

SPECIES FACT SHEET

Common Name: least powderhorn

Scientific Name: *Cladonia norvegica* Tønsb. & Holien

Division: *Ascomycota*

Class: *Ascomycetes*

Order: *Lecanorales*

Family: *Cladoniaceae*

Technical Description: Primary **thallus** of small leaf-like flaps (squamules) attached at their base to the substrate, with a green cortex on the upper surface and white or pale beneath, without a cortex; squamules 2 - 4 mm wide, deeply dissected, esorediate or with soredia beneath the tips. Hollow stalks (**podetia**) 1.5 - 3 cm tall, 0.5 - 2 mm wide, with thin cortex only at the base and occasionally just below the apothecia; podetia covered with fine soredia that are sparse in places, revealing the whitish hyphae of the medulla beneath; squamules rarely on the podetia; podetia tapering or cylindrical, narrow or thick, often with pycnidia at the tip instead of apothecia, rarely branched or with small cups. **Apothecia**, when present, resembling a pale brown bumpy head (capitate), wider than the podetium (see Peterson (no date) photograph referenced below). Photosynthetic partner (photosymbiont) a green alga (*Trebouxia*).

Chemistry: P-, K-, UV+ bluish white

Distinctive characters: P-, pale brown apothecia; podetia that are sorediate with only a small amount of cortex near the base. **Similar species:** Species in the genus *Cladonia* are difficult to identify because each can be so variable and because so many species exist in the Pacific Northwest. Thalli of several species are often found growing intermixed, so when working on a specimen, care must be taken to separate out podetia that look the same. Then do a P test: *Cladonia coniocraea* and *C. ochrochlora* often occur with *C. norvegica* (Tønsberg & Goward 1992) and look similar but both are P+. *Cladonia ochrochlora* has a thick cortex at base of podetium. The apothecia and pycnidia of *C. coniocraea* and *C. ochrochlora* are dark brown, but fertile specimens tend to be rare in both species (Tønsberg & Goward 1992). Often there is a pycnidium at the tip of the podetium, colored the same as an apothecium if one were present. The squamules of *C. coniocraea* are usually larger and less finely incised than *C. norvegica* but this character is so variable that measurements are of little help.

Other descriptions and illustrations: Brodo et al. (2001); Goward et al. (1994); McCune & Geiser (2009); Peterson (no date); Tønsberg & Goward (1992); Tønsberg & Holien (1984).

Life History: In *Cladonia*, the primary thallus of squamules appears first, then podetia develop as the thallus matures. One "individual" thallus may consist of many squamules and many podetia. Distribution is by fragments, squamules, soredia, asexual spores from pycnidia (conidia) or spores.

Range, Distribution, and Abundance: Interruptedly circumpolar and bipolar. Northwestern and northeastern North America, Europe, Japan, Russia, and southernmost South America. In the Pacific Northwest, known from Alaska, British Columbia, Washington, and Oregon.

National Forests: documented on Deschutes, Gifford Pinchot, Mt. Baker-Snoqualmie, Mt. Hood, Ochoco, Olympic, Siuslaw, Umpqua, Okanagon-Wenatchee, and Willamette NFs. Suspected on the Columbia River Gorge National Scenic Area and the Rogue-River/Siskiyou NF. BLM Districts: documented on Coos Bay, Eugene, Roseburg, and Salem districts. Suspected by Prineville BLM District.

Population sizes in the Pacific Northwest are not known. *Cladonia norvegica* is possibly common in parts of northwestern Europe. At least 41 occurrences are currently known in Pacific Northwest. The most northerly locality known in North America is 60° 47' N (Tønsberg & Holien 1984).

Habitat Associations: On decaying bark or wood at the base of conifer trees and on decaying logs in humid forests, from sea level to 1300m elevation (Tønsberg & Goward 1992). Forest types are *Pseudotsuga menziesii*, *Picea sitchensis*, and *Tsuga heterophylla*.

Threats: Removal or destruction of dead and decaying logs and large conifers by timber harvest, road or trail construction, or fire.

Conservation Considerations: On federal lands, consider revisiting known localities and monitoring the status of populations. Search for new populations on federal and state lands, and consider providing protection of known sites from activities that may impact sites.

Conservation rankings: Global: G4G5; National: NNR; Oregon Natural Heritage Information Center: No List rank, (S3).

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References:

- Brodo, I.M, Sharnoff, S.D., & S. Sharnoff. 2001. Lichens of North America. Yale University Press, New Haven and London. 795 pp.
- Goward, T., B. McCune, & D. Meidinger. 1994. The Lichens of British Columbia. Part 1. Foliose and Squamulose Species. British Columbia Ministry of Forests. Crown Publications Inc., Victoria, B.C. 181 pp.
- McCune, B. & L. Geiser. 2009. Macrolichens of the Pacific Northwest, 2nd Edition. Oregon State University Press. Corvallis, Oregon. 464 pp.
- Oregon Natural Heritage Information Center. 2007. Rare, threatened and endangered species of Oregon. Oregon Natural Heritage Information Center, Oregon State University. Portland. 100 pp. http://oregonstate.edu/ornhic/2007_t&e_book.pdf . Accessed 29 January 2009.
- Peterson, E.B. (no date). Photograph of *Cladonia norvegica*. USDA Forest Service National Lichens and Air Quality Database and Clearinghouse. <http://gis.nacse.org/lichenair/index.php?page=photos&viewphoto=59&pg=2>. Accessed 19 March 2009.
- Tønnsberg, T. & T. Goward. 1992. *Cladonia norvegica* new to North America. *Evansia* 9: 56-58.
- Tønnsberg, T. & H. Holien. 1984. *Cladonia* (sect. *Cocciferae*) *norvegica*, a new lichen species. *Nordic Journal of Botany* 4(1): 79-82.