Washington Status Factors

Elcode NFSM000183

Gname STAGNICOLA PERPLEXA

Gcomname

Number of Occurrences

B = 6 - 20

Comments 7 occurrences are reported for Washington, of which only 4 contain enough information on the collection labels to identify occurrence sites adequately (Norvell 1998, pers comm).

Number of Occurrences with Good Viability

C = Few (4-12) occurrences with good viability

Comments The 4 most recent and best documented occurrences were sampled since 1987 and are inferred to be extant.

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

F = 20,000-200,000 km2 (about 8,000-80,000 square miles)

Comments Stagnicola perplexa occurrences range from Marble Creek Forest Camp in Baker-Snoqualmie National Forest south to the Gifford Pinchot Research Natural Area in Washington (Norvell 1998, ISMS Database 2002 and GIS map for Stagnicola perplexa). Two additional sites along the Cascade crest have been collected from Oregon to the south.

Area of Occupancy

U = Unknown

LU = Unknown

Comments Area of occupancy can only be roughly approximated from fungal fruitbodies as the vegetative organism is hidden from site within the substrate. Saprophytic/bryophilous 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

U = Unknown. Long-term trend in population, range, area occupied, or number or condition of occurrences unknown

Comments Stagnicola perplexa is saprophytic on very rotten conifer wood in boggy or wet areas or recently dried depressions in boreal coniferous forests. Individuals are thought to reproduce through spore dispersal and mycelial interactions with other individuals. Longevity of individuals and populations is unknown. Incidental catastrophic events and/or removal of the substrate and habitat may have or may yet imperil known populations. Its rarity, spotty distribution and/or the lack of adequate

information on its biological requirements and historical/current habitats preclude estimating long- or short-term trends for Stagnicola perplexa (Norvell 2002 pers comm).

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

U = Unknown. Short-term trend in population, range, area occupied, and number and condition of occurrences unknown.

Comments See above. Stagnicola perplexa's rarity, spotty distribution and/or the lack of adequate information on its biological requirements and historical/current habitats preclude estimating long- or short-term trends for Stagnicola perplexa Norvell 2002 pers comm).

Threats

U = Unknown. The available information is not sufficient to assign degree of threat as above. (Severity, scope, and immediacy are all unknown, or mostly [two of three] unknown or not assessed [null].)

Scope	Moderate	Severity	Unknown	Immediacy	Unknown

Comments Stagnicola perplexa is known from primarily late-successional/old-growth forested areas on rotten conifer wood and chips in boggy areas or wet depressions. Whatever threatens the substrate, microclimate, and/or general habitat can imperil the associated organism. All populations are at risk to incidental catastrophic events, such as hot fires, and unmonitored human interference. Unprotected occurrences are at risk from logging activities such as brush clearing or removal of the substrate and underlying soil. The rarity of known occurrences increases the scope of the estimated threat at this time (Norvell pers comm 2002).

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed
B = Few (1-3) occurrences appropriately protected and managed
C = Several (4-12) occurrences appropriately protected and managed

Comments ISMS-ONH (2002) places 5 "known" sites in protected areas: 3 in congressionally withdrawn forests and 2 in late-successional forest reserves. The opening of late-successional to logging, road construction, or development could decrease the protected occurrences to 3. Presumably no protected site is managed specifically for Stagnicola perplexa at the present time.

Intrinsic Vulnerability

A = Highly Vulnerable. Species is slow to mature, reproduces infrequently, and/or has low fecundity such that populations are very slow (> 20 years or 5 generations) to recover from decreases in abundance; or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization (unaided by humans). Ecological community occurrences are highly susceptible to changes in composition and structure that rarely if ever are reversed through natural processes even over substantial time periods (> 100 years).
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 Stagnicola perplexa is particularly vulnerable to removal of substrate and underlying soil, and destruction of habitat through incidental catastrophic events (climate change brought on by global warming, hot fires, drought) or human interference. It is particularly vulnerable to alteration of microhabitats and microclimate regimes caused by logging activities, stream diversion, road construction, and development (Norvell 2002 pers comm.).

Environmental Specificity

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

Comments Stagnicola perplexa is generally found in coniferous boreal forests where it produces gregarious fruitbodies on very rotten coniferous wood or chips in boggy areas or recently dried depressions. There is an inferred (but not statistically demonstrated) preference for late-successional to old-growth forests. Its precise biological and ecological requirements are unknown. It fruits in the late summer to early autumn in the northern spotted owl region, but its phenology is unpredictable and occurrence erratic.

Other Considerations

Stagnicola perplexa (Orton Redhead & Smith Can J Bot. 64: 65. 1986. is the type species for a monotypic genus molecularly shown to belong to Eugarics Incertae Sedis: within the euagarics but well separated from the other 876 homobasidiomycete taxa tested in that paper (Moncalvo et al. 2002), including Psilocybe. Its previous synonym is Phaeocollybia perplexa Orton.

Edition 11/26/2002 **Edauthor** Lorelei L Norvell

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Greasons

Stagnicola perplexa occurrences range from Marble Creek Forest Camp in Baker-Snoqualmie National Forest south to the Gifford Pinchot Research Natural Area in Washington. Stagnicola perplexa, saprophytic on coniferous wood, is a rare species endemic to coniferous boreal forests. Collection data on historical and extant occurrences are not sufficient to demonstrate its rarity statistically. Within Washington only 7 sites have been documented, of which 4 collections provide reliable locality data. 5 known sites currently lie in protected forest reserves. Its unknown biology precludes estimation of population size, area of occupancy, and long- and short-term trends. All populations are at risk to incidental catastrophic events such as wildfire and anything that removes or destroys the substrate and underlying soil and/or its surrounding habitat.

BCD Sources

New Sources

REFERENCES: Norvell. 1998. ROD: Strategy 3 Fungal Species Evaluation (11 gilled Basidiomycete Strategy 3 species). Unpubl. report on file at the Regional Mycology Lab, Corvallis, Oregon. ALSO Redhead & Smith. 1986. Two new genera of agarics based on Psilocybe corneipes and Phaeocollybia perplexa. Can J Bot 64: 643-647. ALSO Watling, Gregory, Orton. 1993. Stagnicola. IN British fungus flora Agarics & Boleti 7. Edingurgh: Royal Botanic Garden. ALSO Laber & Marklund. 1992. Stagnicola perplexa (Orton) Redhead & Smith <- Agaricus ciaris var minor Fries, eine sehr seltene Art in Europa? Zeitschrift fur Mykologie 58: 53-56 [German]. ALSO ISMS-ONH. 2002. ISMS data; ONH protection extrapolations; GIS map for STPE11. ALSO Moncalvo, Vilgalys, Redhead + 11 other authors. 2002. One hundred and seventeen clades of euagarics. Molecular Phylogenetics and Evolution 23: 357-400.