

Washington Status Factors

Elcode NFSM000032
Gname CLITOCYBE SENILIS
Gcomname

Number of Occurrences

A = 1 - 5

Comments Known only from one occurrence (at least 6 collections during 1992-93) from Barlow Pass (Snohomish County) in the Mt Baker-Snoqualmie NF in Washington (Ammirati et al 1994; Castellano et al. 1999).

Number of Occurrences with Good Viability

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

Comments There is one known occurrence with splendid viability.

Population Size

U = Unknown

Comments Records reflect only species occurrence, i.e. fruitbodies, not numbers of individuals. Fungal genets cannot be delimited without DNA sampling.

Range Extent

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

Comments In Washington, *Clitocybe senilis* is known from only one site: Barlow Pass, Snohomis County, Mt Baker-Snoqualmie forest. *Clitocybe senilis* was first collected in 1992 and at least 6 collections (possibly many more) were made by the team visiting the area weekly during the spring and fall mushroom seasons.

Area of Occupancy

U = Unknown

LU = Unknown

Comments Area occupancy can only be roughly approximated from fungal fruitbodies as the vegetative organism is hidden from site within the substrate. Saprophytic fungi have spotty distributions that are tied to the presence of appropriate substrates.

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

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

Comments The extant site is in a late-successional forest reserve; the stand is believed to be at least 400 years old (Ammirati et al 1994). CLSE4 is saprophytic in duff under conifers and/or hardwoods.. It has a spotty and unpredictable distribution, but has been found in mid-successional to LSOG forests. Worldwide, as well as in eastern North America and in the northern spotted region of the US, CLSE4 occurrences are generally regarded as rare. Individuals presumably reproduce via spore dispersal and mycelial interactions with other individuals. Precise reproduction strategies

and longevity of individuals and populations is unknown. Information from two different monitoring studies suggests that at least the western North American populations are stable over the long term. (Ammirati et al 1994, Norvell 2002 pers comm).

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 See above. In view of the number of recent collections that have been demonstrated to fruit annually (Ammirati et al 1994, Norvell & Exeter 2003), the species is inferred to be relatively stable over the short term, at least within the northern spotted owl region. Incidental catastrophic events and/or removal of the substrate and habitat would imperil a population.

Threats

G = Slightly threatened. Threats, while recognizable, are of low severity, or affecting only a small portion of the population, occurrences, or area. Ecological community occurrences may be altered in minor parts of range or degree of alteration falls within the natural variation of the type.

Scope Low Severity Low Immediacy Moderate

Comments The scattered but wide distribution and unknown biology complicate identifying threats to CLSE4. Heavy logging or incidental catastrophic occurrences (such as wide-ranging hot fires), and anything else that threatens the general habitat, microclimates, and/or substrate would endanger the known populations. Selective logging practices, such as thinning, appear not to negatively affect the species. Norvell & Exeter (1993) collected fruitbodies from a moderately thinned 55 year old stand (120 residual trees per acre) one and two years after thinning, and from a heavily thinned stand (40 residual trees/acre) 2 years post-treatment. No collections have been reported from the clear-cut stand since its 1999 treatment. (Norvell pers comm 2002).

Number of Appropriately Protected and Managed Occurrences

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

Comments Ammirati et al (1994), Castellano et al (1999) and ISMS-ONH (2002) all cite the same 1 occurrence from a late-successional reserve. The opening of late-successional to logging, road construction, or development, could decrease the protected & managed occurrences to 0. It should be noted that some to many sites in temporary reserves may not be managed appropriately at the present time.

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 Although the species appears to be universally rare (or at least underrepresented in the literature and in herbaria), it appears fairly resilient to perturbation of its habitat such as moderate to heavy thinning, at least when a population is locally abundant (Norvell 2002 pers comm.). The species would, however, be at risk to incidental catastrophic events, clear-cutting, road-building, and destruction of its habitat. It is also vulnerable to alteration of microhabitats and microclimate regimes (stream diversion, road construction, development).

Environmental Specificity

C = Moderate. Generalist or community with some key requirements scarce.

Comments Castellano et al (1999) states that CLSE4 is restricted to conifer forests. Bigelow (1982), on the other hand, notes "usually under conifers, sometimes under hardwoods or mixed woods. June through August" (In Oregon and Washington it has been collected from Sitka spruce/western hemlock, Douglas fir/western hemlock, and Abies/western hemlock stands suggesting a preference for *Tsuga heterophylla*. The PNW collections have also been collected on until December.) Fruitbodies are gregarious to subcaespitose and in one 150 yo stand where hemlock is more plentiful have been particularly numerous. (Norvell 2002) Its precise biological and ecological requirements are unknown.

Other Considerations

Clitocybe senilis (Fr.) Gillet Les Hymenomycetes, p 143. 1874 has a confused nomenclatural history in Europe, where it has remained obscure since Fries named it in 1872; Lamoure (1958) studied material of *C. senilis* Fr. ss Jossierand that Moser (1983) later thought might represent *C. cyanolens* Metrod. [The diverticula observed by Lamoure in 1958 are also observed on the mycelia of the PNW collections of *C. senilis* (Norvell 1998a, pers comm. 2002). The concept followed here for *C. senilis* is that of Bigelow (1982).

Edition 11/27/2002 **Edauthor** Lorelei L Norvell

Grank S2S3 **Grank Date** 11/27/2002

Reasons

Known from only one site at Barlow Pass in the Baker-Snoqualmie NF LSR where it can be abundant. Has also been collected on duff in coniferous and/or hardwood forests from mid-successional to LSOG stands in Oregon. The smoky-brown coloration of the cap and small stature make this an inconspicuous mushroom that may be more numerous than the literature and herbarium collections indicate and as recent surveys suggest, but CLSE4 may also be genuinely rare throughout its range except for certain areas in which it is locally abundant. Known within the northern spotted owl region in Washington and Oregon from only 6 occurrences.

BCD Sources

New Sources

Bigelow. 1982. North American species of *Clitocybe*. Part 1. J Cramer: Vaduz

Ammirati, Ammirati, Norvell + 10 other authors. 1994. A preliminary report on the fungi of Barlow Pass, Washington. *Mcllvainea* 11(2): 10-33.

Norvell & Exeter. (2003 in edit). Ectomycorrhizal epigeous basidiomycete diversity in Oregon's coast montane *Pseudotsuga menziesii* forests. [New York Botanical Memoirs]

Castellano et al. 1999. Handbook to Strategy 1 fungal species in the Northwest Forest Plan. USDA-FS PNWRS PNW-GTR-476

Lamoure. 1958. Etude cytologique des germinations et des myceliums de quelques agaricales. *Bull soc mycol France* 74:191-195

Moser. 1981. Keys to Agarics and Boleti. Phillips.

Norvell. 1998. The biology and taxonomy of Pacific Northwest species of *Phaeocollybia* Heim. U of Washington PhD dissertation