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Racomitrium ericoides (Bryophyta) in the Tatra Montains, Slovakia

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Abstract. This paper deals with chorology, ecology and phytocoenology of *Racomitrium ericoides*. The species appears to be the rarest species of the *Racomitrium* genus in the Tatra Mts. A distribution map of the species in the Tatra Mts. is shown.

Key words: Slovakia, The Tatra Mts., bryophytes, *Racomitrium ericoides*

Introduction

Racomitrium ericoides (F. Weber ex Brid.) Brid. is a member of the *Racomitrium canescens* group and differs from *Racomitrium canescens* by having leaves strongly keeled, a straight nerve ending in apex and by the less papillose hair point (Fig. 1, 2) .

Racomitrium ericoides was included in the list of the taxa found after 1960 (Soldán 1994). In Slovakia, the moss was first collected in the Tatra Mts. in 1919 by Vilhelm (1925). It was found in the Malá Studená dolina valley near Päť Spišských plies (lakes) at an altitude of 1,500 m a.s.l. (sub *Racomitrium canescens*) and at the time was determined as *Racomitrium canescens* f. *angustifolia* because of the extremly narrow leaves. Another record made by the same author was in the Dolina Zeleného plesa valley in the altitude of 1,500 m a.s.l. (sub Racomitrium canescens), the author named this specimen termed as *Racomitrium canescens* f. *repens* because of the particular procumbent growth, probably caused by running water. Both the specimens were examined by Frisvoll (1983) and identified as *Racomitrium ericoides*.

Material and Methods

An examination was made of the *Racomitrium* specimens collected between 1954-2001 at the Museum of the Tatra National Park in Tatranská Lomnica, Slovakia, with the aim to locate records of R. ericoides.

The nomenclature follows Kubinská and Janovicová (1998) or Bednarek-Ochyra (1995) respectively. The specimens are either stored in the Museum of the Tatra National Park in Tatranská Lomnica or in the Institute of High Mountains Biology in Tatranská Javorina.

Results and Discussion

The revision of the *Racomitrium* collection stored in the Museum of the Tatra National Park in Tatranská Lomnica has previously been published Šoltés (2006). The discovery of *R ericoides* in this collection prompted further field work to search for the species.

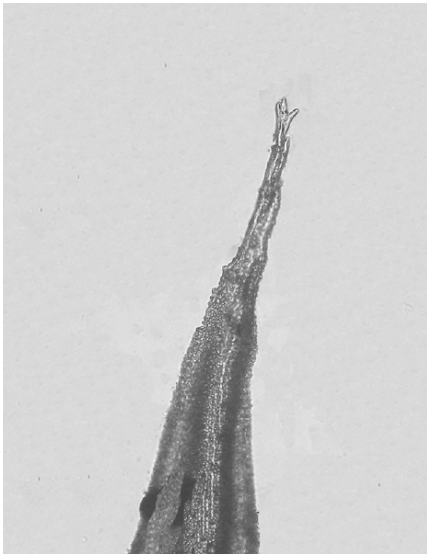

Fig. 1. *Racomitrium ericoides*, slightly papilose hair-point.

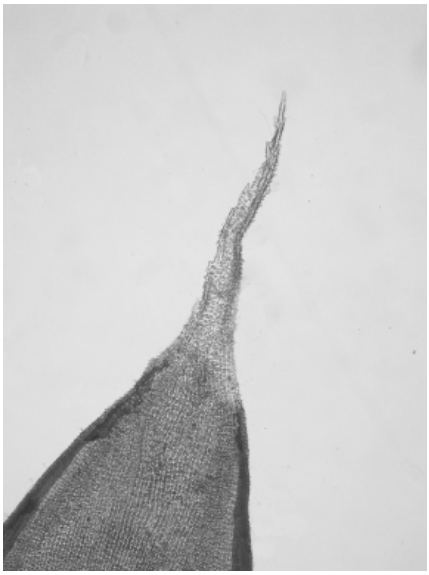

Fig. 2. *Racomitrium canescens*, densely papilose hair-point.

