

Interesting records of *Aneura maxima* (Schiffn.) Steph. (Metzgeriales) in the Czech Republic and Slovakia

Eva Loskotová

Dept. of Botany, Faculty of Science, Charles University, Benátská 2, CZ-12801 Praha 2, Czech Republic
and
Šumava NP Administration, Dept. of Science and Research, Sušická 399, CZ-34182 Kašperské Hory,
Czech Republic
loskotova@centrum.cz

Abstract

Aneura maxima is reported as new to the Slovak Republic. New localities are also reported from the Bohemian Forest (=Šumava Mts.) in the Czech Republic. The ecology of the species is discussed. Its European distribution based on literature records is presented.

Key words: Hepatics, *Aneura maxima*, Czech Republic, Slovakia, Bohemian Forest, distribution

INTRODUCTION

During field work in the Bohemian Forest I found the endangered hepatic *Aneura maxima*. The species occurred in a spring habitat at four different localities: close to but not within the Obří Hrad Nature Reserve, on Žďárecký Vrch hill near the border with Germany, close to Nová Hůrka, and Popelný Potok stream. The discovery of *Aneura maxima* at these four localities is only the second account of its occurrence in the Czech Republic. The first record of this species from our country was published only recently, when it was reported from three sites in Žofínský Prales primeval forest in the Novohradské Hory Mts. (KUČERA 2004).

Following the discovery of new site in the Czech Republic, *A. maxima* was identified in material collected from the Slovak Javorníky Mts. The species has not previously been recorded from the Slovak Republic.

ANEURA MAXIMA (SCHIFFN.) STEPH.

The distribution of *A. maxima* in Europe is poorly known. However, *A. maxima* has not been sufficiently distinguished from other species of *Aneura* or has been confused with species in the genus *Pellia*. *A. maxima* can be especially difficult to distinguish in the field.

In the key of European hepatics, *A. maxima* has a status of unknown taxon probably overlooked (SCHUMACKER & VÁŇA 2000). The first known European locality was published from Belgium (ANDRIESEN et al. 1995), followed by records from several other countries (France – SOTIAUX & SOTIAUX 1996, Finland – FRAHM 1997, Denmark – THINGSGAARD 2002, Luxembourg – WERNER 2003 and probably Germany – FRAHM 2004; in SCHUMACKER & VÁŇA 2000 is denote even Poland).



Fig. 1. Typical plant of *A. maxima* from spring site near Nová Hůrka. Photo O. Peksa.

A. maxima has been most frequently collected from wet mineral soil in spring habitats. It has a characteristic population structure – i.e. individual plants grow mostly vertical upwards from the water and form compact growths (“green lettuce” in water). The species is generally more robust than our common species *Aneura pinguis*. Plants of *A. maxima* are 0.5–1 cm wide, 4–10 cm long and irregularly branched. The species is characterised by a multi-stratose central thallus which tapers abruptly into transparent and undulating uni-stratose wings. Typically, the wings are at least 8 cells wide, but there is apparently a large discrepancy in these characters (the literature report wing-widths ranging from 2–18 cells!).

The central part of the thallus is markedly enlarged by a costa that is 6–12 (18) cells thick, and the species is in this regard similar to certain species of *Pellia* or *Moerckia*. However, *A. maxima* has more oil bodies (about 30–55), its rhizoids are hyaline, thin walled and located only in multilayer parts of the thallus. On the ventral side of the thallus there are slime papillae. *A. maxima* can be distinguished from the superficially similar *Pellia neesiana*, which may grow in the same habitats, though *A. maxima* lacks a strong violet pigmentation of the thallus.

