

# SPECIES FACT SHEET

**Common Name:** Granite moss, Lantern moss

**Scientific Name:** *Andreaea nivalis* Hook.

**Recent synonyms:** *Andreaea baileyi* Holz. *A. macounii* Kindb. in Mac.

Division: Bryophyta

Class: Bryopsida

Order: Andreales

Family: Andreaeaceae

**Taxonomic Note:** None.

**Technical Description:** Plants reddish brown to greenish brown forming small tufts. Leaves falcate to secund-falcate, ovate-lanceolate to lanceolate, 0.6–1.5 mm long, median cells quadrate to short-rectangular, 1+ stratose, papillose, 7–10  $\mu\text{m}$  in diameter, costa strong, percurrent, margins crenulate to strongly denticulate. Dioicous, perichaetial leaves similar to the vegetative leaves but sometimes slightly larger, calyptra tiny, campanulate-mitrate, seta lacking, sporophytes immersed to emergent on a gametophytic pseudopodium, reddish brown to blackish up to 0.9 mm long when closed, peristome and operculum absent, opening by 4–6 longitudinal slits. Spores 18–40  $\mu\text{m}$ .

**Distinctive characters:** (1) strong costa, (2) distinct crenulate to strongly denticulate leaf margins, (3) laminal papillae.

**Similar species:** *Andreaea blyttii*, *Andreaea rothii*, and *Andreaea schofieldiana* are similar species with a costa, but they have smooth cells and lack the denticulate leaf margins. *Andreaea rupestris* is similar but lacks a costa. *Andreaea nivalis* has a strong costa, distinctly denticulate leaf margins and very papillose upper cells.

**Other descriptions and illustrations:** Lawton 1971; Zander 2007.

**Life History:** *Andreaea* is placed in its own class, Andreaeopsida based on its unique morphology. The thalloid protonema, four-valved sporophyte and haploid pseudopodium separate it from the Bryopsida. According to Schofield (1985) *Andreaea* evolved independent from the rest of the bryophytes. The longitudinal valves on the sporophyte bulge open when dry, often appearing as a small bird cage or lantern, and close when wet.

**Range, Distribution, and Abundance:** Known from Greenland, Europe, Japan, and Russia. In the Pacific Northwest, found in Alaska, British Columbia, Washington, Oregon and California.

Oregon Natural Heritage Information Center reports it from Clackamas and Lane Counties.

BLM: Suspected on Salem District BLM.

USFS: In Oregon it is documented on the Mt. Hood and Willamette NF's, and suspected on the Deschutes NF and Columbia River Gorge National Scenic Area. In Washington it is documented from the Mt. Baker-Snoqualmie NF.

Other: This species is also documented from Olympic and Mt. Rainier National Parks.

In general *Andreaea* is often overlooked due to its small size and is probably under collected because of its higher elevation tendencies.

**Habitat Associations:** *Andreaea nivalis* forms reddish-brown mats on damp boulders in streamlet gullies, exposed rock outcrops, boulders next to melting snow, dry cliffs, sandy soil over boulders, and damp cliff faces in alpine to subalpine areas in the Pacific Northwest.

Although referred to as a “granite moss” this genus often occurs on igneous rocks. It may form large mats or small patches and may or may not be abundant when found.

**Threats:** Trail, road, ski trail construction, and quarrying could eliminate local populations by destroying rock substratum. Rock climbing could be especially damaging by eliminating local cliff populations and prevent re-colonization by continued use of a climbing route.

**Conservation Considerations:** *Andreaea nivalis* is a higher elevation species that is probably under collected due to little fieldwork being done in these elevations. All known localities could be revisited to determine the extent of the populations and characterize habitats. Surveys in adjacent similar habitat to find new populations are encouraged.

**Conservation Rankings and Status:**

Global: G5, Oregon (S1), British Columbia (S4)

Oregon: ORNHIC List 3

Washington: Not ranked

BLM/USFS Strategic Species in Oregon

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**Date Completed:** October 2008

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

**ATTACHMENTS:**

**(1) Photos**

**References**

Lawton, E. 1971. Moss Flora of the Pacific Northwest. The Hattori Botanical Laboratory. Nichinan, Miyazaki, Japan. 362 pp. 195 plates.

