

Heritage Rank Status Factors

Elcode NFSM000039
Gname CORTINARIUS CYANITES

Gcomname

Number of Occurrences

Comments The number of occurrences worldwide is unknown. During the recent surveys, only two occurrences were sampled in Washington and Oregon (ISMS 2002 database). Historical records on web-searchable databases indicate reliable occurrences in BC (1), Michigan (1), CA (2), and WA (5). (MICH, DAVFP on 11-22-02). Norvell & Exeter (2003) note 2 additional occurrences within Oregon. A search of the WTU, the University of Washington fungal herbarium (not available online) database and continuing fungal surveys (less active in WA than in CA & OR) should reveal more sites. Cortinarius cyanites is regarded as "fairly infrequent" (Ammirati 1998).

Number of Occurrences with Good Viability

Comments Only 5 recent occurrences are known to this ranking author (Norvell) as having good viability. One was sampled from the Vancouver BC watershed (DAVFP 11-18-02), 2 may occur in riparian reserves in Washington and Oregon (ISMS 2002/ONH database); the other two have been regularly sampled during 1998-2001 in Oregon (Norvell & Exeter 2003). WTU, the University of Washington fungal herbarium, is expected to hold many more records of potentially extant occurrences. No information is readily available regarding the number of known occurrences in Japan or Scandinavia.

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

H = > 2,500,000 km² (greater than 1,000,000 square miles)

Comments Cortinarius cyanites, which has a wide distribution in conifer, hardwood, and mixed forests, is known from Europe (including Scandinavia), Japan, and North America. (Ammirati 1998, Norvell 2002 pers comm). In North America it is known from BC, WA, OR, CA, the rocky mountains, and eastern North America (including Michigan). In the Pacific Northwest northern spotted region, Cortinarius cyanites is documented from the Vancouver area of British Columbia south to Mendocino county in California and east to Mt Rainier State Park south to the Gifford Pinchot National Forest in Washington. (Ammirati 1998, DAVFP (Pac Forestry Center database 11-22-02); Norvell & Exeter 2003; ISMS Database 2002 and GIS map for Cortinarius cyanites).

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 lack of sufficient data complicate projection of long-term trends for fungi. *Cortinarius cyanites* is seemingly symbiotic with both angio- and gymnosperms and is found in many different aged forests. Individuals are less dependent upon spore dispersal than upon mycelial interactions with other individuals and their mycorrhizal partners. In view of the lack of sufficient data on the actual number of occurrences present, the long-term trend cannot be predicted (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 *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. Too much is unknown about the species to predict a short-term trend.

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	Unknown	Severity	Unknown	Immediacy	Unknown
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Comments *Cortinarius cyanites* is found in early to late-successional forests, where it is associated with both gymno- and angiosperms. (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). Too much is unknown about the actual number of populations worldwide to predict scope, severity, and immediacy of these and other threats.

Number of Appropriately Protected and Managed Occurrences

Comments Outside of 1 protected occurrence in British Columbia (DAVFP database 11-22-02), data are not available on protected and managed occurrences in Japan, Europe, eastern North America, or the Rocky Mountains. ISMS (2002) cites 0-2 extant occurrences in protected areas both possibly in riparian reserves (these may also occur within the matrix). If late-successional and/or riparian reserves are opened to clearcutting, road construction, or other development, the number of protected and managed occurrences could dramatically decrease to 0 (Rank "A"). The two sites known to Norvell & Exeter (2003) are not protected. More information can be obtained regarding the protected status of other North American populations by contacting Drs Joe Ammirati and Michelle Seidl at the University of Washington.

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 distribution reported from Japan, Europe, and North America. The Japanese report comes from a posted foray list from 1999 and may not be reliable. There are too few *Cortinarius* experts; thus the number of occurrences known are inferred to be under-reported for the world. Historical reports suggest that the species is probably well established, but never common, in montane and coastal areas of 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 G3G4 **Grank Date** 11/22/2002

Reasons

Cortinarius cyanites, which has a wide distribution in conifer, hardwood, and mixed forests, is known from Europe (including Scandinavia), Japan, and North America. *Cortinarius cyanites* is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (deciduous and coniferous trees). No research has yet demonstrated which trees are associated with *Cortinarius cyanites*, which is generally infrequently reported. In the range of the spotted owl, only 4 extant occurrences are known. While more are anticipated, the species will probably remain infrequently found. Only two of the four known occurrences in the northern spotted owl region are possibly protected in riparian reserves; these may also lie in the matrix and thus be unprotected. 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> ALSO Norvell & Exeter. 2003 in press. Ectomycorrhizal epigeous basidiomycete diversity in ALSO ISMS 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>