RARE BRYOPHYTES AND LICHENS IN IDAHO: STATUS OF OUR KNOWLEDGE

by

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Idaho Department of Fish and Game

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INTRODUCTION

The compilation and dissemination of information regarding rare cryptogams in Idaho has lagged far behind that for vascular plants. The Conservation Data Center (CDC) has been actively researching sources of information on rare mosses, liverworts, and lichens for several years, including an extensive, computerized literature search for rare species done in 1992 (methods described in Moseley et al. 1992. Idaho Rare Vascular Flora: Bibliography, 1896-1991. GTR-INT-292. USDA, Forest Service, Ogden, UT). Because of the large workload associated with vascular plants we were never able to computerize the rare bryophyte and lichen populations into our rare species occurrence data base, or the numerous references into the bibliographic data base. To rectify this, the Idaho BLM provided funding in 1995 to put rare bryophytes and lichens on par with vascular species.

This report represents a summary of the information we compiled. It is organized into four main sections. The first presents the status of our knowledge of rare Idaho bryophytes (mosses and liverworts). It includes a current list of rare species in the state, with conservation ranks and county distributions, and a printout from the CDC data base for all reported Idaho occurrences of some of the rare species. The second section, covering rare lichens, is similar to the bryophyte section. A short Conclusions and Recommendations section follows these two. Finally, we present output from our bibliographic data base of all references pertaining to bryophytes and lichens that we have on file. These citations represent a broad range of material, including sources specific to Idaho’s rare species, general articles on nonvascular plant conservation, air quality monitoring, ecological studies, and others.
BRYOPHYTES

In 1989, Joe Elliot of Helena, Montana, helped put a preliminary list of rare Idaho bryophytes together. These ten moss species have been on the Idaho rare plant list ever since (Table 1). Because few field inventories have been conducted for mosses, their conservation status has changed little since they were added to the list. Only in the last couple of years have any occurrences been submitted to the CDC by field biologists.

Table 1. Status and distribution of rare mosses currently on the Idaho Native Plant Society rare plant list. Conservation Ranks and County Distribution abbreviations are defined in the “blue book” (Conservation Data Center. 1994. Rare, threatened, and endangered plants and animals in Idaho. Idaho Department of Fish and Game, Boise). Under Comments, EO refers to the number of occurrences in the CDC data base, which appear at the end of the Bryophyte section.

<table>
<thead>
<tr>
<th>Species</th>
<th>Rank</th>
<th>Distribution</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bryum calobryoides</em></td>
<td>G3/S1</td>
<td>El</td>
<td>1 EO</td>
</tr>
<tr>
<td><em>Buxbaumia aphylla</em></td>
<td>G4/S?</td>
<td>Northern Idaho</td>
<td></td>
</tr>
<tr>
<td><em>Buxbaumia piperi</em></td>
<td>G4/S3</td>
<td>Id, La</td>
<td>10 EOs, 3 not in db</td>
</tr>
<tr>
<td><em>Hellodium blandowii</em></td>
<td>G5/S2</td>
<td>Bn, Cu, Id, Lm</td>
<td>4 EOs, 1 not in db</td>
</tr>
<tr>
<td><em>Hookeria lucens</em></td>
<td>G4/S1</td>
<td>Cw, Id</td>
<td>5 EOs</td>
</tr>
<tr>
<td><em>Meesia longiseta</em></td>
<td>G5/S?</td>
<td>Northern Idaho</td>
<td></td>
</tr>
<tr>
<td><em>Sphagnum mendocinum</em></td>
<td>G4/S1</td>
<td>Bn, Id</td>
<td>2 EOs</td>
</tr>
<tr>
<td><em>Tayloria serrata</em></td>
<td>G5/S3?</td>
<td>Northern Idaho</td>
<td></td>
</tr>
<tr>
<td><em>Ulota megalospora</em></td>
<td>G4/S2?</td>
<td>Northern Idaho</td>
<td></td>
</tr>
</tbody>
</table>

SUGGESTED TO BE DROPPED:

*Ulota curvifolia* - no documented occurrences in Idaho!?

David Wagner from Eugene, Oregon, recently brought to our attention the presence of a globally rare liverwort in Idaho, *Sphaerocarpos hians*. Two historical collections from the Palouse Prairie near Pullman, Washington, and Moscow, Idaho, were all that were thought to exist until a collection was made recently in the Willamette Valley of western Oregon (John Christy, Oregon Natural Heritage Program, personal communication, 1996). More inventory needs to be conducted, but for the time being we’ve ranked it G1/SH, with one historical collection in Idaho from Latah County.

Bryophytes of the Columbia River Basin, south of the Canadian border) were contracted by federal agencies to compile a list of bryophytes occurring in the study area and make recommendations on the conservation of rare species. Although there was some overlap with the current Idaho list, their recently completed study suggested 31 additional moss species that should be of conservation concern in Idaho (Table 2). Most species are known from only one or two collections. Of special note is the narrow endemic, *Orthotrichum holzingeri*, known only from Nez Perce County, Idaho, and adjacent Washington.

<table>
<thead>
<tr>
<th>Species</th>
<th>Distribution</th>
<th>Number of Collections</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Anacolia menziesii var. baueri</em></td>
<td>Ko</td>
<td>1</td>
</tr>
<tr>
<td><em>Dichodontium olypicum</em></td>
<td>Sh</td>
<td>1</td>
</tr>
<tr>
<td><em>Didymodon tophaceus</em></td>
<td>Id</td>
<td>1</td>
</tr>
<tr>
<td><em>Drepanoclados fluitans</em></td>
<td>Ko, La</td>
<td>2</td>
</tr>
<tr>
<td><em>Encalypta intermedia</em></td>
<td>Cu</td>
<td>2</td>
</tr>
<tr>
<td><em>Fissidens ventricosus</em></td>
<td>Bn</td>
<td>1</td>
</tr>
<tr>
<td><em>Hamatocaulis vernicosus</em></td>
<td>Bn, Cu, Ko</td>
<td>3</td>
</tr>
<tr>
<td><em>Homalothecium arenarium</em></td>
<td>El</td>
<td>1</td>
</tr>
<tr>
<td><em>Hygrohypnum alpinum</em></td>
<td>Bn</td>
<td>1</td>
</tr>
<tr>
<td><em>Hygrohypnum duriascalum</em></td>
<td>Id</td>
<td>?</td>
</tr>
<tr>
<td><em>Hygrohypnum styriacum</em></td>
<td>Cu</td>
<td>?</td>
</tr>
<tr>
<td><em>Oligotrichum aligerum</em></td>
<td>Sh</td>
<td>1</td>
</tr>
<tr>
<td><em>Orthotrichum flowersii</em></td>
<td>Ow</td>
<td>?</td>
</tr>
<tr>
<td><em>Orthotrichum hallii</em></td>
<td>Cu</td>
<td>1</td>
</tr>
<tr>
<td><em>Orthotrichum holzingeri</em></td>
<td>Ne</td>
<td>1</td>
</tr>
<tr>
<td><em>Orthotrichum pulchellum</em></td>
<td>Ne</td>
<td>1</td>
</tr>
<tr>
<td><em>Orthotrichum striatum</em></td>
<td>Id, Ko</td>
<td>2</td>
</tr>
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</table>
Table 2. Continued

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<thead>
<tr>
<th>Species</th>
<th>Distribution</th>
<th>Number of Collections</th>
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<tr>
<td>Plagiothecium cavifolium</td>
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<td>Plagiothecium undulatum</td>
<td>La</td>
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<tr>
<td>Pogonatum contortum</td>
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<tr>
<td>Polytrichum formosum</td>
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</tr>
<tr>
<td>Pottia lanceolata</td>
<td>Cu</td>
<td>1</td>
</tr>
<tr>
<td>Pottia nevadensis</td>
<td>Go</td>
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</tr>
<tr>
<td>Pseudeleskea radicosa var. denudata</td>
<td>Bd</td>
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</tr>
<tr>
<td>Pseudeleskea saviana</td>
<td>Va</td>
<td>1</td>
</tr>
<tr>
<td>Racomitrium aquaticum</td>
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</tr>
<tr>
<td>Racomitrium varium</td>
<td>Ko</td>
<td>1</td>
</tr>
<tr>
<td>Schistidium cinclidodonteum</td>
<td>Ko</td>
<td>1</td>
</tr>
<tr>
<td>Splachnum sphaericum</td>
<td>La</td>
<td>1</td>
</tr>
<tr>
<td>Tayloria acuminata</td>
<td>El</td>
<td>1</td>
</tr>
<tr>
<td>Triptercladum leucocladulum</td>
<td>Ne</td>
<td>1</td>
</tr>
</tbody>
</table>

Following are abbreviated occurrence records for the five mosses listed in Table 1 that have been entered into the CDC data base and the single *Sphaerocarpos hians* occurrence. Several collections have been difficult to locate and are not yet in the data base. We are beginning to compile information on the species listed in Table 2 and will be processing occurrence records for these species during 1996.