NatureServe Explorer. 2008. An Online Encyclopedia of Life.  
<http://www.natureserve.org/explorer/>

Schofield, W. 1985. Introduction to Bryology. Macmillan Publishing Co., New York. 431 pp.

Zander, R. H. 2007. Andreaceae In Flora of North America North of Mexico. Bryophyta Vol. 27 Part 1: 102-107. Oxford Univ. Press. Oxford.

**Attachment 1: Photos**

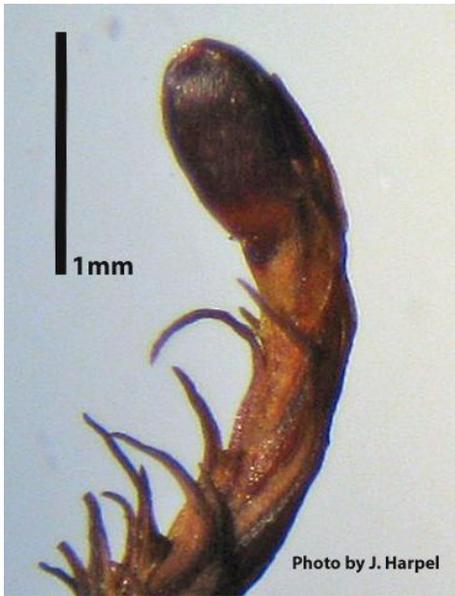
All photos by Dr. Judy Harpel, under contract with the Oregon/Washington Bureau of Land Management