NEW LOCALITIES

Czech Republic, SW Bohemia, Bohemian Forest, 3 km S of Červená village, 300 m SE of the bridge near Buzošná along the sylvan road, sylvan spring site in hillside Váhy Mt. (qv. 1010 m), ca 800 m a.s.l., [WGS 84: 49.10447° N, 13.58117° E], 30 Apr 2005, leg., det. et herb. E. Loskotová. Associated moss species included: *Brachythecium rivulare*, *Chiloscyphus pallescens*, *Conocephalum conicum* (very frequent), *Dicranum*

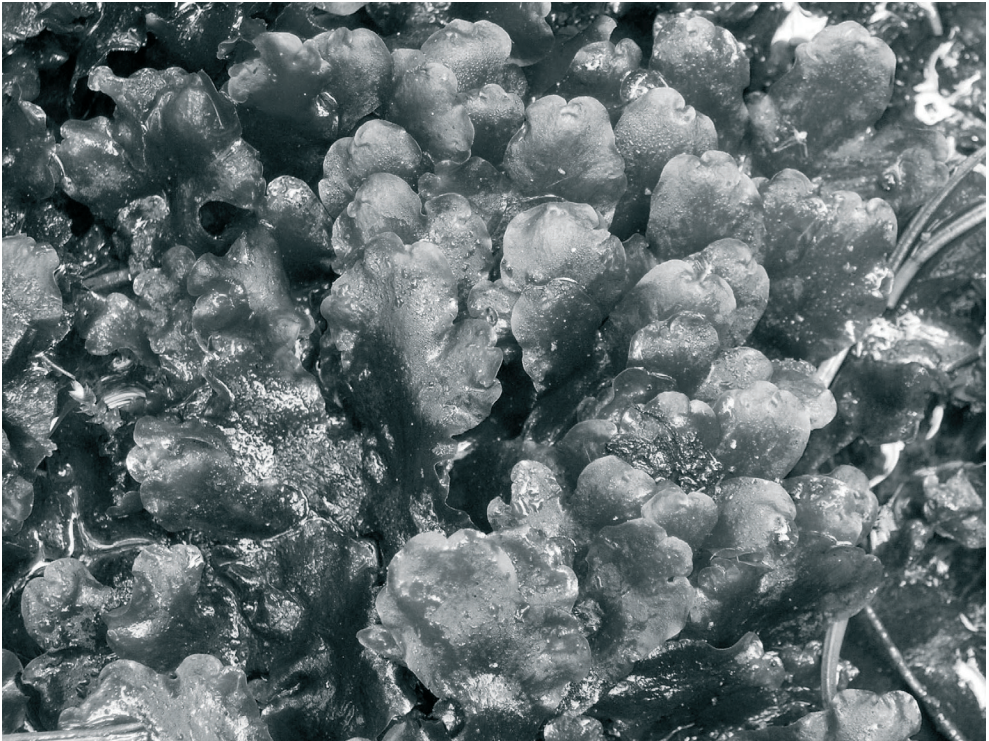


Fig. 2. Characteristic population structure of *A. maxima* from spring site near Buzošná. Photo E. Loskotová.

scoparium, *Eurhynchium angustirete*, *Mnium hornum*, *Pellia* sp. (*P. epiphylla* or *P. neesiana*), *Plagiochila asplenioides*, *Plagiomnium affine*, *P. undulatum*, *Plagiothecium denticulatum*, *Polytrichastrum formosum*, *Rhizomnium punctatum*, *Sphagnum capillifolium*, *S. girgensohnii*, *S. palustre*, *Straminergon stramineum*, *Thuidium tamariscinum* (very frequent), *Trichocolea tomentella* (very frequent). The locality was visited a second time with J. Váňa (11 May 2005), who confirmed the initial field identification of *A. maxima* and collected herbarium material.

Czech Republic, SW Bohemia, Bohemian Forest, spruce wood 0.9 km of Nová Hůrka parking site, in a forested spring site, ca 910 m a.s.l., [WGS 84: 49.14454° N, 13.31695° E], 29 Oct 2005, leg. O. Peksa and E. Loskotová, det. et herb. E. Loskotová. Associated moss species included: *Brachythecium rivulare* (very frequent), *Chiloscyphus pallescens*, *Lepidozia reptans*, *Plagiomnium undulatum*, *Polytrichum commune*, *Rhizomnium punctatum*, *Sphagnum girgensohnii*, *S. magellanicum*, *S. palustre*, *S. squarrosum*, *Straminergon stramineum*, *Trichocolea tomentella*.

