

Oregon Status Factors

Elcode NFSM000134
Gname POLYOZELLUS MULTIPLEX
Gcomname Blue chanterelle

Number of Occurrences

C = 21- 80

Comments Norvell (1995) reported 19 historical occurrences for Oregon, and Castellano et al. (1999) reported 10. The ISMS 2002 database cites 33 recent occurrences.

Number of Occurrences with Good Viability

D = Some (13-40) occurrences with good viability

Comments Of the 33 ISMS (2002) occurrences, approximately 13 lie within permanently or temporarily protected reserves. As ectomycorrhizal species are tied to the health of their symbiotic partners (in this instance primarily *Abies* spp.), the other known occurrences can be predicted to remain viable as long as the forests are preserved.

Population Size

U = Unknown

Comments 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 All 33 Oregon occurrences are restricted to the Cascade Range from Mt. Hood south to the Rogue River.

Area of Occupancy

D = 20-100 km² (about 5,000-25,000 acres)

LD = 200-1,000 km (about 125-620 miles)

Comments Can only extrapolate area occupancy from fruitbodies as underground vegetative organism may produce many fruitbodies over a larger area. This species has unknown biological and ecological requirements that determine how and when ectomycorrhizal associations are formed with *Abies* spp. mycorrhizal partners. Assume a maximum of 100 acres per known occurrence.

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 Presence in late-succession, mid-elevation to montane conifer forests suggests populations will remain fairly stable as long as such forests are maintained. Pollution and reduction of stand rotation age may lead to decrease in populations. Currently 13 occurrences lie within permanent or temporary forest reserves; all can be considered stable as long as the forests kept in late-succession. The other 20 occurrences may be in peril depending upon management of their

forests and whether Abies is replanted after logging.

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 Development, logging, hot fires are all threats that will affect the stability of the non-protected occurrences. The 13 occurrences in currently protected preserves are assumed to be stable. It is possible that additional sites in unexplored forests will be found.

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 All occurrences are threatened by hot fires. Those lying in unprotected forests are threatened also by development and forest clear cutting or heavy thinning, but probably not by low thinning. Logging is occurring in or predicted for the unprotected areas in Oregon. Depending on forest management regimes or exposure to hot fires, the severity and immediacy of the threat could be moderate to extreme.

Number of Appropriately Protected and Managed Occurrences

C = Several (4-12) occurrences appropriately protected and managed

D = Many (13-40) occurrences appropriately protected and managed

Comments Of the 33 recent occurrences reported within Oregon (ISMS database 2002), 2 are definitely not protected, 2 lie within permanently protected reserves, 5 lie within late-successional reserves, and approximately 6 lie within riparian reserves. If governmental management policies open late-successional and/or riparian reserves to development or logging, the number of protected and managed occurrences would be ranked as "C". It is also not known whether the sites in the temporary reserves are managed sufficiently to ensure their survival.

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 The fungus is believed to be long-lived and slow-growing, with a low reproductive rate inferred, but not demonstrated, from its association with Abies roots in late-successional to very old growth conifer stands. Threatened by clearcutting, heavy thinning, or hot fires; probably not affected by low to moderate thinning.

Environmental Specificity

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

Comments Precise biological requirements are not known; however apparent preference for older Abies in late-successional and old-growth forests suggest narrow environmental specificity.

Other Considerations

ORNHIC - List 4. Synonyms include *Cantharellus multiplex* and *Craterellus multiplex*. The species is uncommon in Oregon. Additional occurrences are to be expected in areas where late-successional forests contain old *Abies*. Considered a choice edible.

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Greasons

Total current occurrences are estimated at ~50-75. There are several protected forest sites, but some reserves may be opened by changes in Northwest Forest Plan philosophy. This mycorrhizal species depends upon the health and preservation of its associated coniferous partner (here *Abies*) and the surrounding forests, which are valuable timber targets in Oregon. Other threats include fire, development, and (possibly) commercial harvesting. Cultural characteristics and sexuality unknown. Uncommon to rare.

BCD Sources

New Sources

Smith & Morse 1947. *Mycologia* 39:497-53. ALSO Smith 1968. The *Cantharellaceae* of Michigan. *Michigan Botanist* 7: 143-18. ALSO Bigelow. 1978. *Mycologia* 70:710-712. ALSO Imazeki et al. 1988. *Fungi of Japan* [in Japanese]. ALSO Castellano et al. 1999. Handbook to Strategy 1 Fungal Species in the Northwest Forest Plan. USDA-FS PNWRS PNW-GTR-476. ALSO Norvell. 1995. ROD: Strategy 1 Fungal Species Evaluation (30 gilled and non-gilled Basidiomycete Strategy 1 species). Unpubl. report on file in the Regional Mycology Lab, Corvallis, Oregon. ALSO OSC herbarium: <http://mgd.nacse.org/cgi-bin/qml2.0> ALSO Pacific Forestry Center herbarium: http://www.pfc.cfs.nrcan.gc.ca/biodiversity/herbarium/searchbyfungus_e.html ALSO BPI (US National Collections): <http://nt.ars-grin.gov/fungalatabases/databaseframe.cfm?CFID=225771&CFTOKEN=11762541> [NOTE all herbarium databases checked on 11-18-02.]