Whole mount



Perigonium



Closed dry sporophyte



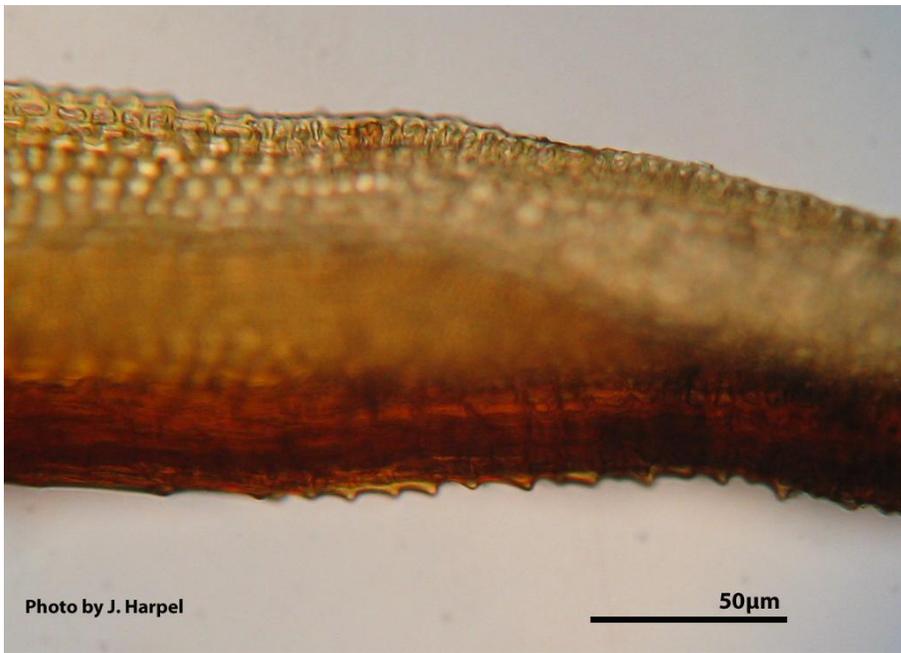
Open dry sporophyte



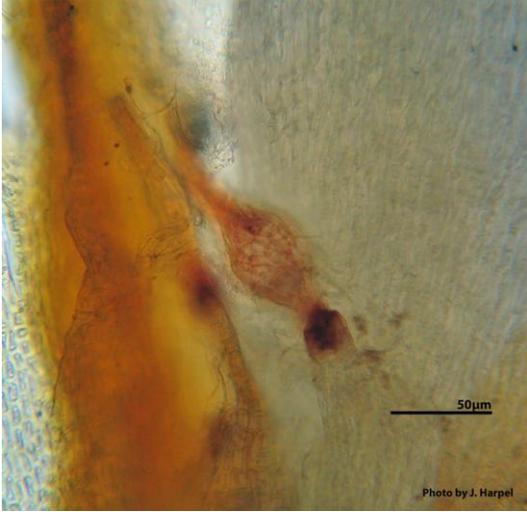
Leaf



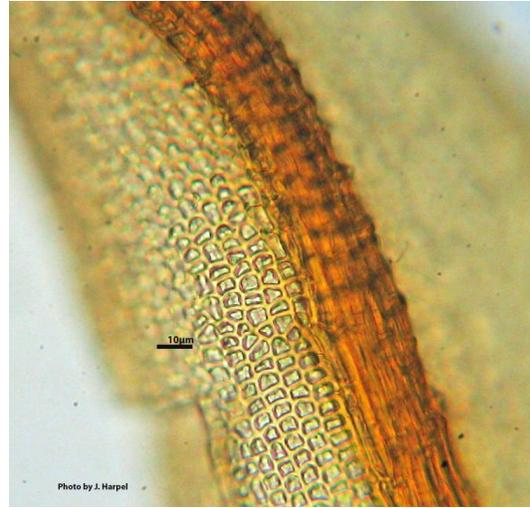
Leaf apex



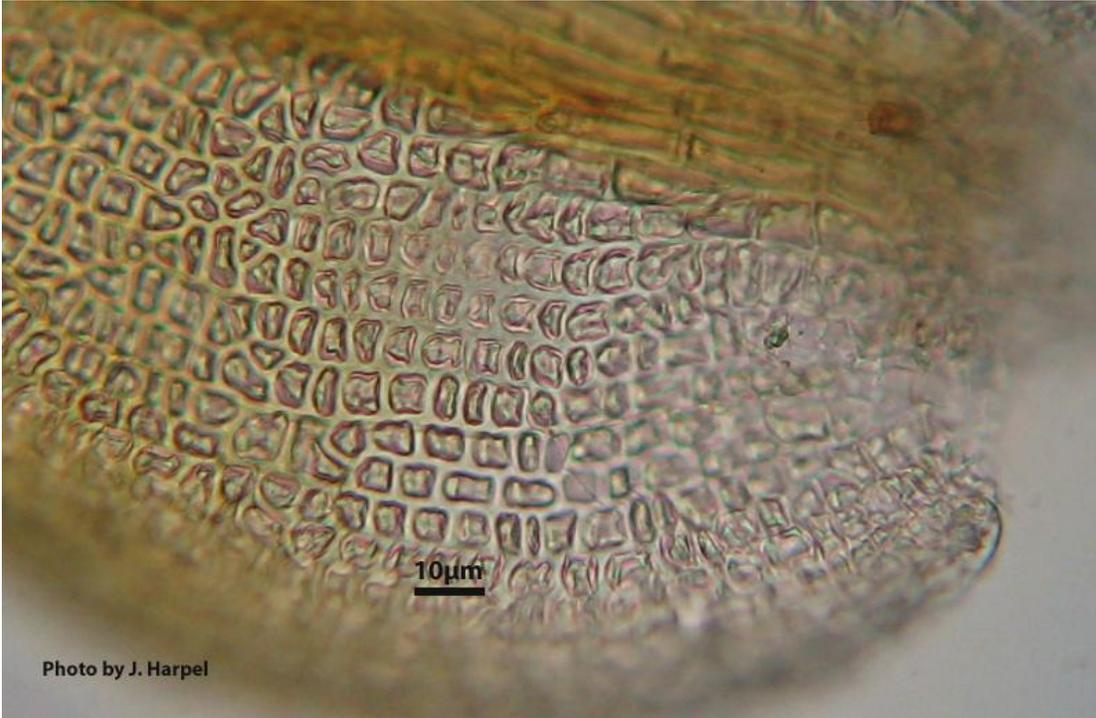
Dorsal surface of midrib



Perichaetium



Upper medial cells



Basal cells