California Status Factors

Elcode NFSM000053

Gname DERMOCYBE HUMBOLDTENSIS

Gcomname

Number of Occurrences

A = 1 - 5

Comments There are 4 reported occurrences represented by 4 collections of Dermocybe humboldtensis. Continued fungal surveys may uncover more sites. (Ammirati & Smith 1977, Norvell 1995, Castellano 1999, ISMS 2002)

Number of Occurrences with Good Viability

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

Comments 2 occurrences of Dermocybe humboldtensis are believed extant in California, neither of which lie in protected areas.

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

B = 100-250 km2 (about 40-100 square miles)

Comments In California, Dermocybe humboldtensis is known only from the Lamphere Dunes and Trinidad area in Humboldt County, California. (Ammirati & Smith 1988, Norvell 1995, Castellano et al 1999; ISMS Database 2002 and GIS map for Dermocybe humboldtensis).

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; it appears restricted to stable dunes in association with Pinus spp. (Ammirati & Smith 1977). Dermocybe humboldtensis has unknown biological and ecological requirements that determine how and when symbiotic associations are formed with partners. The areas of the two extant populations are believed to be small. (Norvell 2002 pers comm). Dr. Joe Ammirati of the University of Washington <cort@uwashington.edu> may be able to provide additional information.

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 Dermocybe humboldtensis is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (Pinus) and possible restriction to stable dunes. Individuals are less dependent upon spore dispersal than upon mycelial interactions with other individuals and their mycorrhizal partners. Thus the 2 current populations can be considered either stable or declining, dependent upon natural catastrophes (hot fires) or human interference (see threats). The long-term trend for the current population 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

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 ±10% fluctuation

Comments Dermocybe humboldtensis is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (inferred as Pinus). Natural catastrophes or human activities that imperil the health of pines or disrupt the sanddunes may compromise both tree and fungus. Current occurrences of Dermocybe humboldtensis are rare with no protected occurrences in California. (ISMS/ONH 2002 data).

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

Comments Dermocybe humboldtensis is restricted to the Pacific coast region where it is symbiotically associated with Pinus on stable dunes in California. Whatever threatens the mycorrhizal partners or the dunes threatens Dermocybe humboldtensis: natural catastrophes (hot fires) and/or human interference with the natural habitat (road construction or other development, off-road vehicular traffic, and logging activities) (Norvell pers comm 2002).

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed

Comments Neither of the two known occurrences lie in protected areas (ISMS-ONH 2002).

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 Ectomycorrhizal fungal health is linked to that of the symbiotic partner (here Pinjus) and preservation of the habitat -- here stable dunes. DEHU4 would be vulnerable to natural catastrophes and human distrubance of the habitats: e.g., drought, insect infestations, hot fires, road construction, development, logging.

Environmental Specificity

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

Comments DEHU is described from stable dunes growing in association with Pinus and Vaccinium species. It occurs in complex habitats, but its precise biological and ecological requirements are unknown. Based on collections data, it has only been verified from two fairly localized areas in California. (Ammirati & Smith 1977, Norvell 1995, Castellano et al. 1999, ISMS 2002 database).

Other Considerations

Dermocybe humboldtensis is now recognized under its basionym, Cortinarius humboldtensis Ammirati and Smith 1977. Mycotaxon 5(2):385. ISMS 2002 geographic coordinates do not match those submitted by Norvell 1995, suggesting that 3 new occurrences have been discovered since 1956-1981.

Edition 2/23/2002 **Edauthor** Lorelei L Norvell

Grank S1? **Grank Date** 2/23/2002

Greasons

Dermocybe humboldtensis, an ectomycorrhizal fungus associated symbiotically with pines on stable sand dunes, is rare. In California it is known only from Humboldt County near Trinidad and the Lamphere Dunes. There are only 2 known extant occurrences, both of which lie in unprotected areas. Currently known populations are presumed more or less stable, but at risk to natural catastrophes or unmonitored human interference such as hot fires, road construction and development, and logging. More occurrences may possibly be found that will extend the known area.

BCD Sources

New Sources

Ammirati & Smith. 1977. Studies in the genus Cortinarius III. Mycotaxon 5(2): 385-397. ALSO Ammirati. 1998. Cortinarius cyanites. (unpublished report on file in the Regional Mycology lab, Corvallis.) 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 ISMS 2002 database with GIS map for DEHU4.