

Grimmia teretinervis (Grimmiaceae, Musci) in the Czech Republic

Grimmia teretinervis (Grimmiaceae, Musci) v České republice

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Kučera J., Voříšková L. & Blom H. H. (2001): *Grimmia teretinervis* (Grimmiaceae, Musci) in the Czech Republic. – Preslia, Praha, 73: 73–77.

Single specimen of *Grimmia teretinervis* Limpr., collected in 1896 near Prague (Bohemian Karst [= Český kras], Central Bohemia, Czech Republic), was discovered during the revision of the type material of *Schistidium* in PRC. Subsequent search at the locality did not result in re-finding of this rare species, nevertheless another population was independently found at a nearby locality. Remarks on the threatened status in the Czech Republic are given.

Key words: *Grimmia*, Czech Republic, Bohemian Karst, Siberia, threatened mosses

Introduction

Velenovský (1897: 171) described a new variety of *Schistidium confertum* (Funck) Bruch et Schimp. – var. *siluricum* Velen. – from the surroundings of Choteč (Bohemian Karst [= Český kras], Central Bohemia, Czech Republic). He wrote in the description that the new variety “definitely would belong to *S. brunnescens* Limpr., a species growing near Vienna, which, however, could hardly be distinguished from the preceding species [*S. confertum*]”. The specimen collected by Velenovský is only in part a *Schistidium*, as ascertained by Blom (1996). He designated the lectotype of var. *siluricum* (which is conspecific with *S. brunnescens* subsp. *brunnescens*) as the element belonging to *Schistidium* and wrote that the other (in fact larger) element belongs to *Grimmia teretinervis* Limpr., unaware that this species had never previously been reported from the Czech Republic (see Pilous & Duda 1960, Soldán 1994). Váňa (1997), similarly, did not include the species in the checklist of Czech bryophytes, as the source of the information was not available to him at the time of compiling the list. The information about the occurrence of *G. teretinervis* in the Czech Republic is thus adequately cited here for the first time.

Grimmia teretinervis occurs in Europe, North America and Central Siberia. In Europe it only grows in the mountains of central Europe (Slovakia, Czech Republic, Austria, Switzerland, France), especially the Alps, the Carpathians and their foothills. It belongs to the group of thermophilous montane/demontane basiphilous taxa, like *Grimmia anodon* Bruch et Schimp. and *G. tergestina* Tomm. ex Bruch et Schimp., with which it often occurs. In North America the species is more widespread (Ireland 1982), reaching farther north (Alaska, Northwest Territories). The area of distribution in North Asia is essentially

unknown, as the only record are two specimens, discovered accidentally during the revision of *Schistidium* by Blom (1996: 202), collected by Arnell and labelled “Nizhnaya Tunguska” and “Mjelnitsa”. Everywhere the species is known only sterile – the European populations are female but male plants have been reported from North America (Ireland 1982). Probably due to its sterility and general appearance it has sometimes been regarded as belonging to the genus *Schistidium* (Limpricht 1890) but the transverse section of the costa with differentiated hydroids and flat margins bent upwards, resulting in the semicircular section in the upper part of leaves, as well as the apparently dioicous gametangia are more odd in *Schistidium* than in *Grimmia*, where it is usually ranked within the subgenus *Guembelia* (Hampe) Schimp. (= subgen. *Litoneuron* I. Hagen). Nevertheless, even here the species is somewhat odd, differing most conspicuously in the biconvex costa. The true affinities of the species can probably be solved only by means of molecular methods, given the general absence of sporophytes. The biconvex costa, together with the semicircular transverse section in the upper part of the leaf and the flat leaf margins can serve best as the diagnostic characters of *G. teretinervis* against similar *Grimmia* and *Schistidium* species (Fig. 1).

