

Washington Status Factors

Elcode NFSM000039
Gname CORTINARIUS CYANITES
Gcomname

Number of Occurrences

A = 1 - 5
B = 6 - 20

Comments There are at least 5 historical occurrences and one recent occurrence of *Cortinarius cyanites* from Washington (Ammirati 1998, Smith 1939, MICH 11-22-02, ISMS 2002) where fungal surveys have been less active than in Oregon. Further surveys should reveal more sites. *Cortinarius cyanites* is regarded as "fairly infrequent" (Ammirati 1998).

Number of Occurrences with Good Viability

B = Very few (1-3) occurrences with good viability
C = Few (4-12) occurrences with good viability

Comments Only 1 recent occurrence is known to this ranking author (Norvell) as extant. WTU, the University of Washington fungal herbarium, is expected to hold many more records of potentially extant occurrences. Dr Joe Ammirati and/or Dr Michelle Seidl of the University of Washington should be contacted for additional information on Washington populations.

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 km² (about 2,000-8,000 square miles)

Comments *Cortinarius cyanites*, which has a wide north temperate distribution in conifer, hardwood, and mixed forests, is known to this author (Norvell) from Washington from one site on the Olympic Peninsula (MICH 11-22-02), 4 historical reports from Mt Rainier National Park (MICH 11-22-02, Smith 1939, Ammirati 1998) south to the Gifford Pinchot National Forest (ISMS Database 2002 and GIS map for *Cortinarius cyanites*). Dr Joe Ammirati and/or Dr Michelle Seidl of the University of Washington should be contacted for additional information on Washington *Cortinarius cyanites* populations.

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; its distribution is spotty and it appears restricted to fairly complex habitats. *Cortinarius cyanites* has unknown biological and ecological requirements that determine how and when symbiotic associations are formed with partners. (Ammirati 1998, Norvell pers comm 2002)

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 Cortinarius cyanites is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner for its existence. Spotty distribution and a lack of sufficient data complicate the projection of long-term trends for fungi. In Washington, Cortinarius cyanites is inferred to be symbiotic with conifer species and has been found primarily in late-successional/old-growth forests. However, in Oregon, it has been reported from early successional stands. Individuals are less dependent upon spore dispersal than upon mycelial interactions with other individuals and their mycorrhizal partners. In view of the lack of actual data on extant occurrences in WA, the long-term trend cannot be predicted reliably (Norvell 2002 pers comm).

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 Cortinarius cyanites is an ectomycorrhizal fungus dependent upon the health of its forest habitat. Natural catastrophes or human activities that imperil the forest will likewise imperil the fungus. Little is known about the species but the single extant population in the Gifford Pinchot National Forest should be stable over the short term, barring human interaction. Dr Joe Ammirati and/or Dr Michelle Seidl of the University of Washington should be contacted for additional information on Washington populations.

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	High	Severity	Low	Immediacy	Low
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Comments In Washington, Cortinarius cyanites has been found only in late-successional/old-growth coniferous forests (Ammirati 1998). Whatever threatens an extant forest and its symbiotic partners will threaten Cortinarius cyanites, which is imperiled by hot fires, road construction or other development, and clearcutting, but appears to be able to withstand light to moderate thinning (Norvell pers comm 2002, Norvell & Exeter 2003). The documented extant occurrence may or may not lie in a currently protected riparian reserve and so may be at risk to human interference in addition to natural catastrophes. However, it is likely that more populations occur in the state. Dr Joe Ammirati and/or Dr Michelle Seidl of the University of Washington should be contacted for additional information on Washington populations.

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed

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

Comments The only known extant occurrence may or may not lie within a riparian reserve (ISMS 2002/ONH data). If the occurrence in fact lies within the matrix or if riparian reserves are opened to clearcutting, road construction, or other development, the number of protected and managed occurrences could decrease to 0 (Rank "A"). Dr Joe Ammirati and/or Dr Michelle Seidl of the University of Washington should be contacted for additional information on Washington populations.

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 health is linked to that of the symbiotic partner (here both deciduous and coniferous trees). *Cortinarius cyanites* has been collected from early and mid-successional stands (Norvell & Exeter 2003) as well as from late-successional/old-growth forests (Smith 1939, Ammirati 1998). It is vulnerable to anything that threatens the forest habitat, including drought, insect infestations, hot fires, road construction and development, and clearcutting.

Environmental Specificity

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

Comments *Cortinarius cyanites* has been documented from forests of various ages and is believed to be associated with both deciduous and coniferous trees (Ammirati 1998, Norvell & Exeter 2003). However it is "fairly infrequent" (Ammirati 1998) and obviously has relatively narrow biological and ecological requirements that are not as yet known.

Other Considerations

No synonyms are known for *Cortinarius cyanites* Fr., which has a worldwide northern temperate distribution but infrequent occurrence. Because there are too few *Cortinarius* experts, the number of reported occurrences are inferred to be under-reported (Norvell). Historical reports suggest that the species is probably well established in the Olympic National Park and Washington's montane forests within the northern spotted owl region. Drs Joe Ammirati and Michelle Seidl should be consulted for further information.

Edition 11/22/2002 **Edauthor** Lorelei L Norvell

Grank S1? **Grank Date** 11/22/2002

Reasons

In Washington, *Cortinarius cyanites* is an ectomycorrhizal fungus dependent upon the health of its coniferous symbiotic partners. *Cortinarius cyanites* is generally under-reported and is known from 5 historical occurrences and one extant occurrence in the state. Its occurrence worldwide is regarded as "infrequent", but it is probably under-reported due to the dearth of experts able to identify it. The sole known extant occurrence in WA may lie either in a temporarily protected riparian reserve or in the matrix, and thus subject to road construction, development, or clear-cutting which might extirpate it. More confirmed collections of *Cortinarius cyanites* are needed before a final rank can be assigned.

BCD Sources

New Sources

Ammirati. 1998. *Cortinarius cyanites*. (unpublished report on file in the Regional Mycology lab, Corvallis.) ALSO Smith. 1939. Studies in the genus *Cortinarius* 1. Contrib. Univ. Michigan Herbarium, No 2: 28-29. ALSO Michigan Herbarium Database. 11-22-2002. <http://www.herb.lsa.umich.edu/combquery.htm> ALSONorvell & Exeter. 2003 in press. Ectomycorrhizal epigeous basidiomycete diversity in ALSOISMS 2002 database with GIS map for COCY8, ALSO Pacific Forestry Center Herbarium[11-22-02]: http://www.pfc.cfs.nrcan.gc.ca/biodiversity/herbarium/searchbyfungus_e.html ALSO Moser & Julich. 1990. Colour Atlas of basidiomycetes. Run 8: III *Cortinarius* 93. Gustav-Fischer Verlag. ALSO Brandrud et al. 1992. *Cortinarius*, Flora Photographica II: B02. Oslo. ALSO Finnish collections database (11-22-02): <http://www.funet.fi/pub/sci/bio/life/fungi/basidiomycetes/cortinariales/cortinariaceae/cortinarius/> ALSO Japan 1999 Foray site [11-22-02]: <http://wwwsoc.nii.ac.jp/kb-msj/E2/foray13.html>