

# SPECIES FACT SHEET

**Common Name:** Hall's Orthotrichum

**Scientific Name:** *Orthotrichum hallii* Sull. & Lesq.

**Recent synonyms:**

Division: Bryophyta

Class: Bryopsida

Order: Orthotrichales

Family: Orthotrichaceae

**Taxonomic Note:** Substratum information is needed to identify this species. Usually sporophytes are needed to identify species within this genus, but the bistratose leaves make this one easy to distinguish.

**Technical Description:** Plants olive-green to dark green, in 2.5 cm tall tufts or cushions, stems sometimes branched; leaves lanceolate, acute ± obtuse; lamina bistratose, margins entire, recurved below, bistratose in the upper ½, sometimes with unistratose streaks; costa percurrent, upper medial cells irregularly rounded, 9–14µm, with 1–3 small conical papillae per cell; basal cells rectangular to short-rectangular, quadrate on the margins; Autoicous, seta 0.5 – 1.0 mm long, immersed when moist to about ½ emergent when dry, oblong, oblong-ovate, stomata immersed in the middle and lower portion of the urn, strongly 8 ribbed ½ to the full length when dry; peristome double, exostome teeth 8, occasionally split to 16, incurved when young, spreading or rarely reflexed when old, never erect. Calyptra oblong, smooth, sparsely hairy, hairs papillose. Spores 10–17µm, coarsely papillose.

**Distinctive characters:** (1) bistratose leaves, (2) immersed stomata on an eight ribbed capsule.

**Similar species:** *Orthotrichum hallii* is distinguished from other species of *Orthotrichums* by its bistratose leaves and oblong, 8-ribbed emergent sporophyte.

**Other Descriptions and illustrations:** Vitt (1973), Sharp, Crum, & Eckel (1994), Lewinsky-Haapasaari & Tan (1995), Lawton (1971), Exeter et al. 2016: 128-130, Vitt (2014): 56.

**Life History:** Few details are known about *O. hallii*. Protonema, bud and shoot formation are typical for all moss development.

**Range, Distribution, and Abundance:** Western North America and east Asia. Previously thought to be a western North American endemic but was recently found in China and Kazakhstan, Lewinsky-Haapasaari (1996). Originally thought to be restricted to the drier regions of the southern Rocky Mountains

and portions of Arizona. In the Pacific Northwest, it is known from California, Idaho, Oregon, Washington, Wyoming, and British Columbia.

Oregon Biodiversity Information Center reports it from Jackson and Linn Counties.

USFS: Documented on Okanogan-Wenatchee National Forest (Heinlen pers. comm). Suspected on Rogue River-Siskiyou National Forest.

BLM: Documented on Medford, Northwest Oregon and Spokane (Heinlen, pers. comm) Districts.

Uncommon to rare, possibly under collected.

**Habitat Associations:** *Orthotrichum hallii* occurs on rocks, usually limestone or calcareous sandstone. Occasionally it is found on granite, quartzite or basalt. It rarely occurs on the trunks of deciduous trees in open forests. It has been collected once on a rock and cement retaining wall in Washington. According to Lawton (1971) it is usually found in the mountains, to 2300 ft. or higher.

**Threats:** Quarrying is the highest threat for this species. Rock climbing, trail and road construction could also pose threats to this species. Because of the hot, dry habitat of this species, wildfire can be a threat. Two populations in Okanogan County, WA have been affected by a wildfire.

**Conservation Considerations:** Because this species has an affinity for calcareous substrates, areas with limestone deposits could be surveyed for new populations. Revisit known populations to determine the extent of the distribution.

**Conservation Rankings and Status:**

Global: G4 (2002)

National: N3N5

Idaho: S1,

British Columbia: S2 (2015), Red List

Oregon: S1, ORBIC List 2

Washington: S1, Review 1

Forest Service and BLM category (2018): Oregon sensitive/Washington strategic

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Revised: March 2009, Rob Huff; January 2010 by Camille Duncan.  
Reconfigured and revised in May 2018 by Erica Heinlen, adding relevant recent research.

