

## SPECIES FACT SHEET

**Common Name:** Frye's swamp moss

**Scientific Name:** *Limbella fryei*

Recent synonym: *Sciaromium tricostatum* (= *Limbella tricostata*)  
misapplied for records from North America

Division: Bryophyta

Class: Bryopsida

Order: Hypnales

Family: Amblystegiaceae

**Technical Description:** Plants dendroid or sometimes trailing, yellow-green to dark green. Stems dark brown, 4-13 cm long, with densely matted dark reddish-brown rhizoids at base. Leaves with a midrib and thickened margins, toothed at the tip and sometimes to the base, contorted when dry, tapering gradually to the tip, or often almost parallel-sided and then tapering rather abruptly at the tip. **Distinctive characters:** (1) dendroid moss with dark stems, (2) strong midrib and thickened margins visible with a hand lens as three parallel lines, (3) marginal teeth visible with hand lens. **Similar species:** *Leucolepis acanthoneuron* has (1) dark green, fine-textured, toothed leaves much smaller and more crowded, and (2) no thickened leaf margins. *Climacium dendroides* (1) is light green and coarse-textured, (2) with large concave leaves rounded at the tips, (3) no thickened margins or marginal teeth, and (4) orange-brown stems 4-8 cm long, visible through the leaves when wet. *Pleuroziopsis ruthenica* has (1) yellow-green, fine-textured leaves, (2) greenish-brown stems up to 15 cm tall, (3) no thickened margins, and (4) conspicuous scales sheathing the stem below the branches. *Thamnobryum neckeroides* has (1) irregular branching, (2) remote stem leaves, (3) no thickened margins, and (4) leaves keeled near the shoot tips. **Other descriptions and illustrations:** Williams 1933: 52; Grout 1934: 266; Lawton 1971: 287; Christy 1980: 522; Christy 1987: 408; Ochyra 1987: 477; Christy and Wagner 1996: VII-39; Christy 2001, 2002.

**Life History:** The protonema of *Limbella fryei* is inconspicuous, forming buds and shoots in the usual fashion of moss growth and development. Populations are unisexual and capsules have not been found, indicating that populations were established by long-distance dispersal of spores. The only known existing populations occur around dune lakes and propagation is restricted to vegetative fragments.

**Range, Distribution, and Abundance:** Endemic to the Pacific Northwest and known only from coastal Oregon (Lane and Curry Counties). The largest known extant population of *Limbella* occurs at Sutton Lake Swamp Preserve, with a few smaller populations located elsewhere around the lake. There is also one population at Floras Lake in Curry County consisting of two small sites, one of which is on Coos Bay BLM lands. The population at the type locality near Charleston (Coos County) was last seen in 1950 and is thought to be extinct.

BLM Districts: Documented on Coos Bay District at Floras Lake in NW Curry County. Suspected on Eugene District because of similar habitat.

National Forests: none documented; suspected on Sutton Recreation Area of Siuslaw NF that is adjacent to the only extant site, and on the Oregon Dunes National Recreation Area because of similar habitat.

Rare. One of the rarest mosses in the Pacific Northwest. It has been sought extensively along the coast from northern California to British Columbia with only two localities known in Oregon.

**Habitat Associations:** Forming sods to three feet in diameter on wet rotten wood, leaf litter and lower trunks of tall shrubs, in dense coastal shrub swamps or in open, weedy herbaceous vegetation along dune lake shores. Elevation at known sites are all below 200 feet. Associated vascular species at the dense coastal shrub swamps locality include *Pyrus fusca*, *Salix hookeriana*, *Salix sitchensis*, *Vaccinium spp.*, *Lotus corniculatus*, *Potentilla spp.*, *Eleocharis spp.*, *Carex obnupta* and *Lysichiton americanum*. Associated bryophytes include *Fontinalis antipyretica*, *Chiloscyphus pallescens*, *Sphagnum squarrosum*, *Calliergon cordifolium*, *Riccardia chamaedryfolia*, *Neckera douglasii*, *Orthotrichum lyallii*, *Eurhynchium praelongum*, *Leucolepis acanthoneuron*, and *Rhizomnium glabrescens*. The shrubs may be festooned with the lichen *Usnea longissima*. Associated vascular species at the open, weedy dune lake shore locality include *Lotus corniculatus*, *Carex obnupta*, *Potentilla anserina*, *Eleocharis sp.*, *Calamagrostis sp.*, and *Potentilla palustris* (Wagner 2008). Associated bryophytes include *Fontinalis antipyretica*, *Chiloscyphus pallescens*, *Kindbergia praelonga*, *Riccardia chamaedryfolia*, *Bryum pseudotriquetrum*, *Calliergonella cuspidata*, *Fissidens sp.*, *Sphagnum squarrosum* and *Calliergon cordifolium* (Wagner 2008). The type locality where Frye first found the plant near Charleston was described as an open marshy pasture not unlike the Floras Lake habitat association which is mainly in a *Carex obnupta/Potentilla palustris* association that grades into the shrub thickets (Wagner 2008).