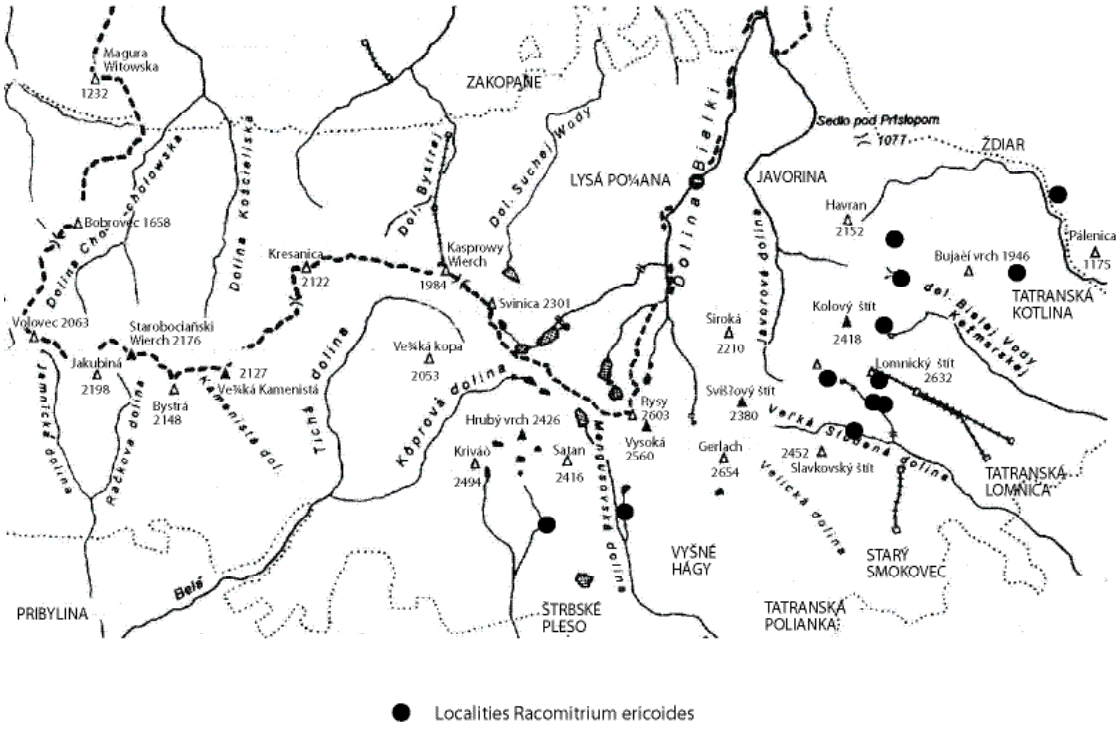

Fig. 3 Distribution map of *Racomitrium ericoides* in the Tatra Mts. Graphical source: TPN Zakopane.

The following list is the known distribution of R. ericoides *in the Tatra Mountains:*

The High Tatra Mts., Furkotská dolina valley, granite rocks, 1,800 m a. s. l., leg. Šmarda July 12, 1954, specimen Nr.1/00636

The Belanian Tatra Mts., Dolina Siedmich prameňov valley, limestone, 1,490 m a. s. l., leg. Šmarda July 17, 1960, specimen Nr.1/00842

The High Tatra Mts., Malá Studená dolina valley, granite rocks, 1,900 m a. s. l., leg. Šoltés October 10, 1977, specimen Nr.1/01767

The High Tatra Mts., Veľká Studená dolina valley, soil, 1,950 m a. s. l., leg. Šoltés June 2, 1983, specimen Nr.1/03685, est! Váňa

Belianske Tatry, Kopské sedlo saddle, soil, 1,690 m a. s. l., leg. Šoltés July 6, 1983, specimen Nr.1/03786, est! Váňa

The Belanian Tatra Mts., Skalka hillock, limestone, 950 m a. s. l., leg. Šoltés October 19, 1986, specimen Nr.1/05337

The High Tatra Mts., Lomnický štít peak, granite rocks, 2,628 m a. s. l., leg. Paclová September 27, 2000, specimen Nr.1/14317

The High Tatra Mts., Lomnický štít peak, granite rocks, 2,630 m a. s. l., leg. Paclová September 27, 2000, specimen Nr.1/14334

The High Tatra Mts., Sedielko saddle, soil, 2,350 m a. s. l., leg. Paclová October 10, 2001, specimen Nr. 1/14635

The High Tatra Mts., Lomnický štít peak, granite rocks, 2,625 m a. s. l., leg. Šoltés October 15, 2001, specimen Nr.1/14643

Vysoké Tatry, Mengusovská dolina valley, dwarf pine stand, 1,805 m n. m., leg. Šibík, July 7, 2006.

