

Oregon Status Factors

Elcode NFSM000121
Gname PHAEOLLYBIA GREGARIA
Gcomname

Number of Occurrences

A = 1 - 5

Comments There are 3 known occurrences, 2 of which have been found within the last three years during the recent Northwest Forest Plan fungal surveys (ISMS 2002 database; Norvell 1995, 1998a, 2002 pers comm).

Number of Occurrences with Good Viability

B = Very few (1-3) occurrences with good viability

Comments All 3 occurrences are believed extant. (ISMS 2002).

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

E = 5,000-20,000 km² (about 2,000-8,000 square miles)

Comments *Phaeocollybia gregaria* is endemic and restricted to the coastal lowlands and the western Willamette Valley fringe along the Coast range south to the Myrtlewood RA in Coos County and east past Salem to the western Cascade slope. [Note: Norvell personally verified the Cascade Head and PeDee (Polk County) occurrences] The species is not known outside of Oregon.

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 and 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%)

Comments Due to the spotty nature of the occurrences, it is difficult to project a long-term trend in population size, extent of occurrences, or the area of occupancy. Until 2000 there was only one known occurrence. Since then 16 new populations have been discovered as a result of intensive fungal surveys. As an ectomycorrhizal fungus, *Phaeocollybia gregaria* stability is linked to the health of

its coniferous associates, linking the trend for the species to that of the forest habitat. *Phaeocollybia gregaria* occurs in late-successional/old-growth forests and may be less dependent upon spore dispersal than on associations with mycorrhizal partners. (Norvell 1998ab). Most populations appear stable, but the species is uncommon and vulnerable to heavy logging, development, and hot fires.

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

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

A = Substantial, imminent threat. Threat is moderate to severe and imminent for most (> 60%) of the population, occurrences, or area. Ecological community occurrences are directly impacted over a widespread area, either causing irreversible damage or requiring long term recovery

Scope High Severity Moderate Immediacy Moderate

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 late-successional/old-growth forests (Norvell 1998ab, Norvell pers. comm. 2002) and is threatened by hot fires, development, and heavy logging activities. No populations occur in permanently protected reserves.

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed

B = Few (1-3) occurrences appropriately protected and managed

Comments No occurrences lie in permanent protected preserves, 1 in a late-successional reserve, and 2 in riparian reserves OR the matrix. (ISMS 2002). If governmental management policies dictate opening late-successional and/or riparian reserves to logging or development, there would be no protected *Phaeocollybia gregaria* populations. 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 vulnerable to anything that threatens the forest habitat, including heavy logging, hot fires, and development (Norvell 1998ab). Light to moderate thinning should not threaten a population.

Environmental Specificity

A = Very Narrow. Specialist or community with key requirements scarce.

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

Comments Previously this species was found at only one site (Norvell 1998a) where it was cited as densely gregarious in small areas in mid to late autumn in late-successional to old-growth forests. Thought to form mycorrhizal associations with *Picea sitchensis* and/or *Tsuga heterophylla*. The type

locality is a mixed spruce-hemlock forest; the Pedee Polk County site is almost exclusively hemlock-Douglas-fir late-successional (~150 year old) reserve forest.

Other Considerations

ORNHIC - List 1. *Phaeocollybia gregaria* was ranked S1 by the Oregon Natural Heritage Program based on a single occurrence in the Cascade Head Environmental Research Forest in Lincoln and Tillamook Counties. The author, a *Phaeocollybia* expert, collected senescent specimens from that site in 1993, that were tentatively determined as *P. gregaria*. Not until 2000 and 2001 in a BLM Cost-Share study in a 150-year old BLM reserve forest near Pedee, OR did the author encounter a good collection of the species, which fruited again in 2001 in several areas within a 50 m² radius. A non-*Phaeocollybia* expert, might misdetermine a specimen representing *P. benzokauffmanii*, *P. piceae*, or *P. olivacea* as *P. gregaria*. Of several hundred *Phaeocollybias* sent to the author by the Regional Mycologist's office to date and of the >3000 other *Phaeocollybias* examined by her microscopically, no others have been confirmed as *P. gregaria*. Norvell has not personally verified the collection from the Myrtlewood RA.

Edition 11/18/2002 **Edauthor** Lorelei L Norvell

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Reasons

Phaeocollybia gregaria is endemic to Oregon where it is restricted to the coastal lowlands and the western Willamette Valley fringe along the Coast range south to the Myrtlewood Resource Area in Coos County and east past Salem to the western Cascade slope. All 3 known occurrences are believed extant. The species should be considered rare. However, it is possible that additional occurrences will be found in late-successional forests. The species is not immediately recognizable in the field, and it is relatively difficult to differentiate from *P. benzokauffmanii*, *P. piceae*, and *P. olivacea*.

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 PHGR23 ALSO Oregon Natural Heritage Program. 2001. Rare, threatened and endangered plants and animals of Oregon.