*SPHAEROCARPUS HIANs*
Occurrence Number: 001
Survey Site Name: PARADISE CREEK
County: Latah
USGS quadrangle: MOSCOW WEST
First Observed: CA 1928    Last Observed: CA 1928
Population Data: Ca 1928: Collected in Latah County by Clark.
Habitat Description: On soil.
Specimens: Clark s.n. (WS).

*BRYUM CALOBRYOIDES*
BEAUTIFUL BRYUM
Occurrence Number: 001
Survey Site Name: CHATTANOOGA HOT SPRINGS
County: Elmore
USGS quadrangle: ATLANTA EAST
Last Observed: 1941-07-05  First Observed: 1941-07-05
Habitat Description: Above hot springs.
Specimens: F. A. MacFadden 18542 (UBC) - determined by A. L. Andrews.

BUXBAUMIA PIPERI
PIPER'S BUG-ON-A-STICK
Occurrence Number: 001
Survey Site Name: EAST OF SOB POINT
County: Idaho
USGS quadrangle: STILLMAN POINT
Habitat Description: Old growth Thuja plicata stand. Thuja plicata/Athyrium filix-femina habitat type. Found on downed logs in advanced stages of decay.
Specimens:

Occurrence Number: 002
Survey Site Name: FALLS CREEK
County: Idaho
USGS quadrangle: STILLMAN POINT
First Observed: 1994-08-02  Last Observed: 1994-08-02
Habitat Description: Old growth Thuja plicata stand. Thuja plicata/Adiantum pedatum habitat type. On downed log in advanced stages of decay.
Specimens:

Occurrence Number: 003
Survey Site Name: BIG SMITH CREEK - LITTLE SMITH CREEK
County: Idaho
USGS quadrangle: SYRINGA
First Observed: 1994-08-16  Last Observed: 1994-08-19
Population Data: 1994: 2 populations: 14 or more individuals in fruit near Little Smith Creek; 49 or more in fruit near Big Smith Creek. Observations by Karen Gray, Clearwater NF, Lochsa RD.

Occurrence Number: 004
Survey Site Name: NORTH OF BURGDORF HOT SPRINGS
County: Idaho
USGS quadrangle: BURGDORF
Population Data: 1991: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: On a Pinus contorta log. Potential forest climax is Abies lasiocarpa/Vaccinium scoparium habitat type.
Specimens: Roger Rosentreter 6865 (SRP).
Occurrence Number: 005
Survey Site Name: FOUR-BIT CREEK
County: Idaho
USGS quadrangle: MUSSELSHELL
First Observed: 1995-08-06 Last Observed: 1995-08-06
Habitat Description: Aspect: west. Substrate: rotten log. Shady, moist Thuja plicata forest.

Occurrence Number: 006
Survey Site Name: CAMP CREEK
County: Idaho
USGS quadrangle: GOODWIN MEADOWS
First Observed: 1959-07-16 Last Observed: 1959-07-16
Habitat Description: Abies grandis/Pachistima association; on decaying wood.
Specimens: Higinbotham 771 (WSU).

Occurrence Number: 007
Survey Site Name: DEVOTO GROVE
County: Idaho
USGS quadrangle: ROCKY POINT
First Observed: 1975-10-18 Last Observed: 1975-10-18
Habitat Description: On downed Thuja plicata log.
Specimens: Hunter s.n. (WSU). Wagner s.n. (WSU).

Occurrence Number: 008
Survey Site Name: ELDORADO/DOLLAR CREEK
County: Idaho
USGS quadrangle: MUSSELSHELL
First Observed: 1994-08-22 Last Observed: 1994-08-22
Habitat Description: E aspect in Thuja plicata-Abies grandis forest on a rotten log.
Specimens: Karen L. Gray 333a (ID).

Occurrence Number: 009
Survey Site Name: ELDORADO/MAY CREEK
County: Idaho
USGS quadrangle: MUSSELSHELL
First Observed: 1994-09-14 Last Observed: 1994-09-14
Habitat Description: NE aspect in Thuja plicata-Abies grandis forest on a rotten log.
Specimens: Karen L. Gray 384 (ID).

Occurrence Number: 010
Survey Site Name: YAKUS CREEK/STRAY CREEK
County: Idaho
USGS quadrangle: SYRINGA
First Observed: 1994-09-06 Last Observed: 1994-09-06
Habitat Description: E aspect in Thuja plicata-Abies grandis forest on a rotten log.
HELODIUM BLANDOWII
BLANDOW'S HELODIUM
Occurrence Number: 001
Survey Site Name: JACK CREEK
County: Idaho
USGS quadrangle: TRAPPER CREEK
Habitat Description: Minerotrophic seep with sphagnum under Pinus contorta. Rolling Pinus contorta landform adjacent to Jack Creek riparian area.
Specimens:

Occurrence Number: 002
Survey Site Name: BEAR VALLEY CREEK
County: Lemhi
USGS quadrangle: LEM PEAK
First Observed: 1973   Last Observed: 1973
Population Data: 1973: No data. Occurred in macroplot but not any microplots so no cover estimate. Observation by Alma Hanson.
Habitat Description: Aspect: 100 degrees. 1% slope. Aulacomnium palustre-Brachythecium velutinum moss association which occurs on cool moist terraces supporting Abies lasiocarpa/Calamagrostis canadensis habitat type. Associated with Aulacomnium palustre, Brachythecium velutinum, B. hylotapetum, Pohlia nutans, and Hypnum revolutum.
Specimens:

Occurrence Number: 003
Survey Site Name: MAYS CREEK FEN
County: Custer
USGS quadrangle: OBSIDIAN
First Observed: 1993-08   Last Observed: 1993-08
Population Data: 1993: Plants rare, comprising <1% of cover in microplot RM002. Area thoroughly surveyed by Bob Moseley and Rob Bursik, Idaho CDC.
Habitat Description: 3% slope. Peat depth 55 cm. Pinus contorta/Vaccinium occidentale community type. Near top of high Sphagnum hummocks around the base of Vaccinium occidentale, Betula glandulosa, and Ledum glandulosum. Additional associates include Lonicera caerulea, Potentilla fruticosa, Salix planifolia, S. wolfii, Calamagrostis canadensis, Carex aquatilis, C. deweyana, C. livida, C. muricata, C. rostrata, Deschampsia cespitosa, Eleocharis pauciflora, Muhlenbergia filiformis, Aster foliaceus, Senecio cymbalarioiides, and Swertia perennis. Other bryophytes include Aulacomnium palustre, Calliergon stramineum, and Homalothecium nitens.
Specimens: Rob Bursik collection number unknown (ID).

Occurrence Number: 004
Survey Site Name: REDFISH LAKE
County: Custer
USGS quadrangle: MT. CRAMER
Habitat Description: No information available.
Specimens: Anderegg M-71 (ID).

HOOKERIA LUCENS
LIGHT HOOKERIA
Occurrence Number: 001
Survey Site Name: ELDORADO CREEK/SNOW CREEK
County: Idaho
USGS quadrangle: MUSSELSHELL
First Observed: 1994-09-26    Last Observed: 1994-09-26
Habitat Description: Occurs on the edge of a seep in Thuja plicata/Abies grandis forest with Glyceria striata, Senecio triangularis, Dryopteris expansa, Boykinia major, Conocephalum conicum, other liverworts, Plagiomnium sp., Rhizomnium sp., Carex amplifolia, Veratrum viride, Polystichum munitum, and Hylocomium splendens. Overall site quality is fair.
Specimens:

Occurrence Number: 002
Survey Site Name: YAKUS CREEK/STRAY CREEK
County: Idaho
USGS quadrangle: SYRINGA
First Observed: 1994-09-06    Last Observed: 1994-09-06
Population Data: 1994: 1 square foot vegetative patch observed by Karen Gray, Clearwater NF, Lochsa RD.
Habitat Description: In a seepy area in Thuja plicata/Abies grandis forest with Boykinia major, Senecio triangularis, and other mosses and liverworts. East aspect. Overall site quality is good.
Specimens: Karen L. Gray 374 (ID, MRC).

Occurrence Number: 003
Survey Site Name: WEITAS CREEK - NW OF JOHNNY BUTTE
County: Clearwater
USGS quadrangle: LEAN-TO POINT
First Observed: 1994-08-26    Last Observed: 1994-08-26
Population Data: 1994: 3 vegetative patches observed by Karen Gray, Clearwater NF, Lochsa RD.
Habitat Description: Found growing near seeps or small creeks on soil or rotten logs. Scattered large-diameter Thuja plicata with Abies grandis (60 year old?). Associates include Almus rubra, Streptopus amplexifolius, Adiantum pedatum, Gymnocarpium dryopteris, Athyrium filix-femina, and liverworts. Overall site quality is good.