The Belanian Tatra Mts., Ždiarska vidla, dwarf pine stand, 1,600 m a. s. l., leg. Šibík August 3, 2007.

The High Tatra Mts., Malá Studená dolina valley, 49° 11,036´, 20° 12,491´, accuracy 7 m, 1,648 m a.s.l., August 6, 2008.

The High Tatra Mts., Lomnický hrebeň ridge, 49° 10,681; 20° 13,849´, accuracy 11 m, 1,622 m a.s.l., August 6, 2008.

In Central Europe, *R. ericoides* is the rarest species within the *Racomitrium canescens* group, recorded only in the Alps and in the Tatra Mts. A revision of the accessible collections in the Czech Republic revealed a confusion with the related species *Racomitrium elongatum* or *R. canescens* (Kučera and Váňa 2005).

R. ericoides is a northern-oceanic species (Düll 1994), but Bednarek-Ochyra (1995) described it as an arcto-boreal mountain species. It is widespread in the North Holarctic ecozone reaching Spitzbergen and Franz Josef Land. Known also from Novaja Zemlja, on some Arctic Canadian islands as well as Greenland - where is common in the south-west. *R. ericoides* is also known from northern Europe, being abundant from West Scandinavia to southern Sweden - in areas of wet, oceanic or suboceanic climate. Other European records include Iceland, British Isles, the Carpathians, Germany, Belgium, in eastern France and the Alps. The most southerly location is the Emilia Romagna Region, of northern Italy.

There are two main centres of distribution in North America – the Pacific part of the continent and Labrador. Two locations are known in Japan as well as an isolated location in the Azores (Bednarek-Ochyra 1995).

In Poland, R. ericoides is the rarest member of the *Racomitrium* genus, having a distribution centre in the Tatras, where it can be found growing in the subalpine and alpine level, reaching 2,159 m a.s.l. in the Tawrat saddle.

It rarely occurs in the Sudety Mts., only known from a single location (Bednarek-Ochyra 1995). The world-wide distribution of the species has been published by Bednarek-Ochyra (1995).

Its occurence on granite indicates a dependency on communities of the *Juncion trifidi* alliance. According to Bednarek-Ochyra (1995), in the Tatra Mts. the moss grows in the high-alittudinal grassy *Trifido-Distichetum* community.

Of all the members of the *Racomitrium* genus, *R. ericoides* shows the greatest ecological diversity. This is the only representative of the *Racomitrium* genus growing equally on dry or periodically wet habitats, open sunny or shaded habitats; on gravel, debris, in rocky crevices, or bare soil between boulders. Also the species may be found on sandy soil or in heaths or meadows.

According to Bednarek-Ochyra (1995) this is an obligatory acidophile species, avoiding limestone substratum. This is contrary to our own observation. We have collected the species in the Dolina Siedmich prameňov valley and in the Kopské sedlo saddle, the Belanian Tatra Mts., both on the limestone. Specimen identification was confirmed by prof. Jiří Váňa, Charles University, Prague.

The phytocoenological relations of *R. ericoides* are still incompletely known. Many of the old records may refer to *R. canescens* or *R. elongatum* (Bednarek-Ochyra 1995).

Where growing on granite, the associates include: *Amphidium mougeotii, Andreaea obovata, Bryum argenteum, B. caespiticium, B. elegans, Ceratodon purpureus, Grimmia alpestris, G. incurva, Hypnum cupressiforme, H. revolutum, Kiaeria falcata, Pohlia drummondii, P. nutans, Polytrichum alpinum, Racomitrium lanuginosum, R. sudeticum, Rhizomnium magnifolium, Rhytidium rugosum, Sanionia uncinata, Tortula ruralis, Warnstorfia exannulata* and others. On limestone, associates include *Distichium capillaceum* and *Tortella tortuosa* and others.

In North America, the moss is common on undisturbed soil along roadside (Anderson *et al.* 1990).

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