

## SPECIES FACT SHEET

**Common Name:** cryptic paw

**Scientific Name:** *Nephroma occultum*

Division: Ascomycota

Class: Lecanoromycetes

Order: Peltigerales

Family: Nephromataceae

**Technical Description:** Thallus foliose, loosely appressed, 2-7 cm in diameter, pale yellowish grey to greenish when dry, blue grey when wet. . Photosynthetic partner (photobiont) the cyanobacterium *Nostoc*. Lobes 0.4–1.5 cm wide, 1–2.5 cm long, rounded in outline and slightly upturned. Upper cortex matte, hairless, 21-28  $\mu\text{m}$  thick; weakly or distinctly ridged in a net-like pattern, the ridges cracking and becoming sorediate. Soredia granular to almost isidiate (partly corticate), usually present near the center of the thallus where they develop on ridges. Medulla white to slightly yellowish with fibers (hyphae) loosely packed, 100–150  $\mu\text{m}$  thick. Lower surface matte, hairless, finely wrinkled, pale tan at the margins to black toward the center. Apothecia unknown.

Chemistry: Cortex K<sup>+</sup> yellow, P<sup>-</sup>; medulla K<sup>+</sup> light yellow, C<sup>+</sup> yellow, KC<sup>+</sup> yellow, P<sup>+</sup> orange, UV<sup>+</sup> (short wave) pale yellow. Contains nephroarctin, phenarctin, usnic acid, zeorin, and other unidentified substances.

**Distinctive characters:** Large thallus, yellowish grey or blue-grey color, network of ridges with soredia, lower surface hairless and tan becoming black toward the center. **Similar species:** *Lobaria oregana* is very similar in color and thallus shape but is (1) larger and (2) has lobules along the edges. Among thalli of *L. oregana*, *Nephroma occultum* usually occurs as smaller thalli appressed to the branch, while *L. oregana* is loosely draped over its substrate. When wet, the blue-grey color of *N. occultum* distinguishes it from *L. oregana*. The lower surface of *L. oregana* is covered with short tan hairs (at 10x magnification) with irregular bare white patches. *Lobaria scrobiculata* is similar in color both wet and dry, but (1) has small waxy-looking angular scabby texture on the upper surface (scabrous) and (2) the lower surface is covered with short tan to dark hairs with irregular bare white patches. *Pseudocyphellaria rainierensis* is similar in size but has (1) lobules along the margins, (2) the lower surface covered with fine hairs (tomentum), and (3) distinct white bumps (pseudocyphellae) poking through the tomentum. **Other descriptions and illustrations:** Goward 1995: 86-88; McCune & Geiser 1997: 465-466; Wetmore 1980.

**Life History:** Details for *Nephroma occultum* are not documented. Apothecia are not known, and reproduction is probably restricted to vegetative reproduction from soredia and fragmentation. Because fragments and soredia are both relatively heavy, dispersal over long distances may be aided by birds, mammals, or invertebrates.

**Range, Distribution, and Abundance:** Endemic to the Pacific Northwest, from British Columbia to Oregon, west of the Cascades with a few inland disjuncts in BC. Abundant in Oregon but less common throughout the rest of its range. The majority of sites are in the Cascade Range in Oregon.

National Forests: documented from the Gifford Pinchot, Mt. Baker-Snoqualmie, Mt. Hood, Rogue River-Siskiyou, Willamette and Umpqua Forests. BLM Districts: documented from the Roseburg District. Suspected by Coos Bay, Eugene, Medford, and Salem Districts.

**Habitat:** Old growth and younger forests of *Pseudotsuga menziesii* and *Tsuga heterophylla* in the Cascade Range below approximately 3000 feet, often associated with *Lobaria oregana*. Usually seen on branches fallen from high in the canopy, but found growing near the forest floor where the forest is somewhat open. Critical climatic variables are rather continuous high humidity and moderate summer temperatures (COSEWIC 2006).

Goward (1995) discussed three “range classes” for this species in British Columbia: (1) oceanic old growth forests, where it is restricted to the upper and middle canopy, (2) old growth and seral forests farther from the coast, where it occupies the middle and lower canopies, and (3) humid continental old growth forests, where it is found in the lower canopy.

**Threats:** Primary threats are loss of old-growth habitat and microclimatic changes brought on by nearby logging or climate change. The species is vulnerable to logging, changes in understory humidity, insect defoliation, and fire (COSEWIC 2006).

**Conservation Considerations:** Monitor the status of known populations. Search for new populations on federal and state lands. Consider maintaining known sites during nearby logging by providing no harvest areas around sites.

**Conservation Rankings:** Global: G4; National: NNR; Oregon Natural Heritage Information Center: List 4 (S3).

**Preparer: Daphne Stone, with edits from John A. Christy and Rob Huff**

**Date Completed: May 2008**

### **References**

Links are provided below to guide you to additional information that may be helpful in understanding this species. Included are links to illustrations, photographs, maps and ranking information used to determine threats and status by State Heritage Programs.

Goward, T. 1995. *Nephroma occultum* and the maintenance of lichen diversity in British Columbia. *Mitteilungen der Eidgenössischen Forschungsanstalt für Wald, Schnee und Landschaft*. 70(1): 93-101.

COSEWIC. 2006. COSEWIC assessment and update status report on the cryptic paw *Nephroma occultum* in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa. vi+28 pp. Accessed 30 December 2007.

<http://dsp-psd.pwgsc.gc.ca/Collection/CW69-14-62-2006E.pdf>

Canadian Wildlife Service, Species at Risk. 2006. Cryptic Paw. Accessed 30 December 2007.

[http://www.speciesatrisk.gc.ca/search/speciesDetails\\_e.cfm?SpeciesID=125](http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=125)

McCune, B. & L. Geiser. 1997. *Macrolichens of the Pacific Northwest*. Oregon State University Press, Corvallis. 386 pp.

Neitlich, P., B. McCune, & S. Pittam. 1994. Lichen species of late successional ecosystems: documented herbaria records. Unpublished report: Portland Oregon, interagency SEIS team. 166 pp.

Wetmore 1980. A New Species of *Nephroma* from North America. *Bryologist* 83: 243-247.

White, F. J. & P. W. James. 1988. Studies on the genus *Nephroma* II. The southern temperate species. *Lichenologist* 20(2): 103-166.