

## Heritage Rank Status Factors

**Elcode** NFSM000120  
**Gname** PHAEOCOLLYBIA FALLAX

**Gcomname**

### Number of Occurrences

D = 81 - 300

**Comments** A total of 95 occurrences have been confirmed for this organism, of which 73 are probably still extant (these include collections by this contractor since 1991). (Norvell 1998ac, 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** ~73 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

G = 200,000-2,500,000 km<sup>2</sup> (about 80,000-1,000,000 square miles)

**Comments** Endemic to western North America. Known from Vancouver Island and the Vancouver area in British Columbia south along the Pacific coast to the Santa Cruz Mountains and east to Mt Rainer Park and south along the western slope of the Cascades to east of Eugene, Oregon. (Norvell 1998abc, Norvell 2002). One isolated population was verified from Idaho in 1974.

### 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. 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

E = Localized substantial threat. Threat is moderate to severe for a small but significant proportion of the population, occurrences, or area. Ecological community occurrences are directly impacted over a small area, or in a small portion of their range, but threats require a long-term recovery.

Scope Low Severity Moderate 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 LSOG forests and has not been collected from disturbed habitats (Norvell 1998ab, Norvell pers. Comm. 2002). It also appears to grow slowly. (Norvell 1998ab). Would be threatened by hot fires, development, and heavy logging activities.

## Number of Appropriately Protected and Managed Occurrences

D = Many (13-40) occurrences appropriately protected and managed

**Comments** ISMS 2002 which includes historical occurrences with extant occurrences, cites 37 occurrences in non-protected areas, 12 in permanent protected preserves, 18 in late-successional reserves, and ~5 in riparian reserves. If governmental management policies dictate ending late-successional and/or riparian reserves, the number of protected and managed occurrences would be ranked as "C". 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

NRANK - N4?. 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

Endemic to western North America. Known from Vancouver Island and the Vancouver area in British Columbia south along the Pacific coast to the Santa Cruz Mountains and east to Mt. Rainer National Park and south along the western slope of the Cascades to east of Eugene, Oregon. The species occurs in enough protected reserves that it should not be threatened by heavy logging or development. It remains vulnerable to hot fires. Total predicted occurrences are probably around ~200 within its overall range. Large areas within the overall range, however, do not have the appropriate habitat. The sole Idaho collection was made from Couer d'Alene County in a very moist forest that had developed the complexity that this fungus requires. 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.