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Racomitrium elongatum FRISVOLL, a neglected Slovakian bryophyte

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Abstract: Chorology, ecology and phytocoenology of *Racomitrium elongatum* Frisvoll is dealt with in the paper. The taxon is neglected in Slovakia and appears to be rather common in The Tatra Mts. The distribution map of the species in the Tatra Mts is presented.

Keywords: *Racomitrium elongatum*, The Tatra Mts, bryophytes, Slovakia.

Introduction

Racomitrium elongatum FRISVOLL hasn't been still recorded in Slovakia. The species is a member of the *Racomitrium canescens* (HEDW.) BRID. group with a boreal distribution (DÜLL 1994). *R. elongatum* (Fig. 1) differs from *R. canescens* (Fig. 2) by having leaves strongly keeled above, straight nerve ending in apex and hair point decurrent down margin (Fig. 3). *Racomitrium canescens* leaves are either not keeled or only bluntly keeled above, the nerve is usually forked above- extendig to 1/2 – 3/4 way up leaf and the hair point is rather wide, not decurrent down margin.

The distribution map of *Racomitrium elongatum* on a world scale was published by BEDNAREK-OCHYRA (1995). There are two main centres of occurrence in America – the Pacific part of the continent and Ontario. More limited distribution are found in New Foundland and Labrador.

In Europe, the moss occurrs abundantly in Iceland, Faroe Islands, West and South Fennoscandia – in areas of wet, oceanic climate. Also, *Racomitrium elongatum* is frequently found in the British Islands, Portugal, North Spain, France, Netherlands, Germany, and northern Poland. It has a scattered

distribution in The Carpathians and The Alps with some isolated locations in the Balkan Peninsula, Apennine Peninsula, East and South Greenland and in Sicily. The most southerly location is in Madeira (BEDNAREK-OCHYRA, 1995).

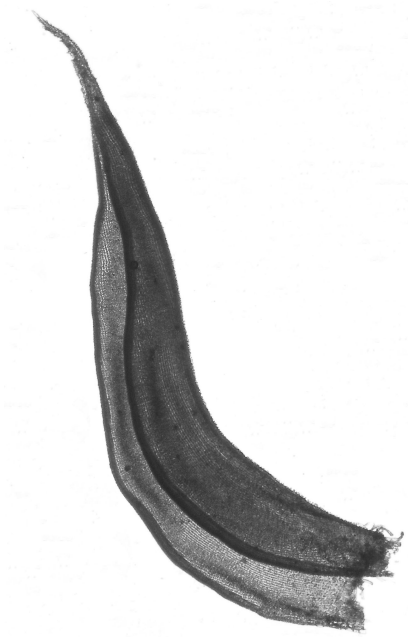


Fig. 1. *Racomitrium elongatum*, leaf

Fig. 2. *Racomitrium canescens*, leaf

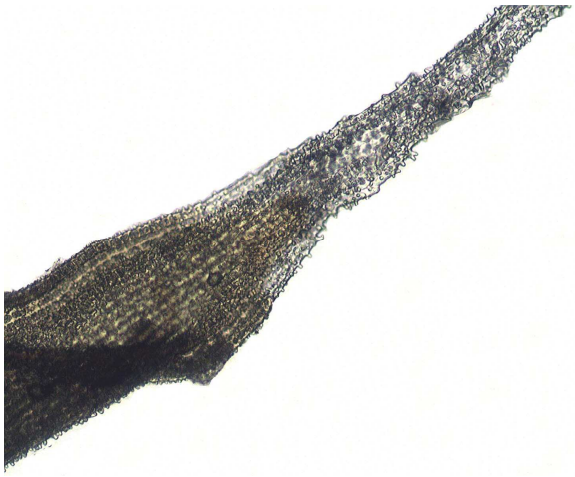


Fig. 3. *Racomitrium elongatum,* hair point decurrent down margin

In Poland, the occurrence is bicentric – Pomerania, which has an oceanic climate, and West Beskydes and The Tatras. In the Tatras, the moss reaches its highest altitude of 1700 m a. s. l. (BEDNAREK-OCHYRA 1995).

In Czech Republic, there are only poor information on the occurrence of the species. It is supposed, the habitats and the incidence of the species are similar to the species *R. canescens.* In lowland occurrs rarely, more often is met is mountains (VÁŇA et al. 2008).

OCHYRA & BEDNAREK-OCHYRA (2004) placed the species with tall, conical papillae (including *Racomitrium elongatum*) to the genus *Niphotrichum.*

The 3rd species of this *Racomitrium* group is *R. ericoides*. This north-oceanic species occurrs very rarely in the Tatra Mts in high-altitude level both on granite and limestone bedrocks.

Material and methods

Collection of *Racomitrium* specimens stored in the Museum of the Tatra National Park in Tatranská Lomnica, Slovakia, was submitted to revision. The plants were collected in 1954 – 2004.

The nomenclature follows KUBINSKÁ & JANOVICOVÁ (1998), or FRISVOLL (1983) respectively. All the specimens are stored in the Museum of the Tatra National Park in Tatranská Lomnica, Slovakia.

