prussia, I wondered whether they were not from the territory of the present-day Lithuania. Unfortunately, as it turned out, in 1911, Hugo Gross found the species in the peatland *Große Moosbruch*, which nowadays is situated in Kaliningrad Oblast' in the Russian Federation. The plants, collected by H. Gross, were described by C. Warnstorf as a new species *Tetraplodon balticus*, which was subsequently considered identical to *S. pensylvanicum*. The species was rediscovered in the same mire in 1930 by Karl and Fritz Koppe. Since then, the species has never been found in this wetland and, by modern researchers, has been considered a casual entry and extinct. After 40 years, the species was re-recorded in the Baltic Region. Dr Baiba Bambe found it in the bog of northern Latvia. It was the only record of the species in Latvia. Was it accidental?

The story of the species discovery in Europe continues in Lithuania. In 2000–2006, we provided detailed investigations on the Kamanos Strict Nature Reserve vegetation. Many collected bryophyte specimens, not used for characteristics of plant communities, were not identified and left in archival boxes for the future. In 2017, we started a project on unstudied bryophyte collections. Among them were some specimens of *Splachnum* from Kamanos that have always been frustrating. However, hasty attempts to identify the species, albeit using a large amount of European literature, were not successful. The riddle was solved by Prof. Ryszard Ochrya from the Institute of Botany in Cracow. It was confirmed that this mysterious plant was *Splachnum pensylvanicum*. None of the European moss guides or floras describe this species, as its main range is in Eastern North America. The Lithuanian locality seemed to be the third in Europe.



Figure 1. *Splachnum pensylvanicum* (Brid.) Grout ex H.A.Crum collected from Kamanos mire.

No less interesting is what we have found out about the distribution of this moss in the Kamanos. Initially, we had two specimens of *S. pensylvanicum* collected accidentally with five-year intervals in 2005 and 2000. After its identification, we decided to search for the species, and it was successfully found near the site of its first record. So, it appeared that the species occurred in the mire permanently for at least 17 years! Later, the biologist of the Kamanos Strict Nature Reserve, Sigita Sprainaitė, made targeted investigations on the species distribution for some years. She has ascertained that *S. pensylvanicum* is widely distributed in the Kamanos Strict Nature Reserve and occurs on a wide range of organic substrata (rotten wood, bare peat, excrements of various animals, etc). It is often found on droppings of common cranes (*Grus grus*). The central part of the Kamanos mire, where most localities are concentrated, is a preferred site for gathering of these birds.

Splachnum pensylvanicum grows in a mixture with *S. ampullaceum* or in pure stands. The two species are very different in appearance, especially sporophytes. The capsule of *Splachnum ampullaceum* has a long seta, whereas the seta of *S. pensylvanicum* is short, only 2-10 mm, so the capsules are usually only shortly exerted. Besides, the hypophysis of *S. ampullaceum* is always considerably wider than the urn, while hypophysis of *S. pensylvanicum* is scarcely inflated. The two species can also be identified by gametophyte traits. The upper leaves of the *S. pensylvanicum* gametophyte are long and with entire margins or slightly toothed.

As it has been stated by Ochyra et al. (2021), the discovery of the fairly abundant populations of this species means that its previous finds in Kaliningrad Oblast' and Latvia were not accidental dispersions by man from North America. The species is distributed in the bogs of the Eastern Baltic. Why not in Estonia?

References

Ochyra, R., Jukonienė, I., Plasek, V., Sprainaitytė, S. (2021) New European discovery of *Splachnum pensylvanicum* (Bryophyta, Splachnaceae) in Lithuania, with taxonomic notes and a review of its world distribution. *Plants*, 10 (12): art. no. 2823.