

Washington Status Factors

Elcode NFSM000045
Gname CORTINARIUS UMIDICOLA
Gcomname

Number of Occurrences

A = 1 - 5

Comments 2-3 occurrences represented by at least 5 collections of *Cortinarius umidicola* have been reported from Washington (Moser & Ammirati 1996, Norvell 1995, Castellano 1999, ISMS 2002).

Number of Occurrences with Good Viability

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

Comments 1-2 occurrences are believed extant in Washington (Easy Pass Trailhead, Okanagan National Forest). A 1954 occurrence near the Carbon River in Mt Rainier National Park has not been successfully sampled since that time.

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 umidicola* is known from only two sites in Washington: The Easy Pass area near/in the Okanagan National forest in Skagit County and the Carbon River area of Mt Rainier National Park in Pierce County. (Moser & Ammirati 1996, Norvell 1995, Castellano 1999; ISMS Database 2002 and GIS map for *Cortinarius umidicola*).

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 umidicola* has unknown biological and ecological requirements that determine how and when symbiotic associations are formed with partners.

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

D = Moderate Decline (decline of 25-50%)

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

Comments As an ectomycorrhizal fungus *Cortinarius umidicola* long-term trends will coincide with those for its symbiotic partners, *Picea englemannii* and *Abies lasiocarpa*. Spotty distribution and lack of sufficient data complicate projection of long-term trends for fungi. *Cortinarius umidicola* is known

from subalpine/subarctic coniferous forests. Individuals are less dependent upon spore dispersal than upon mycelial interactions with other individuals and their mycorrhizal partners. Long-term trends of current populations are unknown. (Norvell 2002 pers comm) Dr. Joe Ammirati and/or Dr. Michelle Seidl of the University of Washington should be contacted for additional information on *Cortinarius umidicola*.

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 umidicola* is an ectomycorrhizal fungus whose short-term trends will coincide with those of its symbiotic partners, *Picea engelmannii* & *Abies lasiocarpa*. Natural catastrophes or human interference may well compromise both tree and fungus. *Cortinarius umidicola* may be more frequently collected from the European alpine regions, although the fact that it was not named until 1966 (as *C. canabarba*) suggests it is rare there as well. In North America approximately 6 occurrences have been reported since 1905. Short-term trends for the extant occurrences are unknown. Dr. Joe Ammirati and/or Dr. Michelle Seidl of the University of Washington should be contacted for additional information on *Cortinarius umidicola*. (Norvell 2002 pers comm).

Threats

C = Substantial, non-imminent threat. Threat is moderate to severe but not imminent (> 10 years) for most of the population, occurrences, or area.

Scope	High	Severity	Moderate	Immediacy	Unknown
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Comments In Washington, *Cortinarius umidicola* is known from 2 subalpine coniferous forests, where it is symbiotic with *Picea engelmannii* and *Abies lasiocarpa*. The habitat is regarded as generally fragile, requiring a long time to rebound from disturbances such as hot fires, road construction or other development, or logging activities. This implies that disturbance could well result in the extirpation of the species at a location (Norvell 2002 pers comm). Dr. Joe Ammirati and/or Dr. Michelle Seidl of the University of Washington should be contacted for additional information on *Cortinarius umidicola*.

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 Taken together, data from ISMS (2002), Moser & Ammirati (1996), and Moser et al (1995) imply approximately 2 extant occurrences in Washington, of which one may possibly lie within a late-successional reserve (the data on the ISMS database are somewhat contradictory.)

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 In general, ectomycorrhizal fungal health is linked to that of the symbiotic partner (here *Picea engelmannii* and *Abies lasiocarpa*) and the condition of the substrate. Subalpine habitats in general appear to be more fragile and require more time to reestablish themselves after disturbances. *Cortinarius umidicola* would be vulnerable to anything that threatens the forest habitat, including drought, insect infestations, hot fires, road construction and development, and clearcutting.

Environmental Specificity

A = Very Narrow. Specialist or community with key requirements scarce.

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

Comments *Cortinarius umidicola* is found in subalpine coniferous forests where it forms symbiotic partnerships with *Picea engelmannii* and *Abies lasiocarpa*. One collection from decomposed wood (Moser & Ammirati 1996) implies a reliance on woody humus for moisture conservation (Norvell 2002 pers comm). These are generally found in dry, harsh climates and may be highly susceptible to perturbation. Its precise biological and ecological requirements are unknown.

Other Considerations

Cortinarius cana-barba Moser is a synonym. In 1918 Kauffman misapplied the name "*C. Plumiger*" to a NY collection of *C. umidicola* (Moser & Ammirati 1996). Dr. Joe Ammirati and/or Dr. Michelle Seidl of the University of Washington should be contacted for additional information on *Cortinarius umidicola* and notified of new occurrences.

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

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Reasons

Cortinarius umidicola has been collected in only two general localities in Washington: Mt Rainier National Park (where it has not been seen since 1954) and Easy Pass in the Okanogan National Forest. The 1989 collections made near the Easy Pass trailhead appear to lie within a late-successional reserve and thus are currently protected. *Cortinarius umidicola* is ectomycorrhizal and thus linked to the fate of its symbiotic partners, *Picea engelmannii* and *Abies lasiocarpa*. *Cortinarius umidicola* is restricted to subalpine/subarctic spruce-fir forests. The stability of the extant populations is unknown due to lack of knowledge about the species biological and ecological requirements. The protected locality at the Easy Pass trailhead is at risk to hot fires or unmonitored human perturbation. Unprotected occurrences are threatened by road construction and development, and logging activities. All populations occur in generally fragile habitats and populations might not be able to recover if disturbed.

BCD Sources

New Sources

Kauffman. 1905. The genus *Cortinarius*: a preliminary study. Bull. Torr. Bot. Club. 32:201-325. ALSO Moser & Ammirati. 1996. Studies in North American cortinariii II. Mycotaxon 58: 387-412. ALSO Moser, McKnight, Ammirati. 1995. Studies on North American cortinariii I. Mycotaxon 55: 301-346. ALSO Norvell . 1995. ROD: Strategy 1 Fungal Species Evaluation (30 gilled and non-gilled Basidiomycete Strategy 1 species). Unpubl. report on file at the Regional Mycology Lab in in Corvallis, Oregon. ALSO Castellano et al. 1999. Handbook to Strategy 1 Fungal Species in the Northwest Forest Plan. USDA-FS PNWRS PNW-GTR-476. ALSO Moser & Julich. 1990 ff. Farbatlas der basidiomyceten. III. *Cortinarius* 32. Gustav-Fischer Verlag. ALSO Brandrud et al. 1992. *Cortinarius*, Flora Photographica II: A53. Oslo ALSO ISMS 2002 database with GIS map for COUM3.