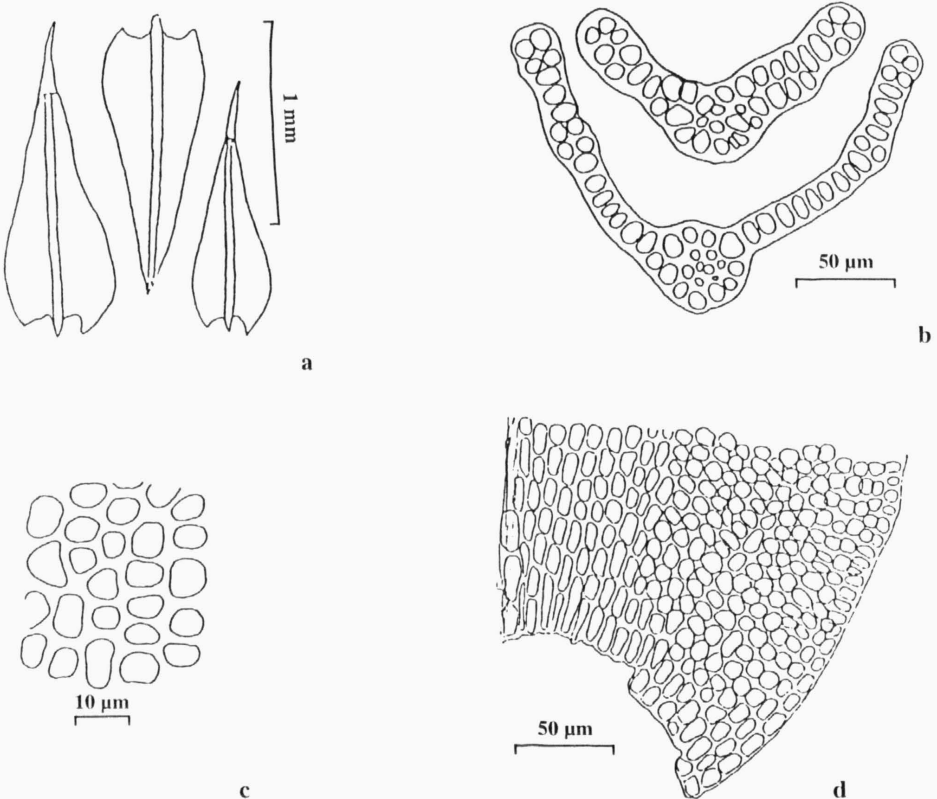


Fig. 1. – *Grimmia teretinervis* Limpr. a – leaves; b – leaf cross sections; c – upper lamina cells; d – leaf base.

Site descriptions

We have very little information on where the first find of *Grimmia teretinervis* in Czechia was done. Velenovský wrote only “Choteč – skály vápencové [Choteč – limestone rocks]” on the envelope. The description in the work “Mechy české” (Velenovský 1897) is similarly brief: “... on torrid, limestone rocks by Choteč a peculiar run [of *S. confertum*] (var. *siluricum* m.) abundantly occurs... [translated]”. The rock outcrops in the town of Choteč are not many, moreover it is impossible to know exactly where Velenovský collected. The first two authors carefully examined the rocks near the mill beneath the fishpond but without success. The occurrence of *G. teretinervis* on these rocks is not very probable as they are now partly shaded – the only *Schistidium* found was the common *S. crassipilum* H. H. Blom. Suitable rocks for the occurrence of *G. teretinervis* nonetheless occur e.g. above the Rutický Mlýn mill, about 2 km beneath (NE of) Choteč, in the valley of Radotínský potok. Here thermophilous *Schistidia* – *S. brunnescens* and *S. singarense* (Schiffn.) Laz. grow abundantly, as well as other species frequently associated with *G. teretinervis* in the lowlands (*Grimmia tergestina*, *G. orbicularis* Bruch, *Syntrichia intermedia* Brid.). Unfortunately even here, despite a repeated search in May 1997 and April 2000, we did not succeed in finding *G. teretinervis*. The same is true about the other rare *Grimmia* found by Velenovský, *G. anodon*, which he probably collected at the same locality, if we can judge according to the identical specimen label. Probably, we either did not find the rocks where Velenovský collected his specimen or the environmental changes (for instance those caused by the nearby cement factory in Radotín) have affected the locality so that neither *G. anodon* nor *G. teretinervis* grow at their former sites.

The second author (LV), however, found *G. teretinervis* on Bučina hill near Karlštejn, some 8 km SW of the Velenovský locality, in October 1999. The site was revisited in April 2000 to assess the abundance of the species and to describe the ecological conditions at the site. *G. teretinervis* occurs on open limestone rock (340 m a.s.l., aspect 190°, slope 35°, tree layer cover 45%) almost without a soil layer. Only four cushions were found at the site. It grows together with *Schistidium singarense* and *S. brunnescens* subsp. *brunnescens* and small quantities of *Grimmia tergestina*, *Bryum argenteum* Hedw., *Tortula muralis* Hedw., *Syntrichia ruralis* (Hedw.) F. Weber et D. Mohr, *Orthotrichum anomalum* Hedw. and *Weissia* cf. *condensa* (Voit) Lindb. (moss layer cover in total about 10%). Both localities are drawn in Fig. 2., the label details of both specimens are as follows: [Czech Republic, Bohemian Karst] Choteč. Skály vápencové. 18. 2. 1896 leg. J. Velenovský sub *Schistidium confertum* var. *siluricum*, PRC; Czech Republic, Bohemian Karst: Bučina, Dračí skála (49°56'41"N; 14°11'06"E), open limestone rocks, 340 m a.s.l., aspect 190°, inclination 35°, on thin humus layer, 18. 10. 1999 leg. L. Voříšková, PRC.

We also tried to check whether there were other specimens of *Grimmia teretinervis* collected by Velenovský as *Schistidium confertum* var. *siluricum* present in his herbarium. Although described from a single specimen, later he added four other localities for the taxon (Radotínské údolí valley, Tetín, rocks opposite to Libšice, Srbsko), when transferring the variety under *S. brunnescens* (Velenovský 1898). Only one duplicate of the specimen from Radotín (herb. W) contained *G. teretinervis*, whereas the duplicates of the specimens from herb. PRC did not; one specimen (from Srbsko) could not be found.

