

Washington Status Factors

Elcode NFSM000123
Gname PHAEOLLYBIA OLIVACEA
Gcomname

Number of Occurrences

A = 1 - 5

Comments There is only one questionable occurrence of *Phaeocollybia* in Washington, which was unknown from the state until 1992 (Norvell 1998ac, 2002; ISMS 2002 database & GIS map for *Phaeocollybia olivacea*).

Number of Occurrences with Good Viability

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

Comments There is 1 known extant occurrence; the population produced small basidiomes that appeared different from the more typical Oregon and California collections.

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

A = <100 km² (less than about 40 square miles)

B = 100-250 km² (about 40-100 square miles)

Comments Endemic to the northern spotted region in western North America, *Phaeocollybia olivacea* is known only from one suspect occurrence in Olympic National Park in the Hoh Valley. This taxonomically questionable outlier is separated by ~200 miles from the closest known locality in Oregon. (Norvell 1998ac, ISMS 2002 database and GIS map for *Phaeocollybia olivacea*).

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 of 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. There are large areas of unsuitable habitat within the overall range.

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

U = Unknown. Long-term trend in population, range, area occupied, or number or condition of occurrences unknown

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, particularly from only one occurrence. Ectomycorrhizal fungal stability depends on the stability of the coniferous partners so that the fungus and forest trends coincide. PHOL occurs more frequently in mixed fagaceous/coniferous forests, apparently forming preferential symbiotic associations with *Quercus* or *Lithocarpus* spp; the Washington occurrence was found in ~400 year old *Picea sitchensis*. The current population is inferred to be long-lived; individuals are less dependent upon spore dispersal than with mycelial interactions with other individuals and their mycorrhizal partners. (Norvell 1998ab, pers comm 2002)

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 Ectomycorrhizal fungal trends are inextricably linked to the trends for the symbiotic partners, in this case trees. The sole known occurrence is thoroughly protected in a national park and thus considered to be in a stable habitat and not at risk from road construction, hot fires, clearcutting, or development. It remains at risk from hot fires.

Threats

H = Unthreatened. Threats if any, when considered in comparison with natural fluctuation and change, are minimal or very localized, not leading to significant loss or degradation of populations, occurrences, or area even over a few decades' time. (Severity, scope, and/or immediacy of threat considered Insignificant.)

Scope	High	Severity	Moderate	Immediacy	Insignificant
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Comments Whatever threatens the extant forest will threaten the fungus. This species, usually found in complex mixed oak-coniferous forests, here occurs in a 400-year old National Park *Picea sitchensis* reserve. Populations are inferred to be long-lived from the fact that collections have been made in or near the southern Oregon type locality from 1956 to 2000 (Norvell 1998ac, ISMS 2002). Like the forest, *Phaeocollybia olivacea* is threatened by hot fires (Norvell pers comm 2002).

Number of Appropriately Protected and Managed Occurrences

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

Comments ISMS 2002 and Norvell (1998ac) cite 1 possible occurrence in a securely protected reserve in Olympic National Park.

Intrinsic Vulnerability

A = Highly Vulnerable. Species is slow to mature, reproduces infrequently, and/or has low fecundity such that populations are very slow (> 20 years or 5 generations) to recover from decreases in abundance; or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization (unaided by humans). Ecological community occurrences are highly susceptible to changes in composition and structure that rarely if ever are reversed through natural processes even over substantial time periods (> 100 years).

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 is linked to that of the symbiotic partner (here oak+conifers). This fungus is thought to be long-lived, but also relatively slow-growing; therefore climax communities occur in older stands. (Norvell 1998ac). It is vulnerable to anything that threatens the

forest habitat, including hot fires, road construction and development, clearcutting and the "sudden oak death" Phytophthora in California and Oregon. (Norvell pers comm 2002).

Environmental Specificity

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

Comments Phaeocollybia olivacea is generally found in complex mid to late-successional/old growth coniferous rainforests where it forms symbiotic partnerships with Quercus or Lithocarpus spp. and possibly also members of the Pinaceae (it rarely is found in strictly fagaceous or coniferous stands). Its precise biological and ecological requirements are unknown. It generally is found in the more southern part of the northern spotted owl region, and fruits on soil in early to late autumn producing arcs of closely gregarious fruitbodies. It is like all Phaeocollybias in its extremely patchy distribution. (Norvell 1998ac, Norvell 2002).

Other Considerations

There are no known synonyms for the species. The outlier Washington population is taxonomically questionable: P olivacea may not, in fact, occur within the state. If it is not a sole representative of the species in Washington, additional occurrences should be encountered in older forests.

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Greasons

Phaeocollybia olivacea is represented in Washington by only one taxonomically questionable occurrence in the Hoh Valley of Olympic National Park. Until additional collections and/or occurrences are documented and inspected by an expert, Phaeocollybia olivacea should remain unranked in Washington. Occurrences in Oregon and Washington are far more frequent. The outlier Washington population identified from Olympic National Park may represent another taxon.

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 Norvell. 2002. Phaeocollybia in western North America 3: Mycotaxon 81: 25-112. ALSO ISMS 2002: database + GIS map on PHOL.