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Sphagnum beothuk new to Sweden

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Sphagnum beothuk was recently found new to Europe in Norway as the dark morph of *Sphagnum fuscum* proved to be conspecific with the north american *S. beothuk*. The Norwegian distribution suggests that it may also occur in other oceanic parts of northwestern Europe. In 2016, I made a brief survey of a number of mires in the province of Bohuslän in the westernmost part of Sweden. In three bogs, I found only *S. fuscum*, but in one bog this species co-occurred with *S. beothuk*. This implies that *S. fuscum* is the most common of the two species in the suboceanic part of Sweden. However, to determine the actual frequency and distribution of *S. beothuk*, a more extensive survey of bogs in the westernmost part of Sweden is required.

Sphagnum beothuk R.E. Andrus was originally described from New Foundland (Andrus 2006), and when the dark morph of *Sphagnum fuscum* Schimp. (Klinggr.) in Europe was scrutinized, it proved to be conspecific with *S. beothuk* (Kyrkjeeide et al. 2015).

The usually dark colour, the convex capitula of the shoots, and the fact that many hyalocysts lack perfect pores on the convex side in the upper third of the branch leaves, distinguish it from *S. fuscum*. Moreover, the branch leaves are often 5-ranked, and the stem leaves are usually less obtuse in *S. beothuk* than in *S. fuscum*. (Kyrkjeeide et al. 2015).

Sphagnum beothuk occurs in the oceanic part of the west coast of Norway, up to the province of Troms (Fig. 1). Given that some species that are common in the oceanic part of Norway, such as *Scapania gracilis* Lindb., *Campylopus atrovirens* De Not., and *Hookeria lucens* (Hedw.) Sm., have a few scattered occurrences also along the west coast of Sweden (Størmer 1969), it seemed likely that *Sphagnum beothuk* might follow the same pattern. The dark morph of *S. fuscum* had, however, not previously been reported from that area.

To investigate this, I visited a number of mires in the northern part of Bohuslän between 29 September and 1 October 2016. I chose this area, as the moss flora there is poorly known, except for Sotenäset, an area of 150 km² near the coast (Bergqvist and Blomgren 1998). Only two previous records of *Sphagnum fuscum* were known from this

area. I revisited one of them without finding the species. I then investigated mires along a 50 km gradient from north to south. I managed to find *S. fuscum* in four mires, and in one of them, Torrödsmossen, *S. beothuk* also occurred (Fig. 1, 2). The species mainly grew in hummocks, but occasionally also on more flat ground (Fig. 4, 5).

Torrödsmossen is situated 15 km inland from the coast at Grebbestad in Bohuslän, southwestern Sweden, at an altitude of ca 125 m a.s.l., in an area with an annual precipitation of 750 mm. The vegetation has been described by Hallingbäck (1978), and some characteristics are presented below. It is a western, open and slightly raised bog, which lacks a distinct bog margin forest. The dominant species in the hummocks are *Sphagnum austinii* Aust. and *S. rubellum* Wilson. *S. tenellum* (Brid.) Bory is common in the hollows. *S. compactum* Lam. & DC., *S. molle* Sull., *S. pulchrum* (Braithw.) Warnst., and *S. balticum* (Russ.) C.Jens. also occur on the bog, but none of them is dominant. Vascular plants such as *Erica tetralix* L., *Myrica gale* L., *Narthecium ossifragum* (L.) Huds., *Trichophorum caespitosum* (L.) Hartm., *Rhynchospora alba* (L.) Wahl, *R. fusca* (L.) W.T. Aiton., *Drosera anglica* Huds. and *Carex limosa* L. occur on the bog expanse.

Data from Norway suggests that *Sphagnum beothuk* has a distribution which is similar to that of *S. austinii* but slightly more oceanic (Kyrkjeeide et al. 2015). The two species also frequently co-occur. Indeed, I found the two species together at the Swedish site.

This fact could be used to predict the distribution of *S. beothuk* in Sweden (Fig. 2). This small survey indicates that *S. fuscum* is much more common. But, it would be worthwhile to look for *S. beothuk* at least in the most oceanic part of southern Sweden, within the core area of *S. austinii* (Fig. 2).

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Figure 1. Distribution map of *Sphagnum beothuk* (yellow squares) from GBIF (GBIF Secretariat: GBIF Backbone Taxonomy. doi:10.15468/39omei, accessed via <www.gbif.org/species/7846758> on 2017-03-30) with the new record in Sweden marked (white circle). The species certainly occurs more abundantly in Britain and Ireland than shown on the map, but the exact frequency and distribution of *S. beothuk* in relation to *S. fuscum* in this area is under revision.