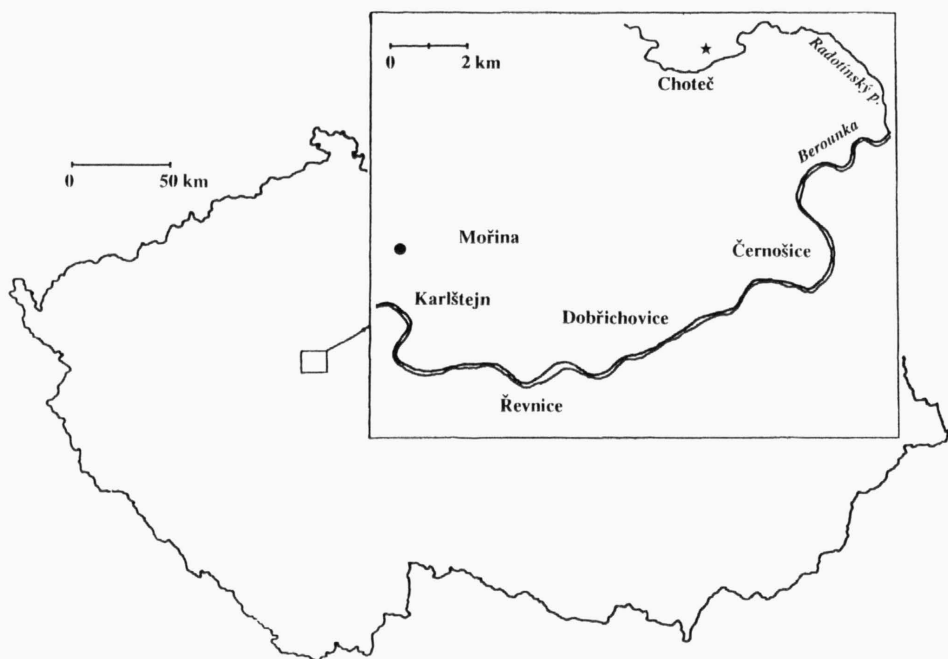


Fig. 2. – Known localities of *Grimmia teretinervis* in the Czech Republic. ● – present locality; ★ – historical locality, inexact location.

Remarks on the threatened status in the Czech Republic

Greven (1995) proposed to rank *G. teretinervis* among taxa threatened on the European scale, confirming thus the proposal of Schumacker (1992). He placed it among taxa which “occur exclusively in alpine areas, are scarcely distributed and which habitats are endangered or vulnerable by air pollution and/or destruction”. The occurrence in the alpine/arctic biotopes is far from exclusive, as can be seen even from the list of examined specimens given by Greven (1995). Lowland sites of demontane character are also given by Grims (1999) and Brusa (1999), but the localities near Prague are probably farthest away from the nearest high mountains where the species occurs (about 250 km to the nearest locality in Upper Austria) and therefore very interesting from the phytogeographical point of view. The site near Karlštejn is currently probably not directly endangered and, in addition, it stands under special protection regime as a part of the Karlštejn Nature Reserve. Quite probably further localities of *G. teretinervis* may occur in the thermophilous limestone areas of the Czech Republic, but the species must definitely be regarded as at least rare. Therefore it should be added to the next version of the Red List of Threatened Bryophytes of the Czech Republic. Our bryologists are nevertheless encouraged to search for *G. teretinervis* especially at the known and potential localities of *Grimmia anodon*, *G. tergestina*, *Schistidium brunnescens* and *S. singarense*.

Acknowledgement

We acknowledge helpful comments of Jiří Váňa on the manuscript. Our thanks are also due to William S. Buck for correcting the English.

Souhrn

Během revize typového materiálu rodu *Schistidium* bylo zjištěno, že typová položka *Schistidium confertum* var. *siluricum* Velen. ve Velenovského herbáři v PRC obsahuje kromě rostlin patřících druhu *Schistidium brunne-cens*, které byly vybrány za lektotyp, i rostliny druhu *Grimmia teretinervis*. Tento druh byl tak pro území České republiky zjištěn poprvé. Opakované pokusy o znovunalezení na nejednoznačně udané lokalitě nebyly úspěšné, avšak *Grimmia teretinervis* byla nově nalezena na nedaleké lokalitě u Karlštejna v Českém krasu.

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Received 30 May 2000

Accepted 23 June 2000

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The liverwort flora of the British Isles

Harley Books (B. H. & A. Harley Ltd.) Martins, Great Horkesley, Colchester, Essex 1999, 626 str., 314 obrazových tabulí. [Kniha je v knihovně ČBS.]

Vydáním této knihy se dostává bryologům do rukou dlouhá léta očekávaná, již několik let v katalozích nakladatelství uváděná flóra játrevek (včetně hlevíků) Britských ostrovů. A skutečně bylo na co čekat; po mnoho let se asi těžko vyskytne nějaká další flóra, která obsahem a rozsahem zpracování recenzované dílo předčí. Z dosud vydaných flór játrevek ji rozsahem předstihují pouze dvě: Müllerovo (1906–1916, 1951–1958) zpracování evropských játrevek ve známém kompendiu „Rabenhorst's Kryptogamenflora“ a populární šestisvazková Schusterova flóra „The *Hepaticae* and *Anthocerotae* of North America east of the hundredth meridian“ (1966–1992).