

# Hypogymnia incurvoides new to Scandinavia and the Appalachian Mountains

BRUCE MCCUNE, TOR TØNSBERG and TEUVO AHTI

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*Hypogymnia incurvoides* is reported for the first time from Scandinavia, with locations in Norway and Sweden. It is also reported for the first time from the Appalachian Mountains in the USA.

*Bruce McCune, Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR 97331-2902 USA. E-mail: Bruce.McCune@science.oregonstate.edu*  
*Tor Tønsberg, Museum of Natural History, University of Bergen, Allégatan 41, N-5020, Bergen, Norway. E-mail: tor.tonsberg@bm.uib.no*  
*Teuvo Ahti, Botanical Museum, P.O. Box 7, FI-00014 Helsinki University, Finland. E-mail: teuvo.ahiti@helsinki.fi*

The long-neglected species, *Hypogymnia incurvoides* Rass., previously known only from the type locality in northeastern Russia (Rassadina 1967), was recently shown to be fairly common in coastal areas of eastern Canada, specifically Newfoundland and Nova Scotia (McCune et al. 2006). The disjunct localities in North America and Russia suggested that populations in Fennoscandia were likely. We therefore checked for *H. incurvoides* in collections of *Hypogymnia physodes* in BG, H, S, TRH, and UPS.

Only three Scandinavian locations were found, two from Norway collected in 1869 and 1938, and one from Sweden collected in 1938. We here report *Hypogymnia incurvoides* as new to Scandinavia based on these collections. The species is so far not known from Finland. It is too early to say just how rare *H. incurvoides* is in Fennoscandia, but the species appears to be rare enough to warrant concern.

In UPS was also a specimen from USA, Maine (Mount Katahdin). Examination of material from WIS yielded one from New York

(Whiteface Mt.). Study of unaccessioned material at OSC collected by Larry Pike in the 1970s revealed locations of *H. incurvoides* from North Carolina (Mount Mitchell and Clingmans Dome). The locations at Mount Mitchell/Clingmans Dome in the south and Mount Katahdin in the north nearly span the length of the Appalachians Mountains. It is therefore not unlikely that populations of *H. incurvoides* may be found on higher peaks throughout the Appalachians Mountains.

Further sites near Clingmans Dome, on the Tennessee side, were recently found in the southern Appalachians by Tønsberg in 2006. One of these populations includes the first known fertile material for the species. Apart from the apothecia, the specimens appear typical. The following description of apothecial characteristics is based on Tønsberg 37464a. Apothecia to 7 mm diameter, sessile to substipitate, the receptacle urn shaped when very young, soon becoming funnel shaped; exciple densely covered with powdery soredia; disc pale brown to medium brown; spores 8 per

ascus, subspherical,  $5.5\text{--}6.5 \times 4.8\text{--}5.5 \mu\text{m}$ ; pycnidia present but spermatia not found.