Occurrence Number: 004
Survey Site Name: PETE KING CREEK N
County: Idaho
USGS quadrangle: SYRINGA
First Observed: 1994-08-19    Last Observed: 1994-08-19
Habitat Description: In Thuja plicata-Abies grandis forest. On wet, rotten log at waters edge. SE aspect.
Specimens: Karen L. Gray 328 (ID).

Occurrence Number: 005
Survey Site Name: FOUR-BIT CREEK RNA
County: Idaho
USGS quadrangle: MUSSEL SHELL
First Observed: 1995-12-01    Last Observed: 1995-12-01
Habitat Description: N aspect. Growing on the edge of a small tributary in a seepy, nearly flat area adjacent to water. Thuja plicata. Abies grandis, Abies lasiocarpa, and Picea engelmannii forest.
Specimens: Karen L. Gray 1076 (MRC, GFC).

**SPHAGNUM MENDOCINUM**
PEATMOSS
Occurrence Number: 001
Survey Site Name: MOSQIUTO BAY FEN
County: Bonner
USGS quadrangle: PRIEST LAKE NE
First Observed: 1901-08    Last Observed: 1901-08
Habitat Description: Peatland habitat.
Specimens: C. V. Piper 349 (WTU, NY).

Occurrence Number: 002
Survey Site Name: SAWYER RIDGE
County: Idaho
USGS quadrangle: SAWYER RIDGE
Habitat Description: Montane bog community. Perennially wet seepage area. Complex of Abies lasiocarpa (Abla) series
habitat types (Abla-Caltha biflora, Abla-Menziesia ferruginea, Abla-Xerophyllum tenax, and Abla-Luzula hitchcockii).
Representative species include Picea engelmannii, Sphagnum spp., Caltha biflora, Dodecatheon jefferyii, Gentiana affinis,
Kalmia polifolia, Ledum glandulosum, and Tofieldia palustris.
Specimens: E. F. Layser 2216, 2219, 2222, 2224 (WTU).
LICHENS

At the same time that the bryophyte list was being compiled, the preliminary list of rare Idaho lichens was compiled by Roger Rosentreter and Bruce McCune. In contrast to the bryophytes, the list of rare lichens has been more dynamic due to the greater inventory and collecting activity of lichenologists and other biologists in the state. Table 3 presents the current rare lichen list and reflects several changes made as a result of new data received in 1995, including some additions, suggested deletions, and up-to-date conservation ranks.

Table 3. Status and distribution of rare lichens in Idaho. Species not on the current Idaho Native Plant Society list are marked with an asterisk. As in Table 1, Conservation Ranks and County Distribution abbreviations are defined in the “blue book.” Under Comments, EO refers to the number of occurrences in the CDC data base, which appear at the end of the Lichens section.

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<th>Species</th>
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<th>Distribution</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td><strong>Aspicilia fruticulosa</strong></td>
<td>G?/S3?</td>
<td>Bk, Cu, Lm, Ow</td>
<td>numerous collections from Idaho at SRP</td>
</tr>
<tr>
<td><em>Catapyrenium congestum</em></td>
<td>G2/S1</td>
<td>Aa, Bi, Jf, Ow</td>
<td>3 EOs; 1 not in db</td>
</tr>
<tr>
<td><em>Cetraria subalpina</em></td>
<td>G3/S1</td>
<td>Bn, Bd</td>
<td>?</td>
</tr>
<tr>
<td><em>Cladina rangiferina</em></td>
<td>G5?/S1</td>
<td>Bn</td>
<td>1 not in db</td>
</tr>
<tr>
<td><em>Cladonia andreggii</em></td>
<td>G1/S1</td>
<td>La</td>
<td>1 EO</td>
</tr>
<tr>
<td><em>Cladonia imbricaria</em></td>
<td>G?/S1?</td>
<td>Bn, Bw, Id</td>
<td>3 EOs</td>
</tr>
<tr>
<td><strong>Cladonia luteoalba</strong></td>
<td>G2/S1</td>
<td>Cu</td>
<td>1 EO</td>
</tr>
<tr>
<td><strong>Cladonia transcendens</strong></td>
<td>G5/S2</td>
<td>Cw, Id, La, Lw, Ko, Sh</td>
<td>1 EO; 3 not in db</td>
</tr>
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<td><strong>Cladonia unciali</strong></td>
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<td>Bn, Id, Sh</td>
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</tr>
<tr>
<td><strong>Collema curtisporum</strong></td>
<td>G1/S1</td>
<td>Id, Ko, Sh</td>
<td>2 not in db</td>
</tr>
<tr>
<td><strong>Collema furfuraceum</strong></td>
<td>G5/S1</td>
<td>Sh?</td>
<td></td>
</tr>
<tr>
<td><em>Dermatocarpon lorenzianum</em></td>
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<td>Wa</td>
<td>1 EO</td>
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<tr>
<td><strong>Lobaria hallii</strong></td>
<td>G4/S3</td>
<td>Bn, Bw, Ko, Sh</td>
<td>10 EOs; 5 not in db</td>
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<td><strong>Lobaria linata</strong></td>
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<td>Id</td>
<td>1 EO</td>
</tr>
<tr>
<td><strong>Lobaria scrobiculata</strong></td>
<td>G4/S1</td>
<td>Id</td>
<td>3 EOs</td>
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<tr>
<td><strong>Physcia semipinnata</strong></td>
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<td>Id?</td>
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### Table 3. Continued

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<td>Cw, Sh</td>
<td>2 EOs; 1 not in db</td>
</tr>
<tr>
<td><em>Pseudocyphellaria anthraspis</em></td>
<td>G4/S3</td>
<td>Cw, Id</td>
<td>9 EOs; 9 not in db</td>
</tr>
<tr>
<td><em>Sphaerophorus tuckermannii</em></td>
<td>G4/S1</td>
<td>Cw, Id?, La?</td>
<td>1 not in db</td>
</tr>
<tr>
<td><em>Texsorium sancti-jacobi</em></td>
<td>G2/S2</td>
<td>Aa, El</td>
<td>13 EOs</td>
</tr>
<tr>
<td><em>Thamnolia vermicularis</em></td>
<td>G4/S1</td>
<td>Cu</td>
<td>1 EO</td>
</tr>
<tr>
<td><em>Xanthoparmelia idahoensis</em></td>
<td>G1/S1</td>
<td>Lm</td>
<td>5 EOs</td>
</tr>
</tbody>
</table>

**SUGGESTED TO BE DROPPED:**

- *Cladonia verruculosa* - more common than previously thought
- *Ramalina thrausta* - more common than previously thought
- *Thelomma ocellatum* - more common than previously thought
- *Hypogymnia apinnata* - more common than previously thought
- *Hypogymnia enteromorpha* - more common than previously thought

Following are abbreviated occurrence records for the 18 lichens listed in Table 3 that have been entered into the CDC data base (EOs). The status of several common species are being evaluated and some of the numerous known occurrences have not been entered yet. Also, several hard-to-locate specimens are not entered.

**CATAPYRENIUM CONGESTUM**

- Occurrence Number: 001
- Survey Site Name: DRY CREEK
- County: Ada
- USGS quadrangle: BOISE NORTH
- First Observed: 1993-04-17  Last Observed: 1993-04-17
- Population Data: 1993: Collected by Roger Rosentreter, Idaho State BLM.
- Habitat Description: Found on sandstone rock in Artemisia grasslands. Associated species is Gleocapsa phycobiont.
- Specimens: Roger Rosentreter 7892 (SRP).

- Occurrence Number: 002
- Survey Site Name: CIRCULAR BUTTE
- County: Jefferson
- USGS quadrangle: CIRCULAR BUTTE
- Population Data: 1987: Collected by Roger Rosentreter, Idaho State BLM.
- Habitat Description: Found on deep loamy soils in Eruotia lanata habitat.
- Specimens: Roger Rosentreter 3950 (SRP) - determined by McCune, 1994.
Occurrence Number: 003  
Survey Site Name: OREANA SW  
County: Owyhee  
USGS quadrangle: OREANA  
Population Data: 1981: Collected by Roger Rosentreter, Idaho State BLM.  
Habitat Description: Found on soil in Artemisia tridentata habitat.  
Specimens: Roger Rosentreter 2470 (SRP).

**CLADONIA ANDEREGGII**  
Occurrence Number: 001  
Survey Site Name: MOOSE CREEK DIVIDE  
County: Latah  
USGS quadrangle: SAND MOUNTAIN  
First Observed: 1989-06 Last Observed: 1989-06  
Habitat Description: Growing with aquatic bryophytes in deep shade, damp area near stream and seep.  

**CLADONIA IMBRICARICA**  
Occurrence Number: 001  
Survey Site Name: EMIDA  
County: Benewah  
USGS quadrangle: EMIDA  
First Observed: CA 1989 Last Observed: CA 1989  
Habitat Description: On acidic soil over volcanically-derived rocks. Basalt outcrop.  
Specimens: Samuel Hammer 3842 (FH) - collection number noted as 2842 in Hammer's 1995 “A synopsis of the genus Cladonia.”