Results and discussion

Revision of *Racomitrium* specimens stored in the Museum of the Tatra National Park in Tatranská Lomnica, has identified the following locations of *Racomitrium elongatum* in the Tatra Mts (Fig. 4):

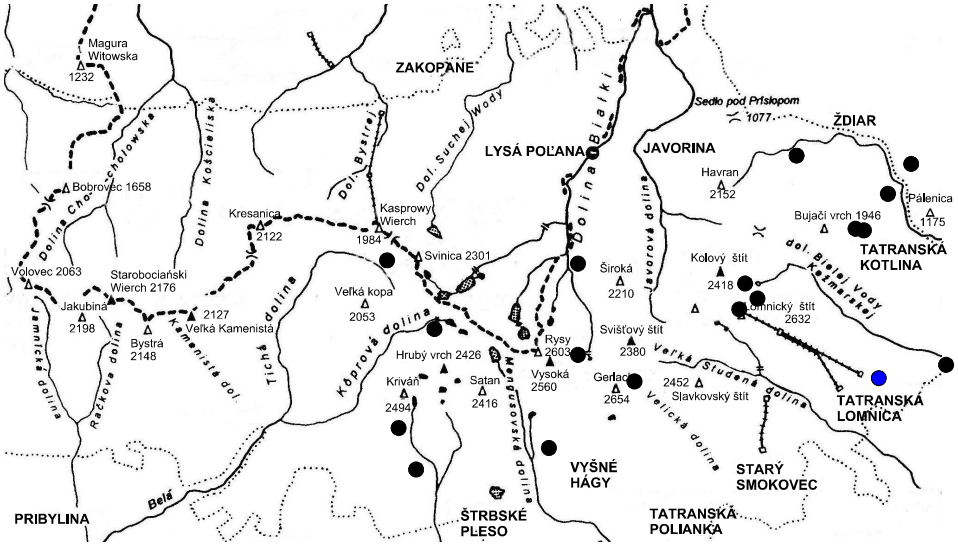
1. The High Tatra Mts, Velická dolina valley, Kvetnica, granite rock, 1850 m a. s. l., leg. Šmarda, August 1954, specimen Nr.1/00205
2. The Belanian Tatra Mts, Dolina Siedmich prameňov valley, 1450 m a. s. l., leg. Šmarda, April 1957, specimen Nr.1/00761
3. The Belanian Tatra Mts, Dolina Siedmich prameňov valley, limestone, 1350 m a. s. l., leg. Šmarda, August 1960, specimen Nr.1/00783
4. The High Tatra Mts, Jahňací štít peak, soil, 2000 m a. s. l., leg. Šoltés, September 20, 1980, specimen Nr.1/01720
5. The High Tatra Mts, Tatranská Lomnica, intravilán, granite rock, 838 m a. s. l., leg. Šoltés, November 24, 1978, specimen Nr.1/01763
6. The High Tatra Mts, Tatranská Lomnica, intravilan, granite rock, 839 m a. s. l., leg. Šoltés, October 28, 1979, specimen Nr.1/01765
7. The High Tatra Mts, Bielovodská dolina valley, limestone, *Neckeretum crispae,* 1120 m a. s. l., leg. Šoltés, August 9, 1983, specimen Nr.1/04040
8. The High Tatra Mts, Mengusovská dolina valley, under Kôpky peak, *Calamagrostietum villosae*, soil, 1680 m a. s. l., leg. Šeffer, July 26, 1982, specimen Nr.1/04323

9. The West Tatra Mts, Tichá dolina valley, on a touristic footpath, soil, 1380 m a. s. l., leg. Šoltés, October 15, 1984, specimen Nr.1/04740
10. The High Tatra Mts, Kačacia dolina valley, the bank of Kačacie pleso lake, granite rocks, 1590 m a. s. l., leg. Šoltés, August 21, 1984, specimen Nr.1/04783
11. The High Tatra Mts, Kriváň peak, above Jamské pleso lake, touristic footpath, soil, 1570 m a. s. l., leg. Šoltésová, November 1, 1984, specimen Nr.1/04879
12. The High Tatra Mts, Velická dolina valley, on a touristic footpath, soil, 1690 m a. s. l., leg. Šoltésová, July 26, 1984, specimen Nr.1/04955
13. The High Tatra Mts, Kôprová dolina valley, fork to Temnosmrečinová dolina valley, soil, 1680 m a. s. l., leg. Šoltésová, July 17, 1984, specimen Nr.1/05034
14. The High Tatra Mts, Kriváň peak, *Junco-Oreochloetum*, soil, 1980 m a. s. l., leg. Šoltésová, August 24, 1985, specimen Nr.1/05056
15. The Belanian Tatra Mts, Skalka hillock, sandy soil in a spruce forest, 900 m a. s. l., leg. Šoltés October 12, 1986, specimen Nr.1/05351
16. The High Tatra Mts, Dlhý les kežmarský forest, rocky wall of a bridge, 790 m a. s. l., leg. Šoltés, June 4, 1993, specimen Nr.1/07269
17. The Belanian Tatra Mts, Monkova dolina valley, limestone, 1310 m a. s. l., leg. Šoltés, September 16, 1993, specimen Nr.1/07285
18. The Belanian Tatra Mts, Suchá dolina valley, calcic soil, 820 m a. s. l., leg. Šoltés, September 24, 1993, specimen Nr.1/07626
19. The High Tatra Mts, Dolina Zeleného plesa valley, *Luzuletum spadiceae*, soil, 1661 m a. s. l., leg. Šoltés July 6, 2004, specimen Nr.1/15237
20. The High Tatra Mts, Lomnický štít peak, top area, *Oxyrio-Saxifragetum carpaticae*, 2630 m a. s. l., leg. Šoltés, August 11, 2004, specimen Nr.1/15323

