

## Heritage Rank Status Factors

**Elcode** NBHEP1K010  
**Gname** HERBERTUS ADUNCUS  
**Gcomname** LIVERWORT

### Number of Occurrences

E = >300

**Comments** Estimated 800-1000 occurrences worldwide. The University of Alberta database has the most complete listing, with 532 records worldwide. The ISMS database contains 7 records, representing about 4 sites, but there are about 4 additional sites now known from Washington.

### Number of Occurrences with Good Viability

F = Very many (>125) occurrences with good viability

**Comments** Estimated 200 occurrences worldwide with good viability.

### Population Size

F = 10,000-100,000 individuals

**Comments** Estimated 50,000 individuals worldwide.

### Range Extent

H = > 2,500,000 km<sup>2</sup> (greater than 1,000,000 square miles)

**Comments** Estimated range greater than 1,000,000 square miles worldwide. Circumboreal distribution, mostly maritime. Japan, China, Taiwan, Canada (British Columbia, Alberta, Newfoundland), US (Alaska, Washington, Oregon, New York, New Jersey, Pennsylvania, Kentucky, Virginia, North Carolina, Tennessee), United Kingdom, Scandinavia.

### Area of Occupancy

B = 0.4-4 km<sup>2</sup> (about 100-1,000 acres)

LB = 4-40 km (about 2.5-25 miles)

**Comments** Estimated area of occupancy 800 acres worldwide.

### 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% worldwide. Local impacts from logging. Climate change is a potential threat at the southern edge of the species' range.

### 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

**Comments** Short-term decline of 10-30% worldwide, due to logging in coastal forests.

## Threats

E = Localized substantial threat. Threat is moderate to severe for a small but significant proportion of the population, occurrences, or area. Ecological community occurrences are directly impacted over a small area, or in a small portion of their range, but threats require a long-term recovery.

**Scope** Low                      **Severity** Moderate                      **Immediacy** Moderate

**Comments** Localized substantial threat at southern edge of range, but secure farther north. Logging of coastal forests is primary threat.

## Number of Appropriately Protected and Managed Occurrences

D = Many (13-40) occurrences appropriately protected and managed

**Comments** Estimated 30-40 protected occurrences worldwide.

## 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. Located on wet rocks, cliffs, and trees. Requires high humidity and perennially cool temperatures. Not restricted to old growth forests.

## Other Considerations

NRANK - N3N4.

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**Grank** G5                      **Grank Date** 11/21/2002

## Greasons

Estimated 800-1000 occurrences worldwide. Estimated 200 occurrences worldwide with good viability. Estimated 50,000 individuals worldwide. Estimated range greater than 1,000,000 square miles worldwide. Estimated area of occupancy 800 acres worldwide. Moderate long-term decline of 25-50% worldwide. Short-term decline of 10-30% worldwide. Localized substantial threat at southern edge of range, but secure farther north. Estimated 30-40 protected occurrences worldwide. Not intrinsically vulnerable. Narrow environmental specificity.

## BCD Sources

## New Sources

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

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.

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