

# California Status Factors

**Elcode** NFSM000128  
**Gname** PHAEOLLYBIA SCATESIAE  
**Gcomname**

## Number of Occurrences

A = 1 - 5

**Comments** The Phaeocollybia scatesiae entries in the ISMS 2002 database are correct but do not include historical data, erroneously reported under Phaeocollybia californica headings. Therefore the ISMS 2002 data is added to data from Norvell (1995, 1998a, pers comm 2002). In California, ISMS 2002 and Norvell 1995a note 2 occurrences each = 4 total confirmed occurrences.

## Number of Occurrences with Good Viability

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

**Comments** Both ISMS occurrences are believed extant but only 1 of the 2 historical occurrences lies in a forest that has not been logged or developed (Norvell 2002 pers comm).

## 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. Distribution is extremely spotty and the populations appear to be unusually small for the genus.

## Range Extent

E = 5,000-20,000 km<sup>2</sup> (about 2,000-8,000 square miles)

**Comments** In California, it is known from Crescent City south to Van Damme State Park (ISMS 2002 database; Norvell 1995a, 1998ab, 2002 pers comm). [The one marker on the ISMS GIS map for Phaeocollybia scatesiae east of the Cascade crest in northern California does not appear linked to any known collection and should be disregarded.]

## 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 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%)

E = Relatively Stable ( $\pm 25\%$  change)

**Comments** Due to the extremely 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 occurs in mid-successional to late-successional/old-growth forests. It appears to grow slowly, fruit sporadically, 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**

F = Widespread, low-severity threat. Threat is of low severity but affects (or would affect) most or a significant portion of the population, occurrences, or area. Ecological community occurrences are not threatened severely, with changes reversible and recovery moderately rapid.

Scope Moderate 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 has been collected from mid-successional forests and from recently moderately thinned late-successional forests as well as from pristine 400-year-old forests (Norvell 1998ab, Norvell pers. comm. 2002). However it is extremely spotty in distribution and populations appear to be unusually small (Norvell pers comm 2002). Hot fires, development, and heavy logging activities could exterminate known populations. Also only three confirmed extant collections are known from California.

### **Number of Appropriately Protected and Managed Occurrences**

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

**Comments** There are a total of 2 permanently protected occurrences, one each cited in ISMS 2002 and Norvell 1998a.

### **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. 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**

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

**Comments** *Phaeocollybia scatesiae* is a mycorrhizal fungus that occurs in well-decomposed wood or woody humus in densely canopied coniferous forests from where it sends long rhizomorph-like strands that appear to connect it to its symbiotic partner. It is most frequently (but not exclusively) associated with *Picea sitchensis*, *Abies*, and/or (possibly) *Vaccinium* species. Its precise

biological and ecological requirements still remain unknown. (Norvell 1998ab, 2002 pers comm).

## Other Considerations

The species is readily identified in the field by the densely cespitose fruitbodies that can number over 100 within a single clump. Can be difficult to identify when only a single fruiting body is collected. Rare in California.

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

**Grank** S2?      **Grank Date** 11/18/2002

## Reasons

In California, it is known from Crescent City south to Van Damme State Park. The species is rare in California, with only 3 populations extant, two of which lie in permanently protected sites. It fruits sporadically and has an extremely spotty distribution. It is also long-lived. It remains vulnerable to hot fire, a danger in hot California summers. Total predicted occurrences for the state might be below 10. The spotty distribution and unpredictable phenology complicate ranking this organism. Additional occurrences are to be expected in coastal spruce or low-lying coniferous forests with *Abies* present. Fruits late in the season and so may not have been found by previous researchers.

## 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. 1995. ROD: Strategy 1 Fungal Species Evaluation (30 gilled and non-gilled Basidiomycete Strategy 1 species). Unpubl. report on file in 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 ISMS map on PHSC13 & ISMS 2002 database.