There is no information on the overall occurrence of *Racomitrium elongatum* in Slovakia but we think it is as abundant as *Racomitrium canescens*. According to BEDNAREK-OCHYRA (1995), the moss is growing abundantly in dry, sunny, sandy or clay habitats, in pine forests, on steep path sides, on dunes, in heaths and on grassy places. In the Tatra Mts it occurrs both on carbonate or granite bedrocks, from montane to the subalpine levels. The moss grows on sandy or humic soil, on rocks, bare soil, or directly on well trodden footpaths as well as covering old building structures. Its ecological requirements are similar to *Racomitrium canescens,* but requires more humid habitats.

The moss is part of the floristical composition of different communities, but doesn't show any relation to syntaxon (BEDNAREK-OCHYRA 1995). In the Tatra Mts, we have recorded *Racomitrium elongatum* in the communities of the alliances *Calamagrostion villosae* PAWŁOWSKI et al. 1928, *Festucion pictae* KRAJINA 1933, *Juncion trifidi* KRAJINA 1933, *Androsation alpinae* BR. – BL. in BR.-BL. et JENNY 1926 and in the moss community determined as *Neckeretum crispae* ŠMARDA 1947. Accompanied species on granite rocks include *Diplophyllum taxifolium* (WAHLENB.) DUMORT., *Gymnomitrion corallioides* NEES,

Tritomaria exsecta (SCHMIDEL ex SCHRAD.) SCHIFFNER ex LOESKE, *Andreaea rupestris* (SCHMIDEL ex SCHRAD.) SCHIFFNER ex LOESKE, *Grimmia incurva* SCHWÄGR., *Hydrogrimmia mollis* (BRUCH & SCHIMP.) LOESKE, *Kiaeria FALCATA* (HEDW.) I. HAGEN, *Racomitrium sudeticum* (FUNCK) BRUCH & SCHIMP., *Sanionia uncinata* (HEDW.) LOESKE *and Schistidium apocarpum* (HEDW.) BRUCH & SCHIMP. On acid soil associates include *Polytrichum juniperinum* HEDW., *Dicranella heteromalla* (HEDW.) SCHIMP., *Dicranum scoparium* HEDW., *Pleurozium schreberi* (WILLD. ex BRID.) MITT., *Pohlia nutans* (HEDW.) LINDB., *Hylocomium pyrenaicum* (SPRUCE) LINDB., *Hypnum cupressiforme* HEDW., *Sphagnum compactum* LAM. & DC., *Philonotis seriata* MITT., *Polytrichum alpinum* HEDW., *Pleurocladula albescens* (HOOK.) GROLLE, *Pellia neesiana* (GOTTSCHE) LIMPR., *Pohlia drummondii* (MÜLL. HAL.) A. L. ANDREWS, *Racomitrium lanuginosum* (HEDW.) BRID., *Oligotrichum hercynicum* (HEDW.) LAM. & DC., *Pohlia nutans* (HEDW.) LINDB. and *Pogonatum urnigerum* (HEDW.) P. BEAUV. On limestone substratum, the moss is associated with *Entodon concinnus* (DE NOT.) PARIS, *Schistidium strictum* (TURNER) LOESKE ex MARTENSSON, *Schistidium apocarpum* (HEDW.) BRUCH & SCHIMP., *Tortella tortuosa* (HEDW.) LIMPR., *Ditrichum flexicaule* (SCHWÄGR.) HAMPE, *Neckera crispa* HEDW., *Campylium stellatum* (HEDW.) C.E.O. JENSEN, *Mnium thomsonii* SCHIMP., *Ptychodium plicatum* (SCHLEICH. ex F. WEBER & D. MOHR) SCHIMP., *Plagiochila porelloides* (TORR. ex NEES) LINDENB., *Leskea polycarpa* EHRH. ex HEDW.



● *Racomitrium elongatum* localities

Fig. 4. The distribution of *Racomitrium elongatum* in the Tatra Mts. Graphical source: TPN Zakopane

The species hasn't been evaluated against the old IUCN system in Slovakia (KUBINSKÁ *et al*. 2001), and since that time the species hasn't been included in the list of species occurring in Slovakia.

Racomitrium elongatum doesn' t satisfy any criteria of the threatened categories of IUCN (ECCB 1995; HALLINGBÄCK 1998; HALLINGBÄCK 2001; HALLINGBÄCK et al., 1998; IUCN 1994). In Czech Republic, the species is not redlisted as well (KUČERA & VÁŇA 2005).

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