

Heritage Rank Status Factors

Elcode NFSM000080
Gname GOMPHUS CLAVATUS
Gcomname Pig's ears; the pig's ear gomphus

Number of Occurrences

E = >300

Comments The number of occurrences in Europe is unknown. In North America, at least 197 occurrences are confirmed by herbarium collections. Within the northern spotted owl region of Pacific Northwest North America, at least 121 occurrences vouchered by 146 collections are known. Continued fungal surveys may uncover more sites, but *Gomphus clavatus* is relatively uncommon throughout its range. (Petersen 1971, Dreisbach et al 2002, ISMS-ONH 2002)

Number of Occurrences with Good Viability

U = Unknown what number of occurrences with good viability

Comments The number of extant occurrences in Europe and North America exclusive of the northern spotted owl region of the U.S. cannot be estimated. Within the northern spotted owl region of the United States, at least 78-95 occurrences are believed extant.

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 *Gomphus clavatus* is known from Europe, Great Britain, Canada, the United States, and Mexico. Petersen (1971) examined collections from 5 European countries, 5 Canadian provinces (BC east to Nova Scotia), 11 states (WA south to TX and east to New Hampshire and south to Tennessee), and Mexico. (data also from Dreisbach et al 2002; Pilz et al 2003; ISMS Database 2002 and GIS map for *Gomphus clavatus*).

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. *Gomphus clavatus* 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

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

Comments Gomphus clavatus is an ectomycorrhizal fungus dependent upon the health of its coniferous symbiotic partners for its existence. It is uncommon but well-distributed throughout most of its range (Dreisbach et al 2002). Occurrences are known from late-successional/old-growth and mid-successional forests (Norvell & Exeter 2003). Individuals are less dependent upon spore dispersal than upon mycelial interactions with other individuals. Longevity of individuals is unknown. Current populations are presumed to be relatively stable over the long-term, barring unexpected catastrophic events.

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 $\pm 10\%$ fluctuation

Comments Gomphus clavatus is an ectomycorrhizal fungus dependent upon the health of its coniferous symbiotic partner and is known from mid- to late- successional/old-growth habitats. Natural catastrophes or human activities may imperil both tree and fungus. Commercial harvesting of Gomphus clavatus has not appeared to have negatively affected fruitbody productivity over the short-term (Norvell 1995b; Pilz et al 2003). Current occurrences of Gomphus clavatus are somewhat uncommon but well distributed. The species is inferred to be relatively stable over the short-term (Dreisbach et al 2002, Norvell pers comm 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 Unknown

Comments Gomphus clavatus has been found in mid- to late-successional/old-growth forests, where it is mycorrhizally associated with conifers. Whatever threatens its habitat and symbiotic partners will threaten Gomphus clavatus. All populations are at risk to hot fires, or other incidental catastrophic events as well as to unmonitored human interference. Unprotected populations are at risk to road construction or other development, and heavy logging (i.e. clean/or clearcutting or heavy thinning). (Norvell pers comm 2002). Light thinning (Norvell & Exeter 2003) and responsible commercial picking (Norvell 1995, Pilz et al 2003) do not appear to harm fruitbody productivity over the short-term.

Number of Appropriately Protected and Managed Occurrences

U = Unknown whether any occurrences are appropriately protected and managed

Comments Data for regions outside the northern spotted owl region of the U.S. are unavailable. ISMS (2002) cite 35-50 occurrences in protected areas: 14 in permanent protected preserves, 16 in late-successional reserves, and ~ 5-20 either in riparian reserves or in the unprotected matrix. If late-successional and/or riparian reserves are opened to logging, road construction, or development, the number of protected and managed occurrences could decrease to 14 within the Pacific Northwest U.S. (excluding Idaho). It should be noted that some to many sites in temporary reserves may not be managed appropriately at the present time.

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 conifers). It is

vulnerable to anything that threatens the forest habitat, including incidental catastrophic events (drought, insect infestations, hot fires), road construction, development, and heavy logging activities.

Environmental Specificity

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

Comments Gomphus clavatus is generally found in complex mid-successional to late-successional/old-growth forests where it forms symbiotic partnerships with conifers. Its precise biological and ecological requirements are unknown. It is well distributed but spotty throughout its range. Gomphus clavatus fruitbodies are solitary to clustered, sometimes occurring in arcs of 10-40 fruitbodies. Its fruiting phenology is somewhat unpredictable and it may not fruit annually (Petersen 1971).

Other Considerations

There are numerous synonyms for Gomphus clavatus, most of which have not been used for over 100 years. A more recent synonym is Cantharellus clavatus. Although somewhat uncommon, the pig's ear gomphus [Gomphus clavatus] is considered a good edible and is harvested commercially within Pacific Northwest North America (Pilz et al 2003). Responsible harvesting is not viewed as a major threat to the continued viability of extant populations.

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Reasons

Gomphus clavatus is known from Europe, Great Britain, Canada, the United States and Mexico. Gomphus clavatus is an ectomycorrhizal fungus dependent upon the health of its symbiotic partners (conifers). Gomphus clavatus is uncommon but well distributed in Europe and North America; the number of extant occurrences is unknown outside the Pacific Northwest northern spotted owl region where ~100 populations are thought extant, 35-50, of which lie in currently protected forest reserves. Its unknown biology and wide distribution preclude estimation of population size, area of occupancy, and long-term trends. Extant populations are presumed stable, barring incidental catastrophic events or human interference. Unprotected occurrences will be threatened by road construction and development and clearcutting or heavy thinning. All occurrences are imperiled by hot fires.

BCD Sources

New Sources

Petersen. 1971. The genera Gomphus and Gloeocantharellus in North America. Nova Hedwigia 2: 33-45. (for GOBO2) ALSO Thiers. 1985. Agaricales of California: 2. Cantharellaceae. Mad River Press. ALSO Dreisbach, Mueller, Exeter, McFarland, Cushman. 2002 Survey and Manage Step 2 Worksheet on GOCL. ALSO ISMS-ONH. 2002. ISMS data; ONH protection extrapolations; GIS map for GOCL. ALSO Pilz, Norvell, Danell, Molina, 2003 (in final review). Ecology and management of commercially harvested chanterelle mushrooms. USDA-FS PNW-RS publication. Portland. ALSO Norvell 1995b. Loving the chanterelle to death? Mcllvainea 12: 6-25. ALSO Norvell & Exeter. 2003 in press. Ectomycorrhizal epigeous basidiomycete diversity in Oregon's coast montane Pseudotsuga menziesii forests. New York Botanical Memoirs. CITE: Pete-71 Dreis-02 IS-02 Pilz-03 Norv-03