**\***֎***Botrychium hesperium* (Maxon & R. T. Clausen) W. H. Wagner & Lellinger**

**– Western moonwort**

**Ophioglossaceae – adder’s tongue family**

Account written by Harpo Faust and Derek Antonelli, 12/17/2020 ֎\*

Recommended S1 by North Idaho Rare Plant Working Group on 1/12/2020

**Current Conservation Status:**

\*NatureServe3: G4, Idaho SNR

British Columbia S4, Montana S3, Oregon S1, Washington S2, Wyoming S1

2009 INPS rank²: Not listed

BLM: Not listed

FS Reg 1: Sensitive in Montana but not listed for Idaho

FS Reg 4: Not listed

FS Reg 6: Sensitive

FWS: Not listed

**Taxonomy:** *Amer. Fern J.* 71: 92. 1981.

*Synonyms:* *Botrychium matricariifolium* ssp. *hesperium* Maxon & R. T. Clausen

*Other Subspecies/Varieties, if applicable:* None

*Type Locality:*

*\*Taxonomic key(s)7:* Flora of the Pacific Northwest, 2nd Ed., Flora of North America, Volume 2

**Species Description (OPTIONAL):**

**Trophophore**stalk 0–3(–10) mm, to 1/4 length of trophophore rachis; blade ± gray-green, dull, oblong-linear to deltate, 1–2-pinnate, to 6 × 5 cm, firm. **Pinnae** to 6 pairs, ascending, usually approximate or overlapping except in shade forms, distance between 1st and 2d pinnae not or slightly more than between 2d and 3d pairs, basal pinna pair commonly much larger and more divided than adjacent pair, lobed to tip, basal pair oblong to oblong-lanceolate with lobed margins, remainder broadly spatulate with entire margins or 1 or more shallow lobes, apex rounded, venation pinnate. **Sporophores** 1–3 pinnate, 2–3 times length of trophophore. **2n** =180. (from FNA)

**Biology:** Life span (perennial), growth form (fern); phenology: leaves appearing in midspring, dying in early fall.

**Similar species:** Many other *Botrychium* species

**Habitat:** Elevation 200 – 2800 m; grassy mountain slopes, snow fields, road ditches with willows, and sand dunes

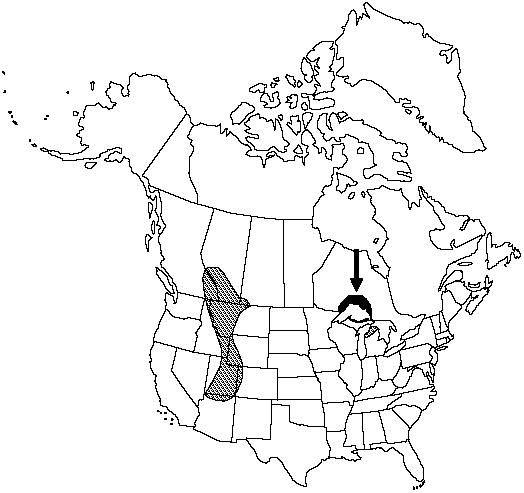
*\*֎Environmental Specificity10:*

**Cultural and commercial values:**

**Landownership:**  Panhandle National Forest

**Distribution:**

*Global Range*: North America endemic (map from FNA)



*\*Range Extent Descriptor6:* Peripheral

֎*Rank Calculator Idaho Range Extent:* Known from a single population (less than 1 km2)

֎*Area of Occupancy:* One. Calculator category (**A**).

*\*Idaho Counties9:* Boundary

*Idaho Specimens:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Record source (Herbarium, IFWIS, person)** | **Date observed/ collected** | **Observer** | **County** | **Location** | **Abundance, threats, habitat condition** |
| Faust 3552 | 7/21/2020 | Harpo Faust and Whitney Griswold | Boundary | Bog Creek Road | About 100 individuals, serious threat from road work |

*Literature Records:*

*Databases/Herbaria consulted:* See Information Sources section below

*Research Notes:*  This collection is first for Idaho

**Abundance:**

*\*֎Number of Occurrences8:* One **(A)**

*֎Population Size:* About 100 individual stems **(B)**

*֎Number of Occurrences with Good Viability:* Occurrence was not rated for viability so number with good viability is between zero and one **(AB).**

**Conservation concerns:**

*֎Threats (include scope, severity and timing, if known):* The entire population is in the roadbed of the Bog Creek Road. That road will be upgraded in a joint USFS/Homeland Security project to improve the US Border Patrol’s access to the US/Canadian border. The road work activity has the potential to wipe out the entire population. If the population survives the construction activity, ongoing road use may impact the population by crushing individuals.

*\*֎Overall Threat Rank11:* Very high **(A).**

*֎Intrinsic Vulnerability:*

**Population trend:**

*֎Short:*

*֎Long:*

**Proposed rank information:**

*\*Date Ranked5:* NIRPWG recommended rank on 1/12/2021

*\*Proposed Rank:* **S1**

*\*Proposed INPS Status2:* **Rare**

*\*Comments12:*

**\*Recommended actions13:**

INPS send letter requesting protection for population during Bog Creek road construction activities.

Protect population during construction for upgrade of Bog Creek Road.

US Forest Service Region 1 should add species as sensitive species (or equivalent) and manage appropriately.

**Information Sources:**

Consortium of Pacific Northwest Herbaria. (<http://www.pnwherbaria.org>, December 2020).

Biota of North America Program, North American Vascular Flora (<http://bonap.net/NAPA/Genus/Traditional/County>, December 2020)

Flora of North America, Volume 2.

Hitchcock, C.L. and A. Cronquist. 2018. *Flora of the Pacific Northwest: An Illustrated Manual, 2nd Edition*. Edited by D.E. Giblin, B.S. Legler, P.F. Zika, and R.G. Olmstead. University of Washington Press, Seattle, WA. 936pp.

NatureServe Explorer. (<http://explorer.natureserve.org>, December 20120)

USDA, NRCS. 2019. The PLANTS Database ([http://plants.usda.gov](http://plants.usda.gov/), December 2020).

USDHS and USDA. February 2019. Final Environmental Impact Statement – Bog Creek Road Project. 515pp.