California Status Factors

Elcode NFSM000050

Gname CRATERELLUS TUBAEFORMIS

Gcomname Winter craterelle (also winter chanterelle)

Number of Occurrences

C = 21- 80

Comments The ISMS 2002 database for California Craterellus tubaeformis cites 24 occurrences. Continued fungal surveys may uncover more sites. It is frequently commercially harvested in the northern part of the state (Pilz et al, 2003).

Number of Occurrences with Good Viability

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

Comments The ISMS 2002 database cites 24 extant Craterellus tubaeformis occurrences of which 17 lie in currently protected reserves.

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

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

Comments In California Craterellus tubaeformis is documented from Crescent City south along the Pacific Coast to the Mendocino area and east to the Klamath Nationa Forest. (Dreisbach et al 2002, ISMS Database 2002 and GIS map for Craterellus tubaeformis).

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. Craterellus tubaeformis is known to occur within well-rotted "coarse woody debris" (Trappe 2001) and is demonstrated to associate with western hemlock. (Kroppe & Trappe 1982, Trappe 2001).

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

E = Relatively Stable (±25% change)

Comments Craterellus tubaeformis 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. Craterellus tubaeformis is symbiotic with Tsuga heterophylla (Trappe 2001) and is generally found in stands that also contain well-decomposed hemlock/woody debris

(Trappe 2001). 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 considered stable barring natural catastrophes (hot fires) or human interference (see threats) including removal of the rotted wood interface (Trappe 2001).

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

E = Stable. Population, range, area occupied, and/or number or condition of occurrences unchanged or remaining within ±10% fluctuation

Comments: Craterellus tubaeformis is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (Tsuga heterophylla) and the presence of well-decomposed coarse woody debris. Natural catastrophes or human activities that imperil the health of western hemlock or remove the woody debris will compromise the fungus. Commercial harvesting could have an impact if the substrate is disturbed. Current occurrences of Craterellus tubaeformis are relatively common (Oregon), to moderately common (California), and believed low (Washington) in areas where intensive surveys have not yet been conducted. 112-165 occur in currently protected reserves; therefore the species is believed to be secure over the short term (Trappe 2001, Pilz et all 2003, Norvell 2002).

Threats

G = Slightly threatened. Threats, while recognizable, are of low severity, or affecting only a small portion of the population, occurrences, or area. Ecological community occurrences may be altered in minor parts of range or degree of alteration falls within the natural variation of the type.

Scope: Low Severity: Low Immediacy: Low

Comments: Craterellus tubaeformis has been found in all-age forests, where it is associated with western hemlock. Population longevity is unknown, although in Oregon one individual has been sampled annually from 1998 (autumn) through 2002 (spring) without apparent ill effect (Norvell & Exeter 2003). Whatever threatens western hemlock and the woody substrate will threaten Craterellus tubaeformis, which is imperiled by hot fires, road construction or other development, and clearcutting. It appears to withstand light to moderate thinning (Trappe 2001, Norvell & Exeter 2003).

Number of Appropriately Protected and Managed Occurrences

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

Comments: ISMS (2002) cites 112-165 protected occurrences from WA, OR, CA and Dreisbach et al (2002) cite ~84 protected occurrences from WA & CA. ISMS (2002) notes 16 occurrences in permanently protected preserves, 79 from late-successional reserves, and 17-70 in riparian reserves. If late-successional and/or riparian reserves are opened to clearcutting, road construction, or other development, the number of protected and managed occurrences would decrease to 16 (Rank D).

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).

C = Not Intrinsically Vulnerable. Species matures quickly, reproduces frequently, and/or has high fecundity such that populations recover quickly (< 5 years or 2 generations) from decreases in abundance; or species has high dispersal capability such that extirpated populations soon become reestablished through natural recolonization (unaided by humans). Ecological community occurrences are resilient or resistant to irreversible changes in composition and structure and quickly recover (within 10 years).

Comments Craterellus tubaeformis requires western hemlock to thrive and also requires a decomposed woody substrate (Trappe 2001). 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 Craterellus tubaeformis is found in all aged coniferous stands in which western hemlock and well-decomposed wood is present. Western hemlock has been demonstrated to be the preferred mycorrhizal partner, but Craterellus tubaeformis has also been found rarely in Douglas-fir monocultures in the absence of western hemlock and even more rarely in Sitka spruce stands when western hemlock is present. Fruitbodies begin fruiting in late autumn and early winter and can be also found in the spring. (Trappe 2001, Pilz et al 2003). One individual has been consistently sampled over four years in Oregon from the same rotten log. (Norvell & Exeter 2003, Norvell pers comm 2002).

Other Considerations

Craterellus tubaeformis has two synonyms: Cantharellus tubaeformis and Cantharellus infundibuliformis. The taxon occurring within the western hemlock forest zone in the Pacific Northwest is thought to represent an undescribed species. Craterellus tubaeformis is frequently commercially harvested in Pacific Northwest North America.

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

Grank S4? **Grank Date** 11/22/2002

Greasons

Craterellus tubaeformis is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (Tsuga heterophylla -- western hemlock). Craterellus tubaeformis is moderately common in the northern spotted owl region of California. There are at least 24 (ISMS 2002 via ONH) to 38 (Dreisbach et al 2002) extant occurrences, of which17 lie in currently protected forest reserves. The currently known populations are stable. Unprotected occurrences will be threatened somewhat by road construction and development and clearcutting or heavy thinning. Moderate to light thinning is not considered a threat. All occurrences are imperiled by hot fires.

BCD Sources

New Sources

Trappe, M. 2001. The ecology of winter chanterelles (Craterellus tubaeformis) in western Oregon. Oregon SU MS thesis. ALSO Kropp and Trappe, J. 1982. Ectomycorrhizal fungi of Tsuga heterophylla. Mycologia 74:479-488. ALSO Dahlman, Danell, Spatafora. 2000. Molecular systematics of Craterellus: cladistic analysis of nuclear LSU rDNA sequence data. Mycological research 104:388-394. ALSO Pilz, Norvell, Danell, Molina, 2003 (in final review). Ecology and management of commercially harvested chanterelle mushrooms. USDA-FS PNW-RS publication. Portland. ALSO Redhead. 1979. A study of the sphagnicolous fleshy basidiomycetes in the eastern sections of the Canadian boreal forest. U of Toronto PhD dissertation. ALSO Norvell & Exeter. 2003 in press. Ectomycorrhizal epigeous basidiomycete diversity in Oregon's coast montane Pseudotsuga menziesii forests. New York Botanical Memoirs. ALSO Dreisbach, Mueller, Exeter, McFarland, Cushman. 2002. 2002 Survey and Manage Step 2 Worksheet. ALSO ISMS 2002 database and GIS map for CRTU3.