

Washington Status Factors

Elcode NFSM000079

Gname GOMPHUS BONARII

Gcomname

Number of Occurrences

A = 1 - 5

B = 6 - 20

Comments There are 5-6 verified occurrences of *Gomphus bonari* in Washington. Continuing fungal surveys may uncover more sites, but the species may be approaching the northern limits of its range. One collection has been confirmed for British Columbia to the north. (Petersen 1971, Dreisbach et al. 2002, ISMS 2002)

Number of Occurrences with Good Viability

C = Few (4-12) occurrences with good viability

Comments 5 (ISMS-ONH 2002) - 6 (Dreisbach et al 2002) occurrences are believed extant and presumed viable (Norvell 2002 pers comm.)

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 Washington, *Gomphus bonarii* is known from San Juan Island east to the Baker-Snoqualmie forest and south within the Cascade mountain range to the Gifford Pinchot forest north of the Oregon border. (Petersen 1971; ISMS Database 2002 and GIS map for *Gomphus bonarii*).

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 bonarii* 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

U = Unknown. Long-term trend in population, range, area occupied, or number or condition of occurrences unknown

Comments *Gomphus bonarii* is an ectomycorrhizal fungus dependent upon the health of its symbiotic partners (*Abies*, *Tsuga*, and other conifers) for its existence. It has a spotty distribution in western

North America, but most occurrences appear collected from late-successional/old-growth forests. Individuals are less dependent upon spore dispersal than upon mycelial interactions with other individuals and their mycorrhizal partners. Longevity of individuals is unknown; populations are inferred as relatively long-lived (Norvell pers comm 2002). Current populations are inferred as relatively stable. (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 $\pm 10\%$ fluctuation

Comments Gomphus bonarii is an ectomycorrhizal fungus dependent upon the health of its coniferous symbiotic partners and is commonly found in late-successional/old-growth forest habitats. Natural catastrophes or human activities that imperil the health of Abies and other associated conifers will compromise both tree and fungus. Current occurrences of Gomphus bonarii in Washington are uncommon to rare. 3-4 occur in currently protected reserves in Washington. The species is inferred to be relatively secure to possibly declining over the short-term (Norvell 2002, Dreisbach et al 2002).

Threats

D = Moderate, non-imminent threat. Threat is moderate to severe but not imminent for a significant portion of the population, occurrences, or area.

Scope Moderate Severity Moderate Immediacy Low

Comments Gomphus bonarii is commonly found in coniferous forests, where it is associated with Abies and other conifers in late-successional/old-growth forests. Whatever threatens its habitat and symbiotic partners will threaten Gomphus bonarii. All populations are at risk to incidental catastrophic event, (such as hot fires that might extirpate the community) and 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).

Number of Appropriately Protected and Managed Occurrences

B = Few (1-3) occurrences appropriately protected and managed

Comments For Washington, ISMS-ONH (2002) cites 3-4 occurrences in protected areas: 2 in permanent protected preserves, 1 in a late-successional reserve, and 1 either in a riparian reserve or within the unprotected matrix. If late-successional and/or riparian reserves are opened to clearcutting, road construction, or other development, the number of protected and managed occurrences could decrease to 2. It should be noted that some 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 Abies spp. and other conifers). Preference for late-successional/old-growth forests is inferred but not statistically demonstrated from the data (Dreisbach et al 2002). Gomphus bonarii is thus inferred as long-lived, slow-growing (Norvell), and vulnerable to anything that threatens the forest habitat, including drought, insect infestations, hot fires, road construction development, and clearcutting.

Environmental Specificity

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

Comments Gomphus bonarii is preferentially found in complex late-successional/old-growth coniferous forests where it forms symbiotic partnerships with Abies and other conifers. Its precise biological and ecological requirements are unknown. It is found only in western North America, and fruits in clusters and arcs usually in the autumn but sometimes in the spring (Petersen 1971).

Other Considerations

Cantharellus bonarii Morse (1930. Mycologia 22:219) is a synonym. Petersen (1971) named several varieties; no attempt has been made to differentiate the species according to varieties in this evaluation (Norvell pers comm 2002).

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Reasons

In Washington, Gomphus bonarii ranges from San Juan Island east to the Baker-Snoqualmie forest and south within the Cascade mountain range to the Gifford Pinchot forest north of the Oregon border. Gomphus bonarii is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (Abies and other conifers). Gomphus bonarii is uncommon to rare in Washington, with 5-6 extant occurrences reported from the state, of which 3-4 lie in currently protected forest reserves. Its unknown biology precludes estimation of population size and area of occupancy. Extant populations are presumed stable over both the short- and the long-term. Unprotected occurrences will be threatened by road construction, development, and clearcutting or heavy thinning. All occurrences are imperiled by hot fires and other incidental catastrophic events.

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 GOBO2. ALSO ISMS-ONH. 2002. ISMS data; ONH protection extrapolations; GIS map for GOBO2.