

Washington Status Factors

Elcode NBMUS12020
Gname BROTHERELLA ROELLII
Gcomname MOSS

Number of Occurrences

A = 1 - 5

Comments Six historic sites in Washington, but none have been relocated and no new sites have been found. Given its small size, historic distribution, and availability of suitable habitat, it is likely that this species still exists in the state.

Number of Occurrences with Good Viability

U = Unknown what number of occurrences with good viability

Comments Unknown if historic sites are still extant.

Population Size

U = Unknown

Comments Population size unknown.

Range Extent

E = 5,000-20,000 km² (about 2,000-8,000 square miles)

Comments Estimated range is 5,000 square miles in Washington, based on geographic spread of historic sites (Pacific County, Puget Sound, Cascade foothills).

Area of Occupancy

A = <0.4 km² (less than about 100 acres)

LA = <4 km (less than about 2.5 miles)

Comments Estimated area of occupancy 10 acres in Washington.

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

D = Moderate Decline (decline of 25-50%)

Comments Moderate long-term decline of 25-50%, assuming the populations still exist. Likely habitat has been heavily logged and is subject to widespread urban and suburban development.

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

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

Comments The short-term trend is unknown. Suburban housing developments are expanding rapidly in western Washington where likely habitat occurs.

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 Low

Comments Substantial threat, but non-imminent. Sensitive to changes in light level and microclimate caused by removal or thinning of the canopy and loss of woody debris. Suburban housing developments are expanding rapidly in western Washington where much likely habitat occurs.

Number of Appropriately Protected and Managed Occurrences

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

Comments Three historic sites protected in Washington, if still extant.

Intrinsic Vulnerability

C = Not Intrinsicly 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 Not intrinsically vulnerable. Plants are small and fragile, but reproduce readily by spores and fragmentation of gametophytes. Plants will recolonize sites when suitable habitat and substrate are present, but this depends on the availability of inoculum from nearby populations.

Environmental Specificity

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

Comments Narrow environmental specificity. This species is most common on rotten wood, sometimes on bark, in cool to moist mixed deciduous and conifer forest, usually at low elevations along valley margins. Incident light, at least after hardwoods drop their leaves in the fall, appears to be important for the species. Most reports are from open, mixed coniferous and deciduous forest, on slopes, stream terraces and swampy floodplains. Bigleaf maple and red alder are the preferred hardwood habitat. It likely has mycorrhizal associations with decomposer fungi in the rotting wood, and may play a key role in nutrient cycling in forest ecosystems.

Other Considerations

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Grank SH **Grank Date** 1/13/2003

Reasons

Six historic sites in Washington, but none have been relocated and no new sites have been found. It is likely that this species still exists in the state. Unknown if historic sites are still extant. Population size unknown. Estimated range is 5,000 square miles in Washington, based on geographic spread of historic sites. Estimated area of occupancy is 10 acres in Washington. Moderate long-term decline of 25-50%, assuming the populations still exist. The short-term trend is unknown. Substantial threat but non-imminent, assuming populations still exist. Three historic sites protected in Washington. Not intrinsically vulnerable. Narrow environmental specificity.

BCD Sources

Christy, J.A. & D.H. Wagner. 1996. Guide for the identification of rare, threatened or sensitive bryophytes in the range of the northern spotted owl, western Washington, western Oregon, and northwestern California. USDI Bureau of Land Management. 200 pp.

New Sources

University of Alberta. 2002. Devonian Botanic Garden bryophyte database. Edmonton, Alberta.
<<http://www.devonian.ualberta.ca/devonian/bryosearch.cfm>>.

USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service. 2002. Interagency Species Management System [ISMS] database. Portland, Oregon.