

## Heritage Rank Status Factors

**Elcode** NFSM000032  
**Gname** CLITOCYBE SENILIS  
**Gcomname**

### Number of Occurrences

U = Unknown

**Comments** The number of occurrences worldwide is not known. In the northern spotted owl region of the US, there are 6 occurrences represented by 50 collections of *Clitocybe senilis* in Washington and Oregon. Continued fungal surveys may uncover more sites. (Bigelow 1982; Ammirati et al 1994; Castellano et al. 1999; Norvell & Exeter 2003)

### Number of Occurrences with Good Viability

U = Unknown what number of occurrences with good viability

**Comments** There is no information available on the number of extant occurrences worldwide. Within the northern spotted owl region in North America, 4-5 occurrences are believed extant of which 4 lie in currently protected reserves.

### 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

H = > 2,500,000 km<sup>2</sup> (greater than 1,000,000 square miles)

**Comments** Known from Europe (Scandinavia, France) and North America (Massachusetts, North Carolina, Tennessee, Michigan, Oregon, Washington) (Lamoure 1958, Moser 1983, Bigelow 1982, Ammirati et al 1994, Castellano et al 1999; ISMS Database 2002 and GIS map for CLSE4, Norvell & Exeter 2003).

### 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** 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 (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

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** 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

U = Unknown whether any occurrences are appropriately protected and managed

**Comments** No data are available regarding protection of European or eastern North American occurrences. Castellano et al 1999 and ISMS-ONH (2002) list 4-5 occurrences in protected areas: 4 in late-successional reserves, and 1 either in a riparian reserve or in the unprotected matrix. The opening of late-successional and/or riparian reserves 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. They generally are collected annually in Oregon, but abundance may vary (Ammirati et al 1994, Norvell pers comm. 2003)

## Other Considerations

NRANK - N3Q. *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 Josserand 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** G3G4Q      **Grank Date** 11/27/2002

## Reasons

Widely, but spottily, distributed in Europe and North America. Has been collected on duff in coniferous and/or hardwood forests from mid-successional to LSOG stands in the Pacific Northwest. 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 4-5 occurrences. All Oregon known sites are within 30-40 miles of one another. With taxonomic revision, the global rank could change significantly, especially if the North American specimens are distinct.

## 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