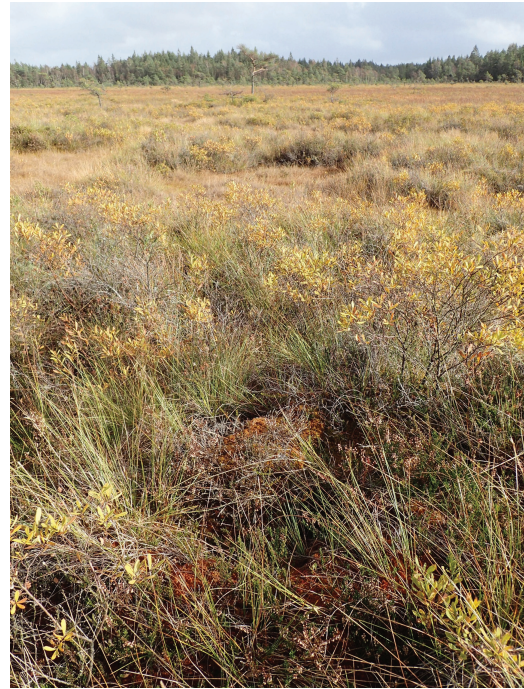


Figure 3. Habitat of *Sphagnum beothuk* at the Swedish site, Toröds mossen. (Photo: N. Lönnell).

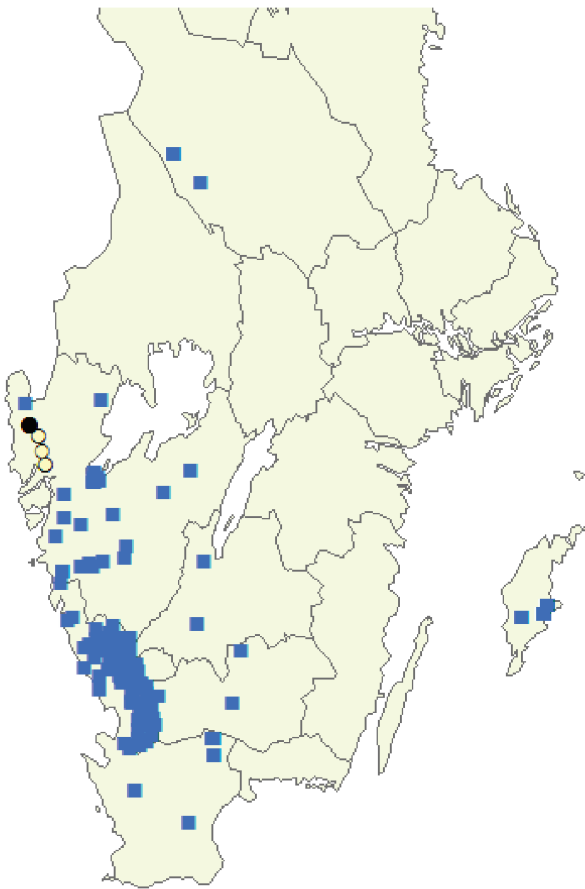


Figure 2. Map of southern Sweden, with occurrences of *Sphagnum austinii* registered at the Swedish Species Gateway (blue squares; <www.artportalen.se> accessed 2017-01-04), visited mires with only *S. fuscum* (yellow dots) and the mire with both *S. beothuk* and *S. fuscum* (black dot). Along the west coast of Sweden, from Bohuslän and southwards, there may be several suitable habitats for *S. beothuk*, especially within the core area of *S. austinii*.



Figure 4. Wet *Sphagnum beothuk* growing at lower ground at Toröds mossen. Note the dark brown colour and the somewhat 5-ranked branch leaves (Photo: N. Lönnell).



Figure 5. *Sphagnum beothuk* often grows in hummocks together with *S. austinii* as it did at the Swedish site, Toröds mossen. (Photo: N. Lönnell).

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Sphagnum beothuk

SWEDEN, Province: Bohuslän, Parish: Tanum, SW-part of Torödmossen. 125 m.a.sl., raised bog, 2016-09-29 Niklas Lönnell

N 58.696389, O11.492091, NL4333 (TRH-B38803/1),

N 58.696510, O11.492683, NL4346,

N 58.696510, O11.492683, NL4334 (TRH-B38802/1),

N 58.696695, O11.492700, NL4335.

All four specimens checked by Kjell Ivar Flatberg 2017. A specimen will be deposited in Stockholm (S) as well.

Sphagnum fuscum

SWEDEN, Bohuslän,

Tanum, SW-part of Torödmossen, Niklas Lönnell, NL4332

Håby, Hästskedmossen, Niklas Lönnell, NL4338

Skredsvik, Bredmossen SE of Saltkällan, Niklas Lönnell, NL 4339, NL4340, NL4341, NL4342

Svarteberg, Bredmossen S of Tångarna, Niklas Lönnell, NL4344, NL4345

Specimens from all sites checked by Kjell Ivar Flatberg 2017.

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