## **ATTACHMENTS:**

### **(1) Photos**

## **References**

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## Attachment 1- Photos

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



Whole mount



Leaf



Leaf cross-section

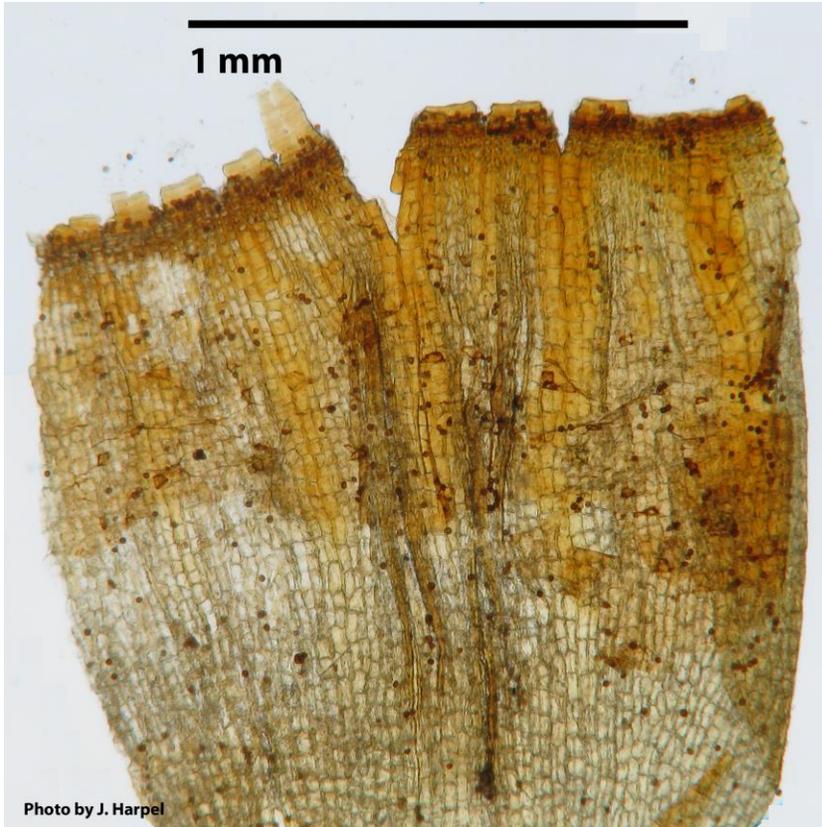


Photo by J. Harpel

Capsule

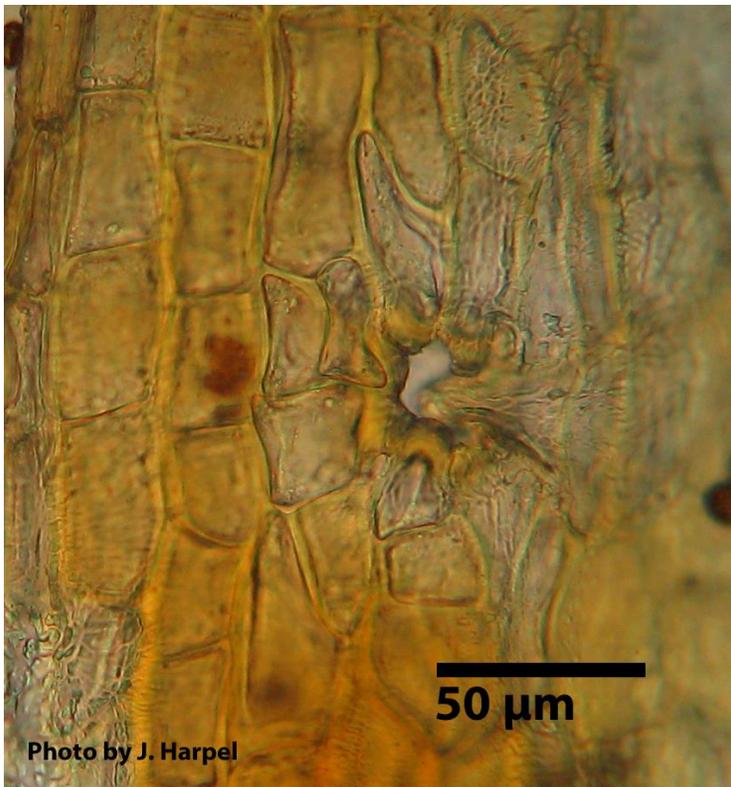
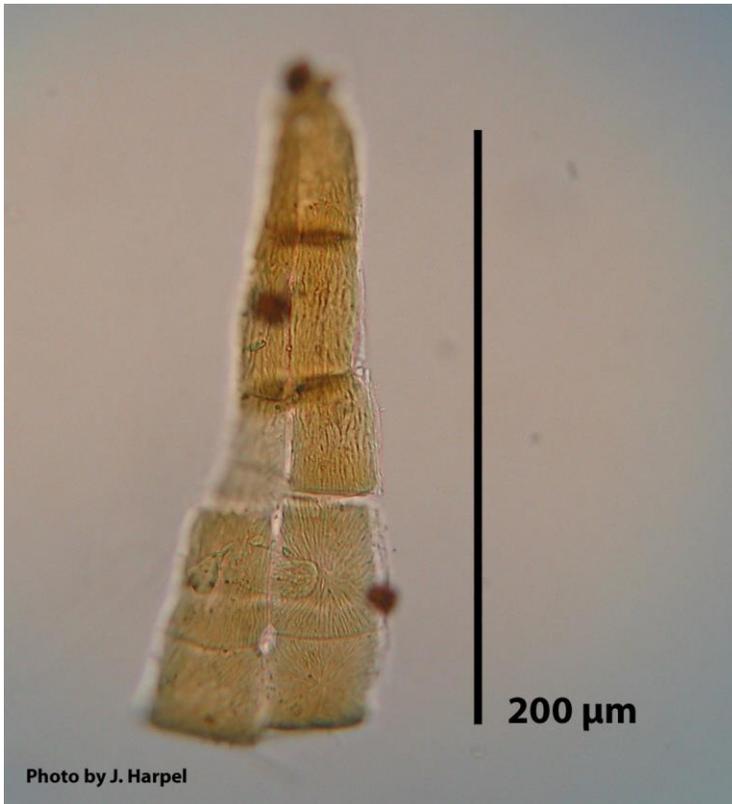
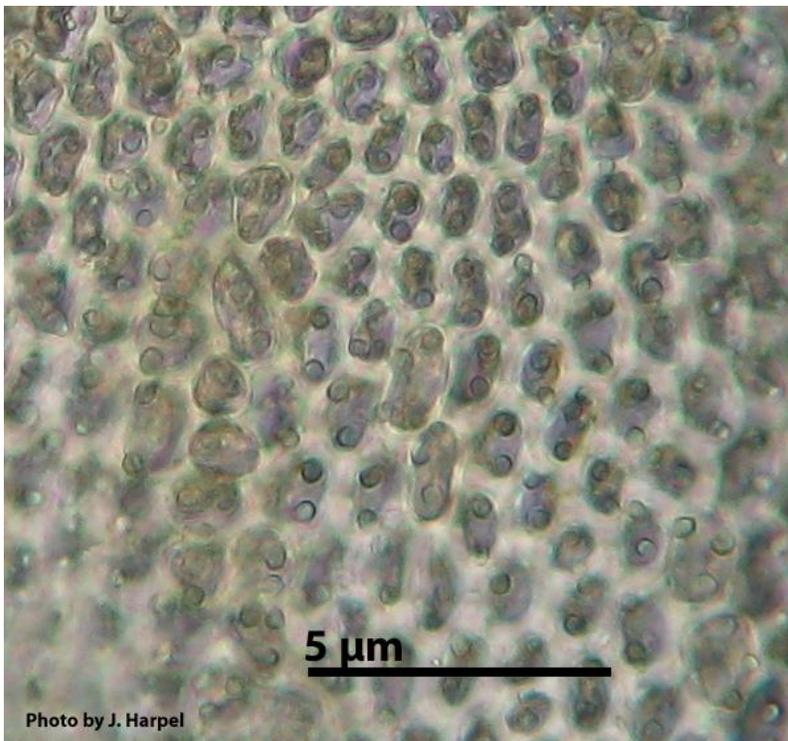


Photo by J. Harpel

Immersed stomates



Peristome tooth



Upper medial cells