Czech Republic, SW Bohemia, Bohemian Forest, 50 m from border with Germany (borderline bollard 16/6), southward from Knížecí Pláně point, forested spring site in west hillside Žďárecká Hora Mt. (qv. 1064 m), ca 1010 m a.s.l., [WGS 84: 48.92527° N, 13.63755° E], 30 Oct 2005, leg. O. Peksa and E. Loskotová, det. et herb. E. Loskotová. Associated moss species included: *Chiloscyphus pallescens* (very frequent), *Plagiomnium affine*, *Sphagnum fallax*, *S. palustre*, *S. russowii*, *S. teres*.

Czech Republic, SW Bohemia, Bohemian Forest, spring site of Popelný Potok stream (left bank of the Vydra River), ca 970 m a.s.l., [ca WGS 84: 49.07578° N, 13.52895° E], 30 Oct 2005, leg., det. et herb. E. Loskotová. Associated moss species included: *Atrichum undulatum*, *Brachythecium rivulare*, *Chiloscyphus pallescens*, *Dichodontium palustre*, *Marchantia polymorpha*, *Mnium hornum*, *Plagiomnium affine*, *Pellia neesiana*, *Polytrichum commune*, *Rhytidiadelphus squarrosus*, *R. triquetrus*, *Sphagnum capillifolium*, *S. fallax*, *S. squarrosum*, *S. teres*, *Thuidium tamariscinum*.

Slovak Republic, W Slovakia, Javorníky Mts., Hričovce Nature Reserve, Kasárně village, Čierna Voda spring – spring site, 970 m a.s.l., 14 Aug 2005, leg. O. Peksa, det. et herb. E. Loskotová.

CONCLUSIONS

A. maxima is unlikely to be a common species of our bryoflora. However, I expect it may be found growing in suitable localities in the Czech Republic and Slovakia. In particular, the species may prove to be more abundant in the Bohemian Forest, because there are dozens of sites with First Zone status in the national park, comprising species rich springs habitats as well as hundreds of small unnamed springs hidden in the forests. There are many suitable primeval forests in Slovakia, which remain to be explored by bryologists.

Acknowledgement. I thank O. Peksa (Faculty of Science, Charles University Prague) for his conscientious collection of specimens in the Javorníky Mts. and help with the fieldwork. J. Váňa (Faculty of Science, Charles University Prague) helped with the determination of material and alerted me to the possibility of *A. maxima* on Valy Mt., Ch. Ellis (RBG Edinburgh) helped correct the English.

REFERENCES

- ANDRIESEN L., SOTIAUX A., NAGELS C. & SOTIAUX O., 1995: *Aneura maxima* (Schiffn.) Steph. in Belgium, new for the European liverwort flora. *Bryologist*, 18: 803–806.
- FRAHM J.-P., 1997: A second European record for *Aneura maxima* (Schiffn.) Steph. in Finland. *Lindbergia*, 22: 99.
- FRAHM J.-P., 2004: Zu achten ist auf: *Aneura maxima*. *Bryologische Rundbriefe*, 77: 7.
- KUČERA J., 2004: Překvapivé nálezy mechorostů v Žofinském a Hojnovodském pralese (Novohradské hory) [Surprising bryophyte records in the old-growth forests Žofinský prales and Hojnovodský prales (Novohradské hory Mts., South Bohemia)]. *Bryonora*, 34: 4–15.
- SCHUMACKER R. & VÁŇA J., 2000: Identification keys to the liverworts and hornworts of Europe and Macronesia (Distribution and status). *Documents de la Station scientifique des Hautes-Fagnes no. 31*, Mont Rigi, 160 pp.
- SOTIAUX A. O. & SOTIAUX M., 1996: *Aneura maxima* (Schiffn.) Steph. hépatique nouvelle pour la flore française. *Bulletin de la Société Botanique du Centre-Ouest, n.s.*, 27: 513–516.
- THINGSGAARD K., 2002: *Aneura maxima* (Schiffn.) Steph.: an addition to the Danish hepatic flora. *Lindbergia*, 27: 79–80.
- WERNER J., 2003: *Aneura maxima* (Schiffn.) Steph. au Luxembourg, et quelques autres bryophytes remarquables observées en 2001 (16e série). *Bulletin de la Société des Naturalistes Luxembourgeois*, 103: 25–30.

Received: 16 December 2005

Accepted: 3 January 2006