Occurrence Number: 002  
Survey Site Name: HANNA FLATS CEDAR GROVE BOTANICAL AREA  
County: Bonner  
First Observed: CA 1989 Last Observed: CA 1989  
Habitat Description: On acidic soil over volcanically-derived rocks.  
Specimens: Samuel Hammer 3965 (FH) - collection number noted as 2965 in Hammer's 1995 “A synopsis of the genus Cladonia.”

Occurrence Number: 003  
Survey Site Name: HARPSTER  
County: Idaho  
USGS quadrangle: HARPSTER  
First Observed: CA 1989 Last Observed: CA 1989  
Habitat Description: On acidic soil over volcanically-derived rocks.  
Specimens: Samuel Hammer 5311 (FH).

**CLADONIA LUTEOALBA**  
REINDEER LICHEN  
Occurrence Number: 001  
Survey Site Name: ACROSS FROM HOSPITAL BAR  
County: Lemhi  
USGS quadrangle: RAMEY HILL
CLADONIA TRANSCENDENS
TRANSCENDING REINDEER LICHEN
Occurrence Number: 001
Survey Site Name: MOOSE CREEK DIVIDE
County: Latah
USGS quadrangle: SAND MOUNTAIN
First Observed: 1989-06 Last Observed: 1989-06
Habitat Description: On rotting, ecorticate wood, rarely terricolous.
Specimens: Samuel Hammer collection number and herbarium unknown.

CLADONIA UNCIALIS
Occurrence Number: 001
Survey Site Name: NEAR CLARK FORK
County: Bonner
USGS quadrangle: CLARK FORK
Population Data: 1981: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: On talus on a N-facing slope.
Specimens: Roger Rosentreter 2357 (SRP) - confirmed by Hammer.

DERMATOCARPON LORENZIANUM
Occurrence Number: 001
Survey Site Name: BUCKWHEAT FLATS
County: Washington
USGS quadrangle: MIDVALE HILL
Habitat Description: Found on rock in heavy clay soils, shallow stony basalt is adjacent; Eriogonum thymoides habitat.
Specimens: Roger Rosentreter 6896 (SRP). Roger Rosentreter 3538 (SRP).

HYPOGYMNIA APINNATA
TUBE LICHEN
Occurrence Number: 001
Survey Site Name: GLOVER CAMPGROUND
County: Idaho
USGS quadrangle: SELWAY FALLS
First Observed: 1974-08-22 Last Observed: 1974-08-22
Habitat Description: Growing on Cornus sp. in coniferous forest of Thuja plicata, Taxus brevifolia, and Alnus rubra.
Specimens: Anderegg and Schroeder 3100 (ID).

Occurrence Number: 002
Survey Site Name: CLEARWATER RIVER/LODGE CREEK
County: Idaho
USGS quadrangle: SYRINGA
First Observed: 1971-07-06 Last Observed: 1971-07-06
Habitat Description: No information available.
Specimens: Schroeder L1697 (ID).

Occurrence Number: 003
Survey Site Name: MERRY CREEK
County: Shoshone
USGS quadrangle: MERRY CREEK
Habitat Description: Coniferous forest; Thuja plicata, Pseudotsuga menziesii, and Larix sp.
Specimens: Doyle E. Anderegg 722 (ID).

Occurrence Number: 004
Survey Site Name: HEMLOCK BUTTE EAST
County: Clearwater
USGS quadrangle: ANTHONY PEAK
First Observed: 1968-06-09 Last Observed: 1968-06-09
Habitat Description: No information available.
Specimens: Anderegg 101 (ID).

Occurrence Number: 005
Survey Site Name: BANKS GULCH
County: Latah
USGS quadrangle: SAND MOUNTAIN
First Observed: 1969-12 Last Observed: 1969-12
Habitat Description: No information available.
Specimens: Anderegg 112 (ID).

Occurrence Number: 006
Survey Site Name: MANNERING CREEK W
County: Latah
USGS quadrangle: WEST DENNIS
Habitat Description: Mature conifer forest: Pseudotsuga menziesii, Pinus monticola, and Thuja plicata.
Specimens: Anderegg 391 (ID).

Occurrence Number: 007
Survey Site Name: MANNERING CREEK E
County: Latah
USGS quadrangle: WEST DENNIS
Habitat Description: Mature forest of Thuja plicata and Pseudotsuga menziesii.
Specimens: Anderegg 2389 (ID).

Occurrence Number: 008
Survey Site Name: GISBORNE MOUNTAIN
County: Bonner
USGS quadrangle: PRATER MTN.
Habitat Description: On bark of Pinus monticola, north aspect; Tsuga heterophylla-Pachistima myrsinites habitat type.
Specimens: Esslinger 1393 (ID).

Occurrence Number: 009
Survey Site Name: BOTTLE LAKE RESEARCH NATURAL AREA
County: Bonner
USGS quadrangle: PRIEST LAKE NE, PRIEST LAKE NW
Population Data: 1995: Observation by B. McCune, R. Rosentreter, BLM SO, and A. Debolt, Lower Snake River District BLM.

LOBARIA HALLII
HALL'S LUNGWORT
Occurrence Number: 001
Survey Site Name: WEST OF MURRAY
County: Shoshone
USGS quadrangle: MURRAY
Population Data: 1987: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: Found on Populus trichocarpa bark.
Specimens: Roger Rosentreter 5015 (SRP).

Occurrence Number: 002
Survey Site Name: BEAVER CREEK/TRAIL CREEK
County: Shoshone
USGS quadrangle: OSBURN
Population Data: 1987: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: On Populus trichocarpa bark.
Specimens: Roger Rosentreter 5023 (SRP).

Occurrence Number: 003
Survey Site Name: MURRAY
County: Shoshone
USGS quadrangle: MURRAY, BURKE
First Observed: 1985-06-07  Last Observed: 1985-06-07
Population Data: 1985: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: On rock in Thuja forest.
Specimens: Roger Rosentreter 3600 (SRP) - determined by C. Wetmare 4/87.

Occurrence Number: 004
Survey Site Name: GROUSE MOUNTAIN
County: Bonner
Habitat Description: In shade on a Betula tree in a conifer forest.
Specimens: Schroeder L1666 (ID).

Occurrence Number: 005
Survey Site Name: ST. JOE RIVER MILE 45
County: Shoshone
USGS quadrangle: CALDER
Habitat Description: On trunk of Populus trichocarpa.
Specimens: Schroeder L1548 (ID).
Occurrence Number: 006
Survey Site Name: SANTA CREEK
County: Benewah
USGS quadrangle: SANTA
Habitat Description: On Populus tree in wooded pasture.
Specimens: Schroeder L465 (ID).

Occurrence Number: 007
Survey Site Name: ST. MARIES S
County: Benewah
USGS quadrangle: ST. MARIES
Habitat Description: On trunk of Populus trichocarpa.
Specimens: Schroeder L1519 (ID).

Occurrence Number: 008
Survey Site Name: CHATCOLET LAKE
County: Benewah
USGS quadrangle: BENEWAH LAKE
Habitat Description: On Populus tree in open picnic area.

Occurrence Number: 009
Survey Site Name: DISTILLERY BAY
County: Bonner
USGS quadrangle: PRIEST LAKE NW
First Observed: 1971-08-02  Last Observed: 1971-08-02
Habitat Description: On alder tree, in shade.
Specimens: Schroeder L1702 (ID).

Occurrence Number: 010
Survey Site Name: ESE OF OROFINO
County: Clearwater
USGS quadrangle: OROFINO EAST
First Observed: 1995-12-03  Last Observed: 1995-12-03
Specimens: Karen L. Gray 1073, 1109 (MRC, ID).

LOBARIA LINITA
SMEARED LUNGWORT
Occurrence Number: 001
Survey Site Name: GRAVE PEAK
County: Idaho
USGS quadrangle: GRAVE PEAK
Habitat Description: On alpine sod, ledges on NW side of summit.
Specimens: Bruce McCune 11491 (WIS, US, SRP). Bruce McCune 11503 (herbarium unknown).

**LOBARIA SCROBICULATA**
PORED LUNGWORT
Occurrence Number: 001
Survey Site Name: BARTH HOT SPRINGS
County: Idaho
USGS quadrangle: SHEEP HILL
First Observed: 1987-07-29       Last Observed: 1989-08
Habitat Description: On granitic rock and Betula bark above the river banks.

Occurrence Number: 002
Survey Site Name: FIVEMILE BAR
County: Idaho
USGS quadrangle: FIVEMILE BAR
First Observed: 1993-08-16       Last Observed: 1993-08-16
Population Data: 1993: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: N-facing cliffs. Pseudotsuga menziesii habitat.
Specimens: Roger Rosentreter 7987 (SRP).

