

Oregon Status Factors

Elcode NFSM000120
Gname PHAEOCOLLYBIA FALLAX

Gcomname

Number of Occurrences

C = 21- 80

Comments In Oregon, a total of 60 occurrences have been confirmed for *P. fallax*, of which 54 are believed to be still extant (these include collections by this contractor since 1991). (Norvell 1998ac, 2002, pers. comm. 2002; Dreisbach et al. 2002; ISMS database 2002; Castellano 1999).

Number of Occurrences with Good Viability

E = Many (41-125) occurrences with good viability

Comments ~54 occurrences are believed by this author to still exist.

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

F = 20,000-200,000 km² (about 8,000-80,000 square miles)

Comments Endemic to western North America. In Oregon known from the Washington border south along the Pacific coast to the California border and east to Larch Mountain on the Columbia Gorge and south along the western slope of the Cascades to east of Eugene. (Norvell 1998abc, Norvell 2002, ISMS map for *Phaeocollybia fallax*).

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. For fungi can only estimate area occupancy from fruitbodies as vegetative organism is underground had has unknown biological and ecological requirements that determine how and when ectomycorrhizal associations are formed with coniferous host trees. The fungus fruits sporadically (not annually).

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. It would be fair to estimate a long-term trend in

population size based on the forest trend. The species appears restricted to mature (i.e. 65 year old) to late-successional/old-growth forests and has not been collected from disturbed habitats. It appears to grow slowly and is less dependent upon spore dispersal than on associations with mycorrhizal partners (Norvell 1998ab).

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

D = Declining. Decline of 10-30% in population, range, area occupied, 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 Ectomycorrhizal fungal stability in general is tied to the stability of the coniferous partner trees. It would be fair to estimate a short-term trend in population size based on the forest trend.

Threats

G = Slightly threatened. Threats, while recognizable, are of low severity, or affecting only a small portion of the population, occurrences, or area. Ecological community occurrences may be altered in minor parts of range or degree of alteration falls within the natural variation of the type.

Scope Low 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 appears restricted to mature (i.e. 65 year old) to late-successional/old-growth forests and has not been collected from disturbed habitats (Norvell 1998ab, Norvell pers. vomm. 2002). It also appears to grow slowly (Norvell 1998ab). It would be threatened by hot fires, development, and heavy logging activities.

Number of Appropriately Protected and Managed Occurrences

Comments ISMS 2002 which includes historical occurrences with extant occurrences, cites 22 occurrences in non-protected areas, 2 in permanent protected preserves, 15 in late-successional reserves, and ~5 in riparian reserves. If governmental management policies dictate opening late-successional and/or riparian reserves to logging, road construction or other development, the number of protected and managed occurrences would be ranked as "B". It is also not known whether the sites in the temporary reserves are managed sufficiently to ensure their survival.

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 only rarely found in plantation settings. (Norvell 1998ab). It is vulnerable to anything that threatens the forest habitat, including hot fires, heavy logging (not moderate to light thinning), and development (Norvell pers. comm. 2002).

Environmental Specificity

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

Comments *Phaeocollybia fallax* appears restricted to late-successional/old-growth forests, but has been collected from a lightly thinned 120 year old *Abies procera* stand. It fruits in mixed coniferous

rainforests and is associated with *Tsuga heterophylla*, *Picea sitchensis*, *Pseudotsuga*, and *Abies* with an understory of *Polystichum munitum*, *Oxalis oregana*, or *Vaccinium* present. (Norvell 1998a). It appears to grow slowly, but its precise biological and ecological requirements are not known.

Other Considerations

ORNHIC - Not Listed. Distribution is patchy and predictable and the organism can be difficult to identify when the fruitbody has aged (Norvell 2002). Additional occurrences are to be expected in late-successional or unexplored old-growth forests. There are numerous protected sites.

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Reasons

The species occurs in enough protected reserves that it should not be threatened by heavy logging or development, provided the late-successional reserves and riparian reserves are protected from heavy logging and development. It remains vulnerable to hot fires. Total predicted occurrences is probably around ~100 within Oregon. Large areas within its range, however, lack the appropriate habitat and/or weather regime. Although Oregon appears to be the center of the species distributional range, it is uncommon in the state. The spotty distribution and unpredictable phenology complicate ranking this organism.

BCD Sources

New Sources

Norvell. 1998a. The biology and taxonomy of Pacific Northwest species of *Phaeocollybia* Heim. 391 pp. ALSO Norvell. 1998b. . Observations on the development, morphology, and biology of *Phaeocollybia*. *Mycological Research* 102:615-630. ALSO Norvell. 1998c. ROD: Strategy 3 Fungal Species Evaluation (11 gilled Basidiomycete Strategy 3 species). Unpubl. report on file at the Regional Mycology Lab, Corvallis, Oregon. ALSO Dreisbach, Mueller, Exeter, McFarland, Cushman. 2002. 2002 Survey and Manage Step 2 Worksheet. ALSO Castellano et al. 1999. Handbook to Strategy 1 Fungal Species in the Northwest Forest Plan. USDA-FS PNWRS PNW-GTR-476. ALSO ISMS GIS map for PHFA5 & ISMS 2002 database.