

SPECIES FACT SHEET

Common Name: Gray loop lichen

Scientific Name: *Hypotrachyna revoluta* (Flörk) Hale

Division: Ascomycota

Class: Ascomycetes

Order: Lecanorales

Family: Parmeliaceae

Technical Description:

The genus *Hypotrachyna* is comprised of small foliose lichens, averaging 1-4 cm wide but up to 10 cm wide. The thallus is loosely appressed or loosely attached with ascending lobe tips. Soredia are present in Pacific Northwest specimens. Thallus lobes are thin and narrow, averaging 1-5 mm wide, and the sinuses between lobes are conspicuously rounded. The upper surface is greenish or grayish and somewhat shiny; the lower surface is black and shiny with forked rhizines that extend to or protrude beyond the lobe margins. The medulla is white and the photobiont is green. Apothecia are rare. (Goward et al. 1994, McCune and Geiser 1997, Johnson and Galloway 1999, Chen et al. 2003).

Hypotrachyna revoluta is grayish, bluish, or if somewhat greenish, then not yellowish green. The lobes are relatively short and broad. Cilia at the margins are absent or if present, very sparse and less than 1 mm long. The soralia are broad and diffuse, with the loosely packed soredia giving them a coarse appearance. The rhizines are sparsely branched and are sparse to moderately dense, being progressively better developed toward the thallus center. The medulla is P-, K-, C+R, KC+R and the cortex is K+Y.

This lichen is distinguished from similar species in the Pacific Northwest by the color of its upper surface in combination with lobe shape, soralia shape and characteristics of the cilia and rhizines (Goward et al. 1994, McCune and Geiser 1997, Chen et al. 2003). Look-alikes include species in the genus *Parmotrema*, *H. sinuata*, and *H. riparia*, a recently described species from the Oregon Cascades (McCune 1998).

Parmotrema differs from *H. revoluta* in having narrow, sharply delimited soralia, cilia more than 2 mm long, rhizines that are often abruptly longer toward the thallus center, and a C- medulla spot test (Goward et al. 1994). *Hypotrachyna sinuata* differs in having a distinctly yellowish green upper surface and elongate-linear lobes. *Hypotrachyna riparia* differs in having dense and richly branched rhizines, powdery subterminal and terminal soralia, and the following spot test results for the medulla: P+O or R, K+Y to R, C-, KC- (McCune and Geiser 1997).

Life History:

Since apothecia appear to be unknown among Pacific Northwest material, reproduction would presumably be principally accomplished asexually by means of soredia. This species is surveyable year-round.

Range, Distribution, and Abundance:

Hypotrachyna revoluta has an unusually disjunct distribution. In western North America it is known from coastal Alaska to California in hypermaritime environments (McCune and Geiser 1997). Brodo et al. (2001) display a sporadic distribution throughout the rest of North America with locations exhibited in eastern Colorado and Wyoming, Arizona and east Texas along the Mexican border, the Appalachian Mountains, the east coast of Canada and the Great Lakes area. It also occurs in Europe, South America and China (Glavich et al. 2005, Chen et al. 2003).

Goward (1994) reports *H. revoluta* to be frequent in British Columbia but it is very rare in the Pacific Coast States (Glavich et al. 2005a, Hale and Cole 1988). In a survey of coastal lichens in northern California, Oregon and Washington, *H. revoluta* was found on only 2% of 129 randomly-selected plots (Glavich et al. 2005a). Both plots were in Oregon.

By compiling information from their recent coastal lichen survey as well as from regional herbaria and reports from the literature, Glavich et al. (2005a) documented a total of 12 known occurrences of *H. revoluta* from the Pacific Northwest. Most of the known sites are in Oregon. There is one known site in Sonoma County, California (Glavich et al. 2005a, 2005b) and no verified sites in Washington. The only verified sites on federal land occur on the Siuslaw National Forest. Other documented locations include Cape Lookout State Park, Cascade Head, Tillamook State Forest, Ecola State Park, Cape Arago State Park and South Beach State Park. All are in Oregon.

The records of *H. revoluta* from Washington State are suspect. Although this lichen is known from mountainous habitats elsewhere, in the Pacific Northwest it appears to be restricted to within a few kilometers of the ocean (Glavich et al. 2005a).

Habitat Associations:

All confirmed known sites in the Pacific Northwest are within a few kilometers of the ocean and less than 1500 feet in elevation (Glavich et al. 2005a).

Hypotrachyna revoluta is found on headlands and ridges or in marine estuaries and dune landforms. Habitats include densely canopied, bryophyte-dominated stands of *Picea sitchensis*, *Alnus rubra*, or *Tsuga heterophylla*; open dunes and wetlands supporting scattered trees and shrubs; or exposed rocks. Known substrates are bare or moss-covered *A. rubra* boles, twigs and boles of *P.*

sitchensis, shrubs such as *Adenostema fasciculatum*, *Cytisus scoparius*, and *Sambucus* sp. and bare rock. The six sites supporting *H. revoluta* in the recent coastal survey were all in young stands – the oldest trees were all under 80 years in age (Glavich et al. 2005b). There were many associated cyanolichens present, indicating a cool, moist, coniferous coastal forest with a hardwood shrub component, and little or no air pollution.

Threats:

Seven out of 12 confirmed known sites (58%) occur on Federal lands, and only one of these is in a protective land use allocation. Therefore actions on federal lands could be important for persistence of this species (Glavich et al. 2005a).

Glavich et al. (2005b) report the following threats: Climate change, logging, invasive species and planting of non-native vegetation, grazing, habitat alteration for recreational needs, urban expansion and other encroachments onto native habitats, and air pollution.

Conservation Considerations:

Glavich et al. (2005b) recommend the following for conservation of rare coastal lichens in general: restore native vegetation and remove invasives and exotic plants; retain associated ecological conditions including stand structure, substrate availability, and microclimatic conditions; route human use away from known sites; avoid burning of occupied substrates during prescribed burns; restrict excessive removal of trees, shrubs or other vegetation from known sites; limit construction, firewood collection, air pollution and off-road vehicle operation near known sites.

Other pertinent information (includes references to Survey Protocols, etc):

Goward et al. (1994) and McCune and Geiser (1997) provide keys that are relevant to Pacific Northwest lichens.

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ATTACHMENTS:

(1) References

(2) Map of known sites in Washington and Oregon

The map included here is a product of a query of the Agencies' databases as of October 2006. The Washington sites shown on the map may be suspect, and are in need of additional verification.

(3) Photos

Attachment 1 – References

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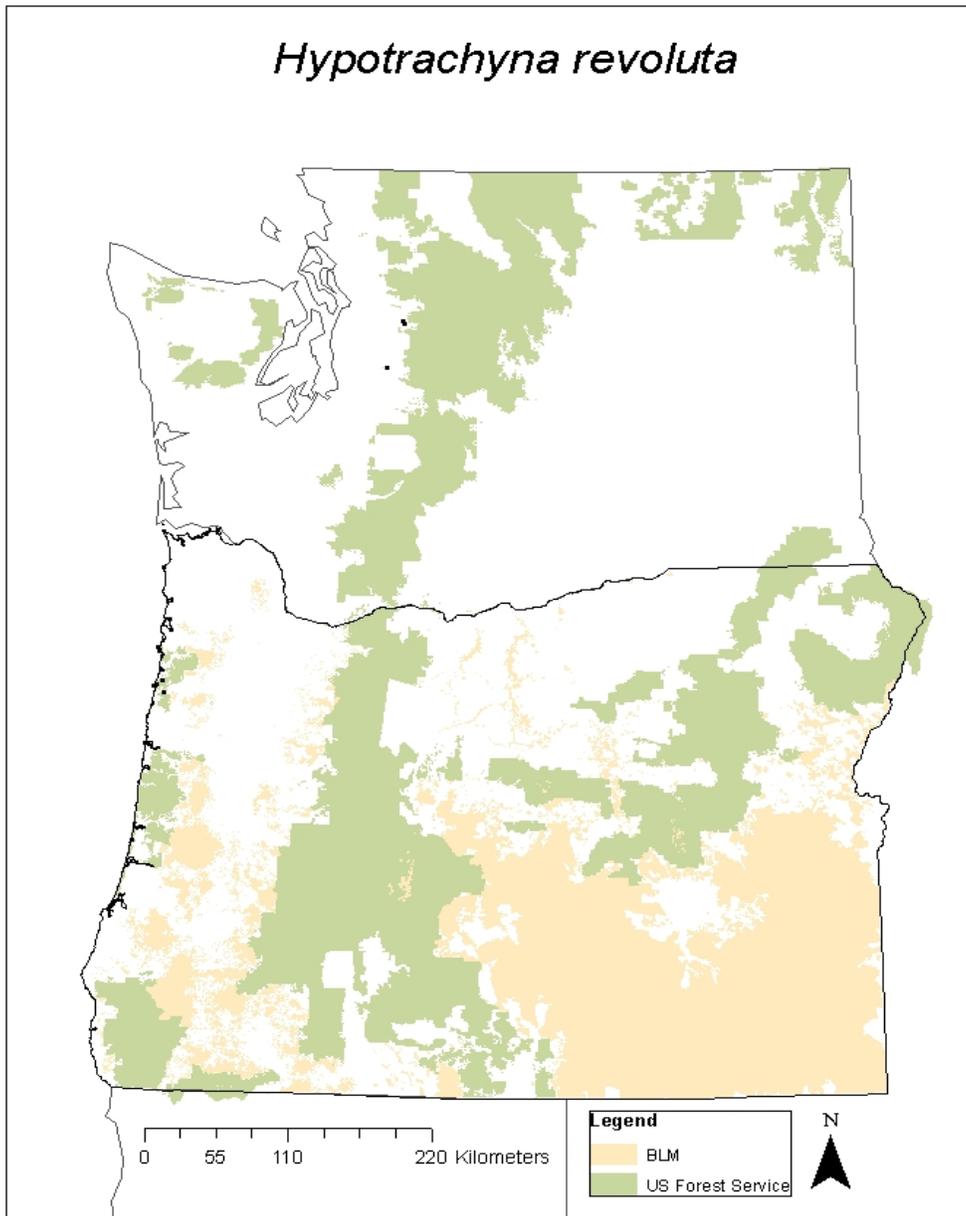
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Attachment 2 – Map of known locations in Washington and Oregon from GeoBOB database The map included here is a product of a query of the Agencies’ databases as of October 2006. The Washington sites shown on the map may be suspect, and are in need of additional verification.



Attachment 3 – Photos of *Hypotrachyna revoluta*. Photos by Leif and Anita Stridvall, used with permission. Available: <http://www.stridvall.se/la/galleries.php>