Occurrence Number: 003
Survey Site Name: SALMON RIVER MILE 110
County: Idaho
USGS quadrangle: CAREY DOME
Habitat Description: On a shaded, N aspect, talus and rubble slope.
Specimens: Anderegg and Schroeder 3219 (ID).

**PILOPHORUS ACICULARIS**
NAIL LICHEN
Occurrence Number: 001
Survey Site Name: MURRAY
County: Shoshone
USGS quadrangle: MURRAY, BURKE
First Observed: 1985-06-07       Last Observed: 1985-06-07
Population Data: 1985: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: On rock in Thuja forest.
Specimens: Roger Rosentreter 3599 (SRP) - determined by JWT 3/87.

Occurrence Number: 002
Survey Site Name: BEAVER CREEK/NORTH FORK CLEARWATER RIVER CONFLUENCE
County: Clearwater
USGS quadrangle: SHEEP MTN.
Habitat Description: On rock near stream. Moist, shady area. Growing with liverworts.
Specimens: Karen L. Gray 752 (ID, MRC).
**PSEUDOCYPHELLARIA ANTHRASPIS**

**WHITE-DOT LICHEN**

Occurrence Number: 001

Survey Site Name: MOUTH OF APGAR CREEK

County: Idaho

USGS quadrangle: LOWELL

First Observed: 1994-01-12    Last Observed: 1994-03-11

Population Data: 1994: Appeared to have fallen to the ground. Collected by Karen Gray, Clearwater NF, Lochsa RD.

Habitat Description: Shady Thuja plicata forest. East aspect. Moist.


Occurrence Number: 002

Survey Site Name: MOUTH OF RYE PATCH CREEK

County: Idaho

USGS quadrangle: LOWELL


Habitat Description: East aspect. On branch of hardwood, probably either Alnus, Betula, or Acer. Thuja plicata/Abies grandis forest. With Lobaria pulmonaria.

Specimens: Karen L. Gray 182 (ID, MRC).

Occurrence Number: 003

Survey Site Name: WEITAS CREEK - WNW OF JOHNNY BUTTE

County: Clearwater

USGS quadrangle: LEAN-TO POINT

First Observed: 1994-08-26    Last Observed: 1994-08-26


Habitat Description: NW aspect. On a Thuja plicata branch. Overall site quality is fair.

Specimens: Karen L. Gray 364 (herbarium unknown).

Occurrence Number: 004

Survey Site Name: WASHINGTON CREEK

County: Clearwater

USGS quadrangle: CLARKE MTN.

First Observed: 1966-08-09    Last Observed: 1966-08-09


Habitat Description: Young Abies grandis forest. Substrate: dead limb of Thuja plicata.

Specimens: Peter F. Stickney 1590 (MRC) - determined to be Stricta anthraspis by John W. Thompson in 1968.

Occurrence Number: 005

Survey Site Name: AQUARIUS

County: Clearwater

USGS quadrangle: THOMPSON POINT


Habitat Description: E aspect. On fallen Thuja branch in old growth Thuja plicata stand. With Alnus rubra, Boykinia major, Polystichum munitum, and Cornus canadensis. Other lichens present include Sphaerophorus globosus and Lobaria pulmonaria.

Specimens: Ann DeBolt 1257 (SRP) - collection label gives elevation as 2000 ft.

Occurrence Number: 006

Survey Site Name: TWO SHADOWS CREEK

County: Idaho

USGS quadrangle: SYRINGA
First Observed: 1979-03-14    Last Observed: 1995-06-06
Population Data: 1979: No data. Collected by Roger Rosentreter, Idaho State BLM. 1995: 4 or 5 thalli were found on the ground. More probably exist in the trees. Observation on a cursory visit by Karen Gray, Clearwater NF, Lochsa RD.
Habitat Description: Thuja plicata/Abies grandis forest. River terrace, gentle slope and aspect. Substrate: Thuja branch. Associated with Lobaria pulmonaria. Associated understory species include Cardamine constancei, Carex hendersonii, Kindbergia oregana, Festuca subuliflora, and Eubrophyton austiniiae.

Occurrence Number: 007
Survey Site Name: ISABELLA LANDING
County: Clearwater
USGS quadrangle: THOMPSON POINT, SHEEP MTN.
Population Data: 1995: Found frequently, 20% vegetative and 80% in fruit. Area surveyed by Sarah Walker, Clearwater NF, and Juanita Lichthardt, Idaho CDC.
Habitat Description: Moist Thuja plicata and Abies grandis forest. Found frequently through elevation range. Predominantly on shrub branches like Philadelphus lewisii, one occurrence on a mossy rock. Usually with Peltigera collina and Nephroma resupinatum.
Specimens:

Occurrence Number: 008
Survey Site Name: ISABELLA CREEK
County: Clearwater
USGS quadrangle: SHEEP MTN.
Habitat Description: On branches in Thuja plicata/Athyrium filix-femina forest. Other lichens present include Lobaria pulmonaria.
Specimens:

Occurrence Number: 009
Survey Site Name: AQUARIUS
County: Clearwater
USGS quadrangle: THOMPSON POINT
Habitat Description: NE aspect. Young Abies grandis stand with small Thuja plicata and Clintonia uniflora. On Thuja plicata branch with Lobaria pulmonaria. Other lichens present include Nephroma resupinatum, Hypogymnia physodes, Peltigera spp., and Alectora spp.
Specimens: Sarah Walker 29 (herbarium unknown).

TEXOSPORIUM SANCTI-JACOBI
WOVENSPORE LICHEN
Occurrence Number: 001
Survey Site Name: SOUTH COLE ROAD/TENMILE CREEK SOUTH
County: Ada
USGS quadrangle: MORA
Population Data: 1993: A scattered population of at least 50 clumps over 120 acres was assessed as having good population vigor by Anne DeBolt, Boise District BLM, on a cursory survey of the area on 5-18.
Habitat Description: These scattered populations were found on a gently sloping terrain with loamy-silt loam type soils. Associated species include Artemisia tridentata wyomingensis, Poa secunda, Sitanion hystrix, and Stipa thurberiana. The overall site quality was rated as good.
Specimens: A. DeBolt 1679 (Boise BLM).
Occurrence Number: 002
Survey Site Name: CINDER CONE BUTTE
County: Ada
USGS quadrangle: CINDER CONE BUTTE
Population Data: 1993: At least 20 clumps of lichen were observed. Unknown age class structure. Apothecia were present. Population vigor assessed as good. Observation on a cursory visit on 5-11 by Ann DeBolt, Boise District BLM. 1995: Ca 70-100 additional clumps with apothecia present were located to the SE, further up the NW slope of Cinder Cone Butte. Observation by Dana Quinney and J. Weaver, Idaho Army National Guard.
Habitat Description: Occurs in a nice stand of Artemisia tridentata wyomingensis/Poa sandbergii/Stipa thurberiana habitat on large volcanic cinders on the surface in some open areas. On clumps of dead Poa and mosses. Few exotic annuals present.
Specimens: Ann DeBolt 1673 (Boise BLM).

Occurrence Number: 003
Survey Site Name: EIGHTMILE CREEK/TENMILE CREEK
County: Ada
USGS quadrangle: CLOVERDALE
Population Data: 1991: Hundreds of clumps. Population vigor assessed as high. Observation on a cursory visit by Ann DeBolt, Boise District BLM. 1993(Sec 18): At least 30 separate mature clumps were observed on a cursory visit by DeBolt. Population vigor assessed as good.
Habitat Description: Occurs in remnant Artemisia tridentata wyomingensis/native bunchgrass community on clumps of dead Poa. Associated with Sitanion hystrix, Stipa thurberiana, Agropyron spicatum, Poa sandbergii, and Lepidium papilliferum. On gently sloping terrain with northerly aspect.
Specimens:

Occurrence Number: 004
Survey Site Name: EIGHTMILE CREEK
County: Ada
USGS quadrangle: BOISE SOUTH
Population Data: 1993: At least 15 clumps scattered over 40 acres. Population vigor assessed as moderate. Observation on a cursory visit by Ann DeBolt, Boise District BLM.
Habitat Description: Occurs on dead clumps of Poa secunda. Associates include Sitanion hystrix, Poa secunda, Agropyron spicatum, Stipa thurberiana, and Bromus tectorum. Site burned within the last 15 years so there are virtually no shrubs left. North aspect slope. Overall site quality rated as fair.
Specimens: Ann DeBolt 1755 (Boise BLM).

Occurrence Number: 005
Survey Site Name: KUNA BUTTE EAST
County: Ada
USGS quadrangle: KUNA
Habitat Description: Artemisia tridentata wyomingensis, Sitanion hystrix, Poa secunda site with good cryptogamic cover. Overall site quality rated as good.
Specimens:

Occurrence Number: 006
Survey Site Name: ORCHARD SOUTHWEST
County: Ada
USGS quadrangle: ORCHARD
Population Data: 1994: Ca 1000 clumps with apothecia present. Observation by Dana Quinney and J. Weaver, Idaho Army National Guard.
Habitat Description: Flat to gently rolling with fine silt soil. Weedy site with scattered sage. Associated species include Artemisia tridentata wyomingensis, Poa sandbergii, Ranunculus testiculatus, exotic Brassica spp., and Lepidium papilliferum. Also present in burned area next to the sage.

Specimens:

Occurrence Number: 007
Survey Site Name: HIGBY CAVE EAST - RED TIE AREA
County: Ada
USGS quadrangle: ORCHARD
First Observed: 1993-12-03 Last Observed: 1993-12-03
Population Data: 1993: Several thousand clumps with apothecia present. Observation by Dana Quinney and J. Weaver, Idaho Army National Guard.
Habitat Description: Slightly rolling terrain with fine silt soil. Growing on dead Poa clumps. Associated species include Artemisia tridentata wyomingensis, Poa sandbergii, Stipa thurberiana, and Lepidium papilliferum. Few exotic annuals are present.
Specimens:

Occurrence Number: 008
Survey Site Name: COLUMBIA VILLAGE - SOUTHEAST BOISE
County: Ada
USGS quadrangle: BOISE SOUTH
Habitat Description: On clumps of humus in a patch of native bunchgrasses. Associates include Stipa thurberiana, Agropyron spicatum, Sitanion hystrix, and Poa secunda.
Specimens:

Occurrence Number: 009
Survey Site Name: PLEASANT VALLEY NORTH
County: Ada
USGS quadrangle: OWYHEE, IDAHO
Population Data: 1987: Ca 100+ clumps observed on a thorough survey by Ann DeBolt, Boise District BLM.
Habitat Description: On humus clumps and soil. Artemisia tridentata wyomingensis-Stipa thurberiana-Agropyron spicatum community. Lepidium papilliferum is also present.
Specimens: Roger Rosentreter 6815 (personal herbarium).

Occurrence Number: 010
Survey Site Name: OWYHEE SOUTHWEST
County: Ada
USGS quadrangle: OWYHEE, IDAHO
Habitat Description: Flat area. Artemisia tridentata-Sitanion hystrix-Poa sandbergii and Chrysothamnus nauseosus-Poa secunda communities. Area intermixed with exotics Bromus tectorum and Sisymbrium altissimum.
Specimens: Roger Rosentreter 3081 (Boise BLM, personal herbarium).

Occurrence Number: 011
Survey Site Name: SIMCO ROAD/I-84
County: Elmore
USGS quadrangle: MAYFIELD SW
DeBolt, Boise District BLM, and Roger Rosentreter, Idaho BLM.
Habitat Description: Flat topography. On soil and humus. Artemisia tridentata-Stipa thurberiana-Agropyron spicatum community in excellent condition. Lepidium papilliferum also present.
Specimens: Roger Rosentreter 6819b (Boise BLM, personal herbarium). Bruce McCune 18894 (personal herbarium).

Occurrence Number: 012
Survey Site Name: MOUTH OF ISAACS CANYON
County: Ada
USGS quadrangle: BOISE SOUTH
Habitat Description: Portions of this general area are represented by a good to excellent bunchgrass (Agropyron spicatum, Stipa thurberiana, Sitanion hystrix)-Artemisia tridentata community. Some portions have no Artemisia tridentata left due to fire, but still have good bunchgrass representation. Weedier areas are intermittent (ie. dominated by Sisymbrium altissimum and Bromus tectorum).
Specimens:

Occurrence Number: 013
Survey Site Name: N OF INITIAL POINT
County: Ada
USGS quadrangle: KUNA, INITIAL POINT
First Observed: 1995-03 Last Observed: 1995-03
Population Data: 1995: 2 sites with a total of ca 30-50 clumps. Population vigor assessed as good. Observation on a cursory visit by Ann DeBolt, Boise District BLM.
Habitat Description: Artemisia tridentata wyomingensis-Poa sandbergii-Sitanion hystrix community on the edge of a burn.
Specimens:

**THAMNOLIA VERMICULARIS**
WORM LICHEN
Occurrence Number: 001
Survey Site Name: ACROSS FROM HOSPITAL BAR
County: Lemhi
USGS quadrangle: RAMEY HILL
Population Data: 1987: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: Moss-covered, N-facing small cliff band.
Specimens: Roger Rosentreter 4525 (SRP).

**XANTHOPARMELIA IDAHOENSIS**
IDAHO RANGE LICHEN
Occurrence Number: 001
Survey Site Name: LEMHI RIVER - SE OF MULKEY CREEK
County: Lemhi
USGS quadrangle: SAL MOUNTAIN
Population Data: 1993: Thousands of genets of unknown age class structure were found at two sites. Population vigor assessed as very good in the larger of the two populations. Observation by Helen Ulmschneider, Salmon District BLM, who notes that more bare hills with potential habitat exist in the immediate area.
Habitat Description: Found on bare bentonite hills and flats bordering 2 small dry washes. Surrounding vegetation includes Artemisia tridentata and Sarcobatus vermiculatus. Other lichen include X. norchlorochroa on bare clay. Up to 80% of lichens were on south-facing hills above a small creek, but only 5-20% were on flats or north slopes. Overall lichen cover on all bare hills was roughly 10-20%, in patches. The overall site quality was rated as excellent.
Specimens: H. Ulmschneider 93-13 (Salmon BLM). H. Ulmschneider 93-12 (Salmon BLM).

Occurrence Number: 002
Survey Site Name: E OF SALMON AIRPORT - SE OF SALMON
County: Lemhi
USGS quadrangle: EAST OF SALMON
First Observed: 1993-10-13 Last Observed: 1993-10-20
Population Data: 1993: 3 small populations of lichen were found. The easternmost population, visited on 10-14, had an estimated 2000 thalli clumps all of which were vegetative; population vigor assessed as good as about 5% of the X. Thalli present were X. idahoensis. The westernmost population, visited on 10-20, contained several hundred clumps; population vigor assessed as good, having ca 1-3% of lichens being X. idahoensis. The middle population, also visited on 10-20, contained ca 100 clumps; population vigor assessed as good as <1% of the lichens present were X. idahoensis. Observations on cursory visits on 10-14 by Roger Rosentreter, Idaho State BLM, and Helen Ulmschneider, Salmon District BLM, and again on 10-20 by just Ulmschneider.
Habitat Description: Eastern population occurs on bentonite hills completely bare of vegetation in lacustrine ash deposits >40% clay. Slope <50% with generally southern aspects, but some also with northerly aspect. X. idahoensis occurs mixed in a large population of X. norchlorochroa, but it is easily distinguished from about 6 feet away. Surrounding vascular vegetation includes Atriplex spinosa, Tetradymia canescens. The western population also occurs on a south-facing, bare Bentonite slope with X. norchlorochroa and with Atriplex spinosa, Tetradymia spinescens, and Poa secunda. The middle population occurs on a rocky slope of small (1-3") stones with bentonite matrix. Also associated with X. norchlorochroa.

Occurrence Number: 003
Survey Site Name: HOT SPRING CREEK
County: Lemhi
USGS quadrangle: SAL MOUNTAIN
First Observed: 1986-01-04 Last Observed: 1986-01-04
Population Data: 1986: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: On calcareous lacustrine ash soil. Sites nearly barren of vascular vegetation and surrounded by Atriplex confertifolia.
Specimens: Roger Rosentreter 3828 (Personal herbarium, isotype; US, holotype).

Occurrence Number: 004
Survey Site Name: KADLETZ CREEK
County: Lemhi
USGS quadrangle: BAKER
Population Data: 1987: No data. Collected by Roger Rosentreter, Idaho State BLM.
Habitat Description: Barren benthene clay soil, Artemisia tridentata wyomingensis and Atriplex habitat.
Specimens: Roger Rosentreter 4520 (SRP) - determined by M. Hale 1987.

Occurrence Number: 005
Survey Site Name: N OF PRICE CREEK
County: Lemhi
USGS quadrangle: BAKER
Population Data: 1995: 3 populations. The top of hill 4773T is almost a solid carpet of X. idahoensis. Population vigor assessed as excellent. Observation on a cursory visit by Helen Ulmschneider, Salmon District BLM, noting that there are extensive clay hills in the area that were not visited.
Habitat Description: Growing on clay. Bare clay hills with Monolepsis nuttalliana, Tetradymia sp., and Artemisia sp. Other range lichens present include Xanthoparmelia norchlorochroa and X. wyomingensis in the shrub area.
Specimens: Helen Ulmschneider 95-01, 95-02, 95-03 (Salmon BLM).
CONCLUSIONS AND RECOMMENDATIONS

1. GLOBALLY RARE SPECIES - While most of our state’s rare lichens and bryophytes are globally common, there are several species that are globally rare (i.e., have a global conservation rank of G1, G2, or G3 in Tables 1 and 3). These species should be of particular conservation concern to land managers and biologists in the state. The globally rare species occurring in Idaho are:

**Bryophytes**
- *Bryum calobryoides* G3
- *Orthotrichum holzingeri* G1 or G2?
- *Sphaerocarpos hians* G1

**Lichens**
- *Catapyrenium congestum* G2
- *Cetraria subalpina* G3
- *Cladonia andreggii* G1
- *Cladonia luteoalba* G2
- *Collema curtisporum* G1
- *Dermatocarpon lorenzianum* G1
- *Texosporium sancti-jacobi* G2
- *Xantoparmelia idahoensis* G1

2. INCREASE AWARENESS FOR RARE CRYPTOGAMS - Rare bryophytes and lichens should be incorporated into the overall rare species and ecosystem conservation activities of land management agencies and organizations, similar to vascular plants and vertebrate animals. The first step is to increase the ability of biologists to identify and inventory for rare species through special training and workshops. While a few training sessions have taken place in the last couple of years, more are needed.

The results of rare cryptogam inventories should be submitted to the CDC so that populations can be entered into our rare species occurrence data base, which is the centralized data base for Idaho. Reporting forms and instructions can be downloaded from the CDC’s home page on the World Wide Web (address: www.state.id.us/fishgame/cdchome.htm)

3. RARE FUNGI - The diversity of fungi in Idaho is particularly notable, from the rich diversity in the central Idaho mountains to the endemism on the Owyhee Plateau. Although technically not plants, but usually lumped in with the field of botany, this group of organisms are important members of our native ecosystems. Only recently has the conservation of fungi species begun to be addressed in the Pacific Northwest, in general, and Idaho in particular. Information on rare fungi compiled as part of the Interior Columbia River Basin assessment needs to be incorporated into the CDC’s data base and into species and ecosystem conservation activities of land management agencies.
4. **NONVASCULAR WORKING GROUP** - We recommend that a “working group” be established to evaluate the conservation of nonvascular plants in the state. This is usually done at the annual Idaho Rare Plant Conference, but for several reasons (listed below) we believe that a separate group could more effectively evaluate the status of these species: 1) considerable time needs to be spent on the suggested additions to the bryophyte list and the nearly *de novo* evaluation of rare fungi in the state; 2) the hectic schedule of the conference rarely (never?) allows for such an in depth evaluation; and 3) relatively few people have adequate knowledge of nonvascular groups. This group clearly needs to address several short-term issues and may not need to be permanent.
BRYOPHYTE AND LICHEN REFERENCES AT THE CDC


RUBUS SPECTABILIS
MONTANE FOREST
OLD GROWTH FOREST
THELYPTERIS PHEGOPTERIS
PHEGOPTERIS CONNECTILIS
HOOKERIA LUCENS
BLECHNUM SPICANT
HYPOGYMNIA ENTEROMORPHA


LICHEN
CHECKLIST
COLLEMA FURFURACEUM
CLADONIA UNCIALIS
LOBARIA SCROBICULATA
PHYSCIA SEMIPINNATA


LICHEN
DISTRIBUTION
IDAHO


SPHAGNUM MENDOCINUM
DISTRIBUTION
CHECKLIST


NONVASCULAR CONSERVATION


SPHAGNUM MENDOCINUM
NONVASCULAR CONSERVATION
DISTRIBUTION

LICHEN
BRYOPHYTE
NONVASCULAR CONSERVATION


HYPOGYMNIA ENTEROMORPHA
PHYTOGEOGRAPHY
DISTRIBUTION


HOOKERIA LUCENS
DISTRIBUTION
COMMUNITY ECOLOGY
SPECIES BIOLOGY
MANAGEMENT TECHNIQUES


CATAPYRENIUM CONGESTUM
DERMATOCARPON LORENZIANUM
LICHEN
DISTRIBUTION
TAXONOMY


LOBARIA SCROBICULATA
LICHEN


PEATLAND
INVENTORY
CLASSIFICATION
BRYOPHYTE
CHECKLIST
SPHAGNUM MENDOCINUM


SPHAGNUM MENDOCINUM
TAYLORIA SERRATA
ULOTA MEGALOSPORA
HOOKERIA LUCENS
HELODIUM BLANDOWII
BUXBAUMIA APHYLLA
BUXBAUMIA PIPERI
CHECKLIST


BRYOPHYTE
NONVASCULAR CONSERVATION
BIOGEOGRAPHY
FUNCTION
BRYUM CALOBRYOIDES
BUXBAUMIA APHYLLA
BUXBAUMIA PIPERI
HELODIUM BLANDOWII
HOOKERIA LUCENS
MEESIA LONGISETA
SPHAGNUM MENDOCINUM
TAYLORIA SERRATA
SPHAEROCARPOS HIANS


SPHAEROCARPOS HIANS
TAXONOMY
DISTRIBUTION
BRYOPHYTE


MONTANE FOREST
WOODLAND
GRASSLAND
FUNGI
LICHEN
BRYOPHYTE
CLASSIFICATION


BUXBAUMIA APHYLLA
COMMUNITY ECOTOLOGY
SPECIES BIOLOGY


COLLEMA FURFURACEUM
SPECIES BIOLOGY


DISTRIBUTION
TAYLORIA SERRATA

LOBARIA HALLII
HYPOGYMNIA ENTEROMORPHA
CHECKLIST
COLLEMA CURTISPORUM
COLLEMA FURFURACEUM


STATUS SURVEY
LEPIDIUM PAPILLIFERUM
TEXOSPORIUM SANCTI-JACOBI


BRYOPHYTE
CHECKLIST


NONVASCULAR CONSERVATION


MULTI-SPECIES
NONVASCULAR CONSERVATION
BRYUM CALOBRYOIDES
BUXBAUMIA PIPERI
BUXBAUMIA APHYLLA
HELODIUM BLANDOWII
HOOKERIA LUCENS
MEESIA LONGISETA
SPHAGNUM MENDOCINUM
TAYLORIA SERRATA
ULOTA CURVIFOLIA
ULOTA MEGALOSPORA


SPHAGNUM MENDOCINUM
DISTRIBUTION


MULTI-SPECIES
NONVASCULAR CONSERVATION
BRYUM CALOBRYOIDES
BUXBAUMIA PIPERI
BUXBAUMIA APHYLLA
HELODIUM BLANDOWII
HOOKERIA LUCENS
MEESIA LONGISETA
SPHAGNUM MENDOCINUM
TAYLORIA SERRATA
ULOTA CURVIFOLIA
ULOTA MEGALOSPORA

**HYPOGYMNIA ENTEROMORPHA**
**SPECIES BIOLOGY**


**YELLOWSTONE**
**FNPNP**
**LICHEN**
**CHECKLIST**


**YELLOWSTONE**
**FNPNP**
**GYE**
**LICHEN**
**DISTRIBUTION**
**COMMUNITY ECOLOGY**
**THAMNOLIA VERMICULARIS**
**HYPOGYMNIA ENTEROMORPHA**


**FUNCTION**
**PEATLAND**
**VEGETATION HISTORY**
**BRYOPHYTE**
**HYDROLOGY**
**VACCINIUM OXYCOCOS**
**SCIRPUS CAESPITOSUS**


**AIR QUALITY**
**THAMOLIA VERMICULARIS**
**PILOPHORUS ACICULARIS**
**CLADONIA TRANSCENDENS**
**CLADONIA UNCIALIS**
**COLLEMA FURFURACEUM**
**PSEUDOCYPHELLARIA ANTHRASPIS**
**HYPOGYMNIA ENTEROMORPHA**
**LOBARIA HALII**
**LOBARIA LINITA**
**LOBARIA SCROBICULATA**

AIR QUALITY


AIR QUALITY

THAMOLIA VERMICULARIS
PILOPHORUS ACICULARIS
CLADONIA TRANSCENDENS
CLADONIA UNCIALIS
COLLEMA FURFURACEUM
PSEUDOCYPHELLARIA ANTHRASPIS
HYPOGYMNIA ENTEROMORPHA
LOBARIA HALLII
LOBARIA LINITA
LOBARIA SCROBICULATA


PEATLAND

BRYOPHYTE


DISTRIBUTION

LOBARIA HALLII


HYPOGYMNIA ENTEROMORPHA

SPECIES BIOLOGY


NONVASCULAR CONSERVATION


OLD GROWTH FOREST

MONTANE FOREST

NONVASCULAR CONSERVATION

HYPOGYMNIA ENTEROMORPHA
LOBARIA HALLII
LOBARIA LINITA
PSEUDOCYPHELLARIA ANTHRASPIS

CLADONIA LUTEOALBA

DISTRIBUTION


XANTHOPARMELIA IDAHOENSIS


XANTHOPARMELIA IDAHOENSIS

TAXONOMY


LOBARIA SCROBICULATA

NONVASCULAR CONSERVATION

DISTRIBUTION


LICHEN

DISTRIBUTION

CLADONIA VERRUCULOSA


TAXONOMY

BIOGEOGRAPHY

CLADONIA IMBRICARICA

CLADONIA UNCIALIS

CLADONIA LUTEOALBA

CLADONIA TRANSCENDENS

CLADONIA ANDEREGII


CLADONIA UNCIALIS

CLADONIA TRANSCENDENS

CLADONIA ANDEREGII

CLADONIA LUTEOALBA

CLADONIA IMBRICARICA

COMMUNITY ECOLOGY

BIOGEOGRAPHY

DISTRIBUTION


CHECKLIST

IDAHO

HYPOGYMNIA ENTEROMORPHA

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BUXBAUMIA APHYLLA
SPECIES BIOLOGY


BUXBAUMIA APHYLLA
SPECIES BIOLOGY


IDAHO PANHANDLE NATIONAL FORESTS
BOREAL OWL
NORTHERN SAW-WHET OWL
RAPTORS
REPRODUCTION
CAVITY NESTERS
AEGOLIUS ACADICUS
AMERICAN KESTREL
FALCO SPARVERIUS
NORTHERN FLYING SQUIRREL
GLAUCOMYS SABRINUS
AEGOLIUS FUNEREUS
LICHEN


PAYETTE NATIONAL FOREST
RAPTORS
BOREAL OWL
NORTHERN SAW-WHET OWL
AEGOLIUS ACADICUS
CAVITY NESTERS
NORTHERN FLYING SQUIRREL
GLAUCOMYS SABRINUS
MARTEN
MARTES AMERICANA
AEGOLIUS FUNEREUS
LICHEN
REPRODUCTION
BIOLOGY


GLAUCOMYS SABRINUS
NORTHERN FLYING SQUIRREL
SMALL MAMMALS
LICHEN

SPECIES BIOLOGY
GLAUCOMYS SABRINUS
NORTHERN FLYING SQUIRREL
SMALL MAMMALS
LICHEN


CAREX CHORDORRHIZA


COLLEMA FURFURACEUM

SPECIES BIOLOGY


NONVASCULAR CONSERVATION


COLLEMA FURFURACEUM

DISTRIBUTION


RAMALINA THRAUSTA

LICHEN

TAXONOMY


PEATLAND

BRYOPHYTE

VEGETATION HISTORY

VACCINIUM OXYCOCOS


LICHEN

GEOLOGY

IDAHO


MONTANE FOREST

LICHEN

BRYOPHYTE


OLD GROWTH FOREST

MONTANE FOREST

COMMUNITY ECOLOGY
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SAMPLING
LICHEN
MONTANE FOREST


FIELD GUIDE
LICHEN
PSEUDOCYPHELLARIA ANTHRASPIS
COLLEMA FURFURACEUM
RAMALINA THRUSTA


AQUARIUS
FFSRN
CLEARWATER NATIONAL FOREST
SPHAEROPHORUS TUCKERMANNII
RAMALINA THRUSTA
PSEUDOCYPHELLARIA ANTHRASPIS
HYPOGYMNIA ENTEROMORPHA
CLADONIA TRANSCENDENS


MUD FLAT OOLITE
FBLAC
CHECKLIST
TEXOSPORIUM SANCTI-JACOBI
LICHEN


TEXOSPORIUM SANCTI-JACOBI
STATUS SURVEY


LICHEN
SPECIES BIOLOGY


PHYSICIA SEMIPINNATA
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CLADONIA UNCIALIS
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COLLEMA FURFURACEUM
HYPOGYMNIA APINNATA


LICHEN
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ASPICILIA FRUTICULOSA
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CLADONIA TRANSCENDENS
CLADONIA UNCIALIS
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COLLEMA FURFURACEUM
HYPOGYMNIA ENTEROMORPHA
LOBARIA SCROBICULATA
LOBARIA HALLII
LOBARIA LINITA
PHYSCIA SEMIPINNATA
PILOPHORUS ACICULARIS
TEXOSPORIUM SANCTI-JACOBI
CATAPYRENIUM CONGESTUM


THELOMMA OCELLATUM
DISTRIBUTION
LICHEN


CLADONIA UNCIALIS
CLADONIA LUTEOALBA
CLADONIA TRANSCENDENS
CLADINA RANGIFERINA
ASPICILIA FRUTICULOSA
LICHEN
FLORA
CETARIA SUBALPINA
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COLLEMA FURFURACEUM


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SPHAGNUM MENDOCINUM


FIELD GUIDE
MULTI-SPECIES
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BRYUM CALOBRYOIDES
DOUGLASIA IDAHOENSIS
HAPLOPAPPUS INSECTICRURIS
PHACELIA MINUTISSIMA
ALLIUM VALIDUM
CAREX BUXBAUMII
EPIPACTIS GIGANTEA
LEWISIA KELLOGGII
RHYNCHOSPORIA ALBA
SCHEUCHZERIA PALUSTRIS


BRYOPHYTE
CHECKLIST


HYPOGYMNIA ENTEROMORPHA
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TEXOSPORIUM SANCTI-JACOBI
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COLLEMA CURTISPORUM
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CLADONIA VERRUCULOSA
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LOBARIA HALLII
LOBARIA LINITA
LOBARIA SCROBICULATA
PHYSCIA SEMIPINNATA


AIR QUALITY
lichen
HYPOGYMNIA ENTEROMORPHA


AIR QUALITY


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WOODLAND CARIBOU
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WOODLAND CARIBOU
RANGIFER TARANDUS CARIBOU
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ASTRAGALUS JEJUNUS
DIMERESIA HOWELLI
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STIPA WEBBERI
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LICHEN

LICHEN
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XANTHOPARMELIA IDAHOENSIS


LICHEN


LICHEN


LICHEN
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SUBALPINE FOREST


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LOBARIA SCROBICULATA

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COTTONWOOD
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CLADONIA TRANSCENDENS
HYPOGYMNIA ENTEROMORPHA
LOBARIA HALLII
LOBARIA LINITA
PILOPHORUS ACICULARIS
PSEUDOCYPHELLARIA ANTHRASPIS
TEXOSPORIUM SANCTI-JACOKI


WOODLAND CARIBOU
RANGIFER TARANDUS CARIBOU
HABITAT
FOOD HABITS
LICHEN
FIRE


LOBARIA HALLII
PSEUDOCYPHELLARIA ANTHRASPIS
DISTRIBUTION
IDAHO


DISTRIBUTION
LICHEN


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PILOPHORUS ACICULARIS
PSEUDOCYPHELARIA ANTHRASPIS


RANGIFER TARANDUS CARIBOU
WOODLAND CARIBOU
BIOLOGY
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REPRODUCTION
WINTERING
HABITAT
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FOOD HABITS
TAXONOMY
IMPACTS-HUMAN
MANAGEMENT TECHNIQUE
CONSERVATION BIOLOGY


AIR QUALITY
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HYPOGYMNIA ENTEROMORPHA
MONTANE FOREST


NONVASCULAR CONSERVATION


MANAGEMENT TECHNIQUES
COMMUNITY ECOLOGY
NONVASCULAR CONSERVATION


PEATLAND
SCIRPUS CAESPITOSUS
CAREX CHORDORRHIZA
CAREX LIVIDA
DROSIERA INTERMEDIA
SALIX PEDICELLARIS
BRYOPHYTE
COMPOSITION
STRUCTURE
FUNCTION
SCIRPUS HUDSONIANUS
SCHEUCHZERIA PALUSTRIS
VACCINIUM OXYCOCOS
RHYNCHOSPORA ALBA
MUHLENBERGIA RACEMOSA


CHECKLIST
BRYOPHYTE


TAXONOMY
BRYUM CALOBRYOIDES


BRYUM CALOBRYOIDES
TAYLORIA SERRATA
DISTRIBUTION
FLORA


BRYUM CALOBRYOIDES
TAXONOMY


CLASSIFICATION
IDAHO
BRYOPHYTE
SUBALPINE FOREST
MONTANE FOREST
HELODIUM BLANDOWII


CLASSIFICATION
STRUCTURE
COMPOSITION
MONTANE FOREST
SUBALPINE FOREST
BRYOPHYTE
HELODIUM BLANDOWII


TAXONOMY
DISTRIBUTION
CLADONIA LUTEOALBA

BUXBAUMIA APHYLLA
STATUS SURVEY
DISTRIBUTION


AIR QUALITY
LICHEN


BUXBAUMIA APHYLLA
SPECIES BIOLOGY


ANTILOCAPRA AMERICANA
PRONGHORN
FOOD HABITS
INEL
IDAHO
LICHEN
SHRUBLAND
AUTECOLOGY

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NONVASCULAR CONSERVATION


NONVASCULAR CONSERVATