

California Status Factors

Elcode NFSM000081
Gname GOMPHUS KAUFFMANII
Gcomname Kauffman's gomphus

Number of Occurrences

B = 6 - 20

Comments ISMS-ONH (2002) reports 10 occurrences from California, of which only 3 were collected after 1996 (Dreisbach et al 2002; ISMS-ONH 2002).

Number of Occurrences with Good Viability

B = Very few (1-3) occurrences with good viability
C = Few (4-12) occurrences with good viability

Comments Dreisbach et al (2002) estimate that only 3 California occurrences are 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

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

Comments Thiers (1985) notes that *Gomphus kauffmanii* is encountered more commonly in Humboldt and Mendocino counties and encountered rarely in the Sierra Nevada and the Cascade ranges. Known sites within the northern spotted owl region range from the Oregon border south along the Coast past Mendocino and east in the north to the (or up to the) Medoc National Forest (ISMS Database 2002 and GIS map for GOKA).

Area of Occupancy

U = Unknown

LU = Unknown

Comments Area 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. GOKA 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 GOKA is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (*Abies* and/or *Tsuga* inferred, Norvell pers comm 2002) for its existence. It has a disjunct and spotty distribution and is suspected to prefer LSOG coniferous forests. Individuals are believed less

dependent upon spore dispersal for reproduction than upon mycelial interactions with other individuals and their mycorrhizal partners. Longevity of individuals and populations is unknown in the literature. The lack of biological knowledge precludes estimating a long-term trend for GOKA. (Norvell 2002 pers comm).

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 GOKA is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner (presumed *Abies* and/or *Tsuga*) and is thought to prefer LSOG forests. Incidental catastrophic events and/or human interference can compromise both tree and fungus. Current occurrences of GOKA are generally rare and unpredictable. Within the northern spotted region of California 4-5 known sites lie in currently protected reserves. The species is inferred to be relatively stable over the short term.

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 Unknown

Comments GOKA is thought to occur more frequently in LSOG than in younger forests, but this inference has not been statistically demonstrated, due to the lack of insufficient data. It is thought to associate mycorrhizally with *Abies* and *Tsuga*. Whatever threatens its habitat and symbiotic partners will threaten GOKA. All populations are at risk to incidental catastrophic events (wildfire) 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). (Norvell pers comm 2002).

Number of Appropriately Protected and Managed Occurrences

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

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

Comments ISMS-ONH (2002) cites 4-5 sites as occurring within protected reserves, including 3 in permanently protected reserves, 1 in late-successional reserves, and 1 either in riparians reserves or in the unprotected matrix. Dreisbach et al (2002) note that of the 4-5 sites in reserves, at least 2 were prior to 1996 and may not be extant.

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 *Abies* or *Tsuga*). GOKA is thought to be long-lived, and relatively slow-growing, implying that climax communities occur in older stands. (REFS). GOKA is vulnerable to anything that threatens the forest habitat, including incidental natural catastrophes (hot fires), road construction, development, and heavy

logging activities.

Environmental Specificity

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

Comments GOKA was historically collected from LSOG coniferous forests where it forms symbiotic partnerships with *Abies*, *Tsuga*, or possibly *Pseudotsuga* spp. It has an unpredictable occurrence and its precise biological and ecological requirements are unknown. In eastern states it fruits in the summer and in the west it produces in the late autumn and early winter producing large solitary to clustered fruitbodies. It fruits sporadically and generally not annually. (Norvell pers comm).

Other Considerations

A synonym of *Gomphus kauffmanii* is *Cantharellus kauffmanii* Smith in Smith & Morse 1947. *Mycologia* 39: 516. While more sites may be located during fungal surveys, the strikingly large size of the fruitbody should have provoked a higher number of extant collections during the recent NWFP surveys. This suggests that GOKA is uncommon to rare throughout its range..

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Reasons

GOKA is an ectomycorrhizal fungus dependent upon the health of its symbiotic partner/s (*Abies*, *Tsuga*). GOKA is endemic to North America, and found more commonly along the California coast from the Oregon border south to Mendocino. There are 10 known occurrences, of which at least 3 are now believed extant in the state. 4-5 occurrences (including those sampled from 1900-1996) lie in currently protected forest reserves. Its unknown biology precludes estimation of population size, area of occupancy, and long-term trends. Extant populations are presumed stable provided the habitat remains protected. Unprotected occurrences will be threatened by road construction & 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 MICH (Michigan Fungal Collections online database) 11-23-2002. <http://www.herb.lsa.umich.edu/combqury.htm>