

Heritage Rank Status Factors

Elcode NFSM000125
Gname PHAEOCOLLYBIA OREGONENSIS

Gcomname

Number of Occurrences

B = 6 - 20

Comments There are 11 known occurrences of *Phaeocollybia oregonensis* in British Columbia, Washington, and Oregon. Continued fungal surveys may uncover more sites (Norvell & Redhead 2000, Norvell 1995, Norvell 1998a, Norvell 2002 pers comm). The ISMS 2002 data are incorrect and combine data for *P. californica*, *P. scatesiae*, and *P. oregonensis* as all representing *Phaeocollybia oregonensis*.

Number of Occurrences with Good Viability

C = Few (4-12) occurrences with good viability

Comments All 8 occurrences are extant. None appear to be within permanently protected areas. The type locality, which was first sampled in 1947 and last sampled in 1999, lies within a late-successional reserve forest.

Population Size

U = Unknown

Comments Records reflect only species occurrence, i.e. fruitbodies, not numbers of individuals. Genets of ectomycorrhizal fungi cannot be delimited without DNA sampling.

Range Extent

G = 200,000-2,500,000 km² (about 80,000-1,000,000 square miles)

Comments An endemic restricted to the northern spotted owl region in Pacific Northwest North America, *Phaeocollybia oregonensis* ranges at high elevations from the Upper Carmanah Valley (Vancouver Isl) and Vancouver British Columbia watershed, south to the western slope of Mt. Adams, and then south between the western slope of the Cascade range and the eastern flank of the Coast Range to the Medford, Oregon area. (Norvell 1995, 1998abc, pers comm 2002, Norvell & Redhead 2000; Redhead & Norvell 1993.) NOTE: The ISMS GIS map for *Phaeocollybia oregonensis* combines data points for *P. californica*, *P. scatesiae*, and *P. oregonensis* and is incorrect.

Area of Occupancy

U = Unknown

LU = Unknown

Comments Occupancy is highly spotty and cannot be extrapolated for this organism, which appears restricted to fairly complex environments. There are large areas of unsuitable habitat within the overall range. Area of occupancy can only be roughly approximated from fungal fruitbodies as the vegetative organism is hidden from site within the substrate. Ectomycorrhizal fungi have unknown biological and ecological requirements that determine how and when symbiotic associations are formed with partners (Norvell 1990ab, Norvell & Redhead 2000).

Long-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

D = Moderate Decline (decline of 25-50%)

E = Relatively Stable ($\pm 25\%$ change)

Comments Due to the spotty nature of the occurrences, it is difficult to project a long-term trend in population size, extent of occurrence, or the area of occupancy. Ectomycorrhizal fungal stability in general is tied to the stability of the coniferous partner trees. The species occurs primarily in late-successional/old-growth forests but has been collected from a moderately thinned 140-year-old *Abies* forest and found under the duff in a 30 year old *Pseudotsuga* plantation (Norvell & Redhead 2000; ISMS 2002 data). It is long-lived, with the 1957 type population still extant in 1999, in a 140-year-old forest. It appears less dependent upon spore dispersal than on associations with mycorrhizal partners. (Norvell 1998ab). Road construction, heavy logging, and development could lead to a potential drastic decline over the long term.

Short-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

E = Stable. Population, range, area occupied, and/or number or condition of occurrences unchanged or remaining within $\pm 10\%$ fluctuation

Comments Known sites appear stable, but virtually all occur within late-successional forests on BLM or National Forest lands and are vulnerable to road construction, heavy logging, or development in addition to hot fires. Ectomycorrhizal fungal stability in general is tied to the stability of the coniferous partner trees. Over the short term, all populations appear stable except for the threat of hot fires, road construction, clearcutting, and development.

Threats

F = Widespread, low-severity threat. Threat is of low severity but affects (or would affect) most or a significant portion of the population, occurrences, or area. Ecological community occurrences are not threatened severely, with changes reversible and recovery moderately rapid.

Scope Moderate Severity Low Immediacy Low

Comments Ectomycorrhizal fungal stability depends on the stability of the coniferous partners, so that what threatens the extant forests threaten the organism. This species has been collected from mid & late successional and old-growth forests; populations appear long-lived: the type population was first collected from in 1947 and is still extant (Norvell 1998ab, Norvell & Redhead 2000). It is threatened by hot fires, road construction or other development, and clearcutting, but appears to be able to withstand light to moderate thinning (Norvell pers. Comm. 2002).

