

# California Status Factors

**Elcode** NFSM000130  
**Gname** PHAEOCOLLYBIA SPADICEA  
**Gcomname**

## Number of Occurrences

B = 6 - 20

**Comments** Approximately 9 verified occurrences have been confirmed for this organism, of which at least two are believed extant (these include occurrences known to this contractor that have been collected since 1991). (Norvell 1998ac, pers. comm. 2002; Dreisbach et al. 2002; ISMS database 2002; Castellano 1999).

## Number of Occurrences with Good Viability

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

**Comments** At least 2 occurrences are believed by this author to still exist in California.

## 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 km<sup>2</sup> (about 2,000-8,000 square miles)

**Comments** In California, it has been found along the Pacific Coast and Coast Range slope from the Oregon border south to the Santa Cruz Mountains. There is one questionable outlier east of the Cascade crest that has not been verified by this author). . (Norvell 1998abc, ISMS map for *Phaeocollybia spadicea*).The range above does not include the outlier.

## 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. It is only possible to estimate the area of occupancy from fungal fruitbodies as the larger vegetative organism is hidden underground. The species has unknown biological and ecological requirements that determine how and when ectomycorrhizal associations are formed with coniferous partners. 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

tioned 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

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 mature (i.e. 65 year old) to late-successional/old-growth forests and has not been collected from disturbed habitats (Norvell 1998ab, pers comm 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

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

**Comments** ISMS 2002 which includes historical occurrences with extant occurrences, cites 5 occurrences in non-protected areas and 3 in permanently protected preserves. However, this author feels that possibly only two extant occurrences remain; both recent collections made by Norvell in 1992 and 1995 contained two and one under-developed fruitbodies respectively, indicative that perhaps the species is at the limit of its range.

### 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). It is vulnerable to anything that threatens the forest habitat, including hot fires, heavy logging (not moderate to light thinning, Norvell pers comm 2002), and development.

### Environmental Specificity

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

**Comments** *Phaeocollybia spadicea* is restricted to very moist mesic late-successional and old-growth coniferous forests. It is associated with coastal or low-lying closed-canopy stands containing

*Tsuga heterophylla*, *Picea sitchensis*, *Pseudotsuga menziesii*) and rarely in mixed deciduous/coniferous (*Pinus*, *Pseudotsuga*, *Lithocarpus*, *Quercus*) forests (Norvell 1998ab). It appears to grow slowly, but its precise biological and ecological requirements are not known.

## Other Considerations

Another as yet undescribed species shares many morphological similarities with *Phaeocollybia spadicea* as well as similar habitats, which may complicate future surveys. Distribution and phenology of *P. spadicea*, like all *Phaeocollybias* is patchy and unpredictable (Norvell 1998ab). Additional occurrences are to be expected in unexplored late-successional or old-growth forests in coastal or low-lying areas.

<b>Edition</b>	11/18/2002	<b>Edauthor</b>	Lorelei L Norvell
<b>Grank</b>	S2?	<b>Grank Date</b>	11/18/2002

## Greasons

*Phaeocollybia spadicea* has been found along the Pacific Coast and Coast Range slope from the Oregon border south to the Santa Cruz Mountains. The 3 total protected reserves may be sufficient to protect the species from heavy logging or development, however until confirmation is made of historical locations that the occurrence is extant, only two known occurrences are thought to remain in California. Both collections (made by this author) were unusually small and undeveloped, suggesting that perhaps the species has reached the extent of its range in the state (Norvell pers comm 2002). Both occurrences are vulnerable to hot fires. Total predicted occurrences is probably around ~20 within its overall range. Many areas within the overall range, however, lack appropriate habitat. 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 Castellano et al. 1999. Handbook to Strategy 1 Fungal Species in the Northwest Forest Plan. USDA-FS PNWRS PNW-GTR-476. ALSO Dreisbach, Mueller, Exeter, McFarland, Cushman. 2002. 2002 Survey and Manage Step 2 Worksheet. ALSO ISMS 2002 database and map on PHSP8.