It may tolerate full exposure but the substrate must be seasonally to perennially wet. The plants at Floras Lake site are inundated most of the winter and exposed during the dry mid-summer through fall period.

Plants are habitat for caddisfly larvae, snails, small bivalves, mites and other invertebrates (Christy 1985, 1995).

**Threats:** Housing development, water pollution, invasion of *Phalaris arundinace* as well as *Salix hookeriana* and *Vaccinium uliginosum*, earthquake-related subsidence, and human-caused changes in hydrology are the primary threats to *Limbella fryei*. Development of lakefront property and effluent from septic fields could destroy habitat for *Limbella*. Flooding caused by damming or tectonic subduction could inundate habitat and extirpate populations.

**Conservation Considerations:** Survey for new sites (1) along Sutton Creek in the Sutton Recreation Area adjacent to and downstream from known habitat at Sutton Lake, (2) on the Oregon Dunes National Recreation Area, and (3) other dune lakes along the south and central Oregon coast. Transplant to similar habitats elsewhere along the coast to reduce the likelihood of extirpation from a catastrophic event at either Sutton or Floras Lake.

Conservation rankings: Global: G1; National: N1. Oregon: S1, List 1; U.S. Fish & Wildlife Service: species of concern; Oregon Department of Agriculture: candidate. Not known from Washington.

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**Date Completed: June 2006. Revised May 2007 with edits from Rob Huff and Russ Holmes. Revised in March 2009 with edits from Jennie Sperling and Tim Rodenkirk to document a newly discovered site at Floras Lake.**

Updated by Camille Duncan in February 2010 (Update added Attachment 1: Photos, to the Species Fact Sheet.)

**ATTACHMENTS:**

**(1) Photos**

## **References**

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Tan, B.C., P. Geissler, T. Hallingbäck & L. Söderström. 2000. The 2000 world red list of bryophytes. Appendix 2, pp. 77-90.

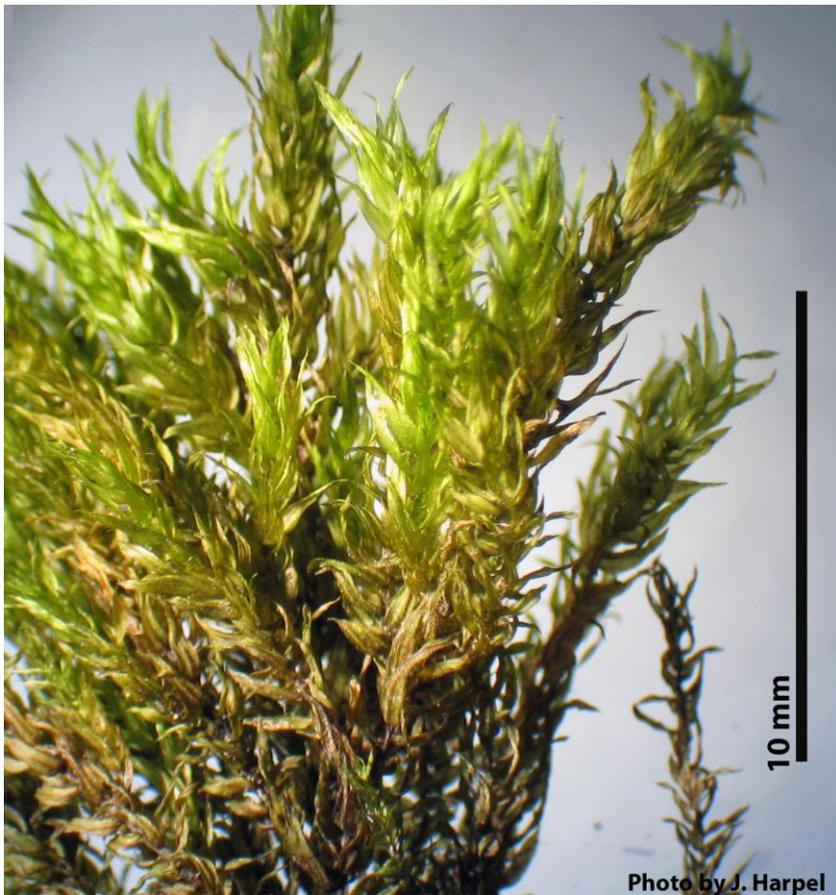
<http://www.iucn.org/themes/ssc/actionplans/bryophytes/appendix2.pdf#search=%22%22Limbella%20fryei%22%22>

Wagner, Dave H. 2008. Personnel communication via e-mail of a new site discovered at Floras Lake in NW Curry County. E-mail to Coos Bay BLM on 30 June 2008.

Williams, R.S. 1933. *Sciaromium fryei* sp. nov. Bryologist 35: 52-53.

**Attachment 1: Photos**

All photos by Dr. Judy Harpel, under contract with the Oregon/Washington Bureau of Land Management



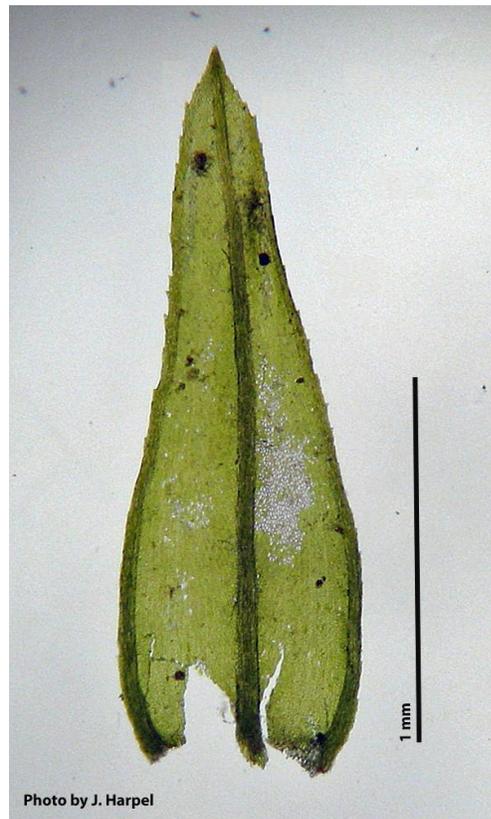
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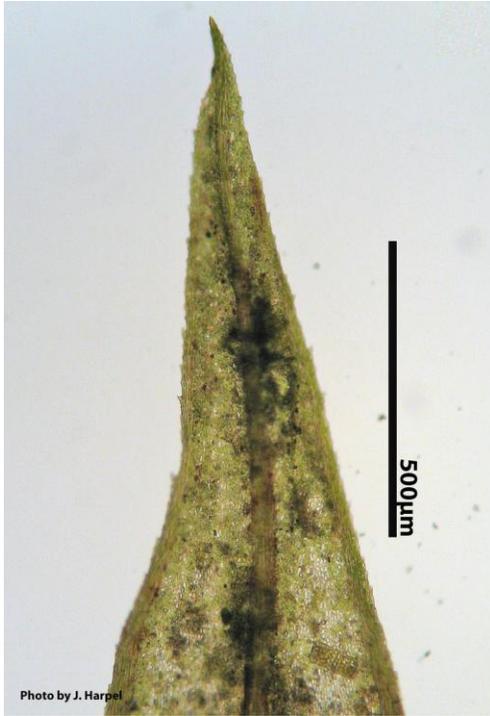
Whole mount



Stem leaf



Branch leaf



Stem leaf apex



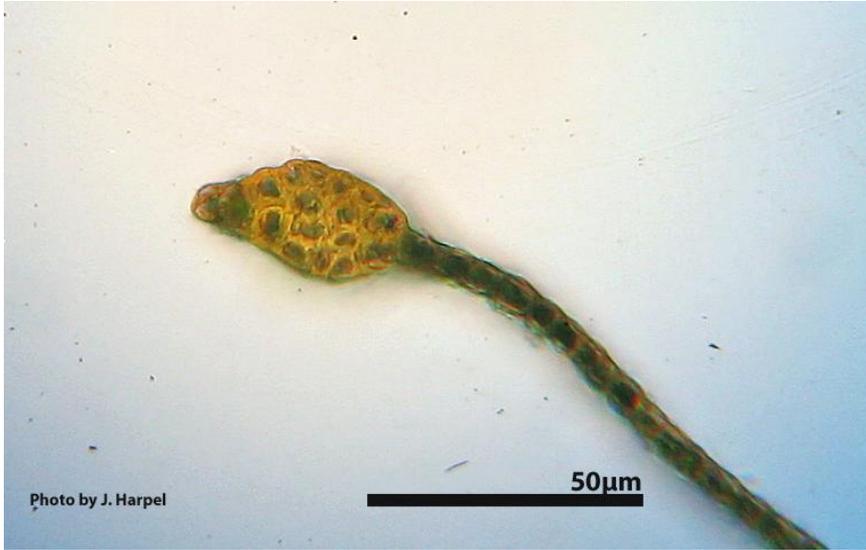
Branch leaf apex



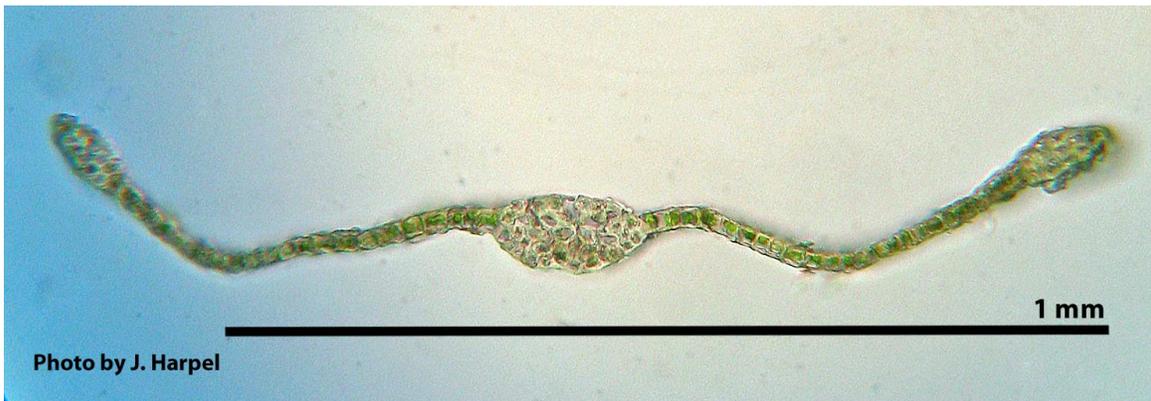
Stem leaf basal area



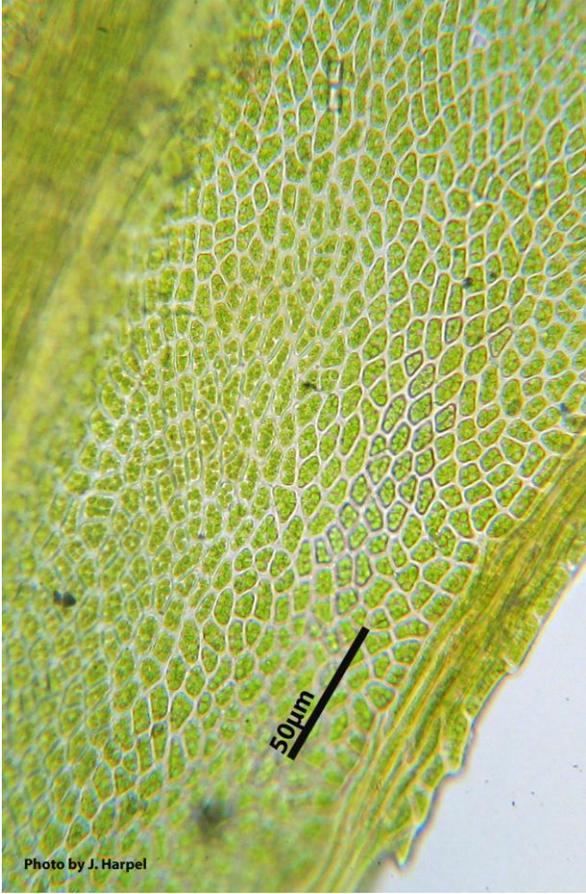
Branch leaf basal area



Leaf cross-section



Leaf cross-section



Upper medial cells