Number of Appropriately Protected and Managed Occurrences

C = Several (4-12) occurrences appropriately protected and managed

Comments Norvell (1995, 1998ab, Norvell & Redhead 2000, Norvell pers comm 2002) and ISMS 2002 generated data show that there are at least three protected occurrences: one in the Upper Carmanah Reserve on Vancouver Island, one in the Seymour Watershed on the mainland in British Columbia, and a late-successional reserve on Larch Mountain. Due to an inconsistency in the database, the ISMS 2002 data provided to Norvell do not include the correct information on protected status for the recent fungal surveys.

Intrinsic Vulnerability

B = Moderately Vulnerable. Species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally tend to recover from decreases in abundance over a period of several years (on the order of 5-20 years or 2-5 generations); or species has moderate dispersal capability such that extirpated populations generally become reestablished through natural recolonization (unaided by humans). Ecological community occurrences may be susceptible to changes in composition and structure but tend to recover through natural processes given reasonable time (10-100 years).

Comments Ectomycorrhizal fungal vulnerability generally is linked to that of the coniferous partner trees. This fungus is thought to be relatively slow-growing and associated with older stands and is normally not found in plantation settings. (Norvell 1998ab, Norvell & Redhead 2000; Redhead & Norvell 1993). It is vulnerable to anything that threatens the forest habitat, including hot fires, development, and heavy logging (not moderate to light thinning, Norvell pers. Comm. 2002). Several collections were made on Wildcat Mountain (Mt. Hood National Forest) after a 120-year-old *Abies procera* stand had been moderately thinned the year before.

Environmental Specificity

B = Narrow. Specialist or community with key requirements common.

Comments *Phaeocollybia oregonensis* is generally found in complex mid to late-successional to old growth coniferous rainforests where it forms symbiotic partnerships with *Abies* spp. and possibly *Tsuga heterophylla*. One occurrence was collected from a 30-year-old *Pseudotsuga menziesii* plantation. Its precise biological and ecological requirements are unknown. It is generally found at higher elevations, and has been collected at 1200-1240 m on Larch and Wildcat Mountains in the Mt. Hood National Forest. (Norvell & Redhead 2000).

Other Considerations

NRANK N2? *Phaeocollybia carmanahensis* Redhead & Norvell 1993 is a synonym (Norvell & Redhead 2000). ONH (2001) lists *Phaeocollybia oregonensis* as G1 - S1 in Oregon based on only 3 collections for the state. The ISMS 2002 data have been corrupted, and many of the sites reported for *P. oregonensis* turn out to represent *P. scatesiae*. Norvell tracked down the proper citations by comparing the ISMS 2002 historical data with Norvell (1995, 1998a, Norvell & Redhead 2000) data plus verifications of *P. oregonensis* done for contract work elsewhere.

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Grank G2? **Grank Date** 11/18/2002

Reasons

Phaeocollybia oregonensis is rare throughout its range, possibly due to a preferred symbiotic association with true fir in older rainforests at higher elevations. It is endemic to the northern spotted owl region in the Pacific Northwest Cascade and Coast Range forests. Only 3 sites are believed to be in reserves, two in permanent preserves in British Columbia and one in a late-successional reserve in Oregon; the remaining occurrences are vulnerable to logging or development. All are vulnerable to hot burns. Additional occurrences may be found in unexplored regions. If the Northwest Forest Plan is modified so that late-successional reserves are open to clear-cut logging or development, the rank might need to be revised to G1. Creation of more late successional forests containing *Abies* species, on the other hand, might foster its dispersal and lower the rank eventually to a G3.

BCD Sources

New Sources

Norvell & Redhead. 2000. *Phaeocollybia* in western North America 2. *Mycotaxon* 92: 984-991 ALSO Norvell. 1998. *Biology & Taxonomy of PNW spp of Phaeocollybia (Agaricales, Cortinariaceae)*. PhD dissertation: University of Washington., 391 pp. ALSO Norvell 1998. *Observations on the development, morphology and biology of Phaeocollybia*. *Mycological Research*: 102:615-630. ALSO Norvell. 1995. *ROD: Strategy 1 Fungal Species Evaluation (30 gilled and non-gilled Basidiomycete Strategy 1 species)*. Unpubl. report on file in the Regional Mycology Lab, Corvallis, Oregon. ALSO Redhead & Norvell. 1993. *Phaeocollybia* in western Canada. *Mycotaxon* 46:343-359. ALSO Castellano et al. 1999. *Handbook to Strategy 1 Fungal species in the Northwest Forest Plan*. USDA-FS PNW-Res. Stn. General technical report: PNW-GTR-476. ALSO ISMS GIS map on PHOR9. ALSO Oregon Natural Heritage Program. 2001. *Rare, threatened and endangered plants and animals of Oregon*.