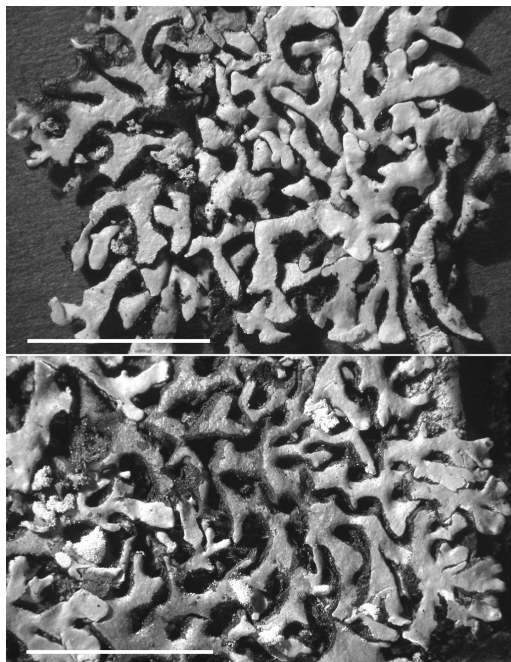
### The species

*Hypogymnia incurvoides* is differentiated from *H. physodes* and illustrated by McCune et al. (2006). Briefly, *Hypogymnia incurvoides* is distinguished from *H. physodes* by the presence of holes in the lobe tips and axils, black-margined lobes forming a regular lattice, and the absence of 3-hydroxyphysodic acid, also known as conphysodic acid. This substance gives a  $\text{K}^+$  reddish brown reaction in the medulla, which is consistently seen in *H. physodes* but not in *H. incurvoides*. All other lichen substances of *H. physodes* and *H. incurvoides* are the same.

In searching through collections of *H. physodes*, most specimens can be rejected from *H. incurvoides* at a glance, including those morphs of *H. physodes* as follows:

- thalli with lobes elongate and often splaying outward or upward from the substrate,
- all broad-lobed morphs,
- rosettiform morphs with laterally compressed lobes, and
- forms with no black lobe margins showing.

This leaves a small fraction of *Hypogymnia physodes* specimens, those that are appressed, rosettiform, and with black edged lobes. These are worth examining more carefully. Check for the slow  $\text{K}^+$  red-brown reaction that eventually shows through the upper cortex. If this is found, the specimens cannot be *H. incurvoides*. Also check for the small roundish holes in the lobe tips that are present in at least a few lobes (and sometimes abundantly) in *H. incurvoides*. *H. physodes* may have dimpled or crumpled lobe tips, or occasional holes from abrasion or insect damage, but never with recurring, neatly circular or oval perforations in the lobe tips. In



**Figure 1.** Habit of specimens of *Hypogymnia incurvoides* from Norway (upper; Ahlner, 10 Aug. 1938, S 66846) and Sweden (lower; Degelius, UPS 155700). Bars = 1 cm.

*H. physodes*, all of the non-chewed holes in the lobe tips have soralia.

The discovery of fertile specimens of *H. incurvoides* removes one of the differences between this species and *H. krogiae*. Indeed, their similarities in chemistry, thallus size, pattern and frequency of lobe perforations suggest a close relationship. Apart from the presence of soredia on *H. incurvoides*, the primary difference between them is a tendency for *H. krogiae* to develop elongate, imbricate lobes, while *H. incurvoides* most often has short, appressed to somewhat imbricate lobes.

*Selected specimens examined:* **Norway.** Nord-Trøndelag: Foldereid municipality, c. 1 km V om kyrkan [c. 1 km W of the church],  $64^{\circ}57.8'N$ ,  $12^{\circ}11.6'E$ , gran i bäckdal [*Picea abies* in brook ravine], 20 August 1938, Ahlner

s.n. (S 66846). *Oslo*: Grefsenåsen, 1869, Moe s.n. (TRH). **Sweden**. *Västergötland*: Sexdrega par., Rya, approx. 57°35'N, 13°07'E (not on label), on *Alnus glutinosa*, i alkärr [in swamp forest], 21 July 1938, Degelius s.n., UPS 155700 (UPS database number L-86801). **USA**. *Maine*: Mount Katahdin, west slope, Degelius s.n., UPS 166547 (not confirmed by TLC). *New York*: Essex County, Whiteface Mt., Thomson 11155 (WIS). *North Carolina*: Swain County, Great Smoky Mountains National Park, Clingmans Dome, at summit, alt. c. 2025 m, [35°34'N, 83°30'W (approx.)] on trunks in spruce-fir forest, Pike 4489 (OSC); Yancey County, near summit of Mount Mitchell, alt. c. 2000 m, [35°45'N, 82°16'W (approx.)] on conifer trunk, Pike 4473 (OSC). *Tennessee*: Sevier County, Great Smoky Mountains National Park, Clingmans Dome area, alt. 2000–2010 m, 35°33.33'N, 83°30.08'W, 20 September 2006, Tønsberg 37464a–d, 37465, 37470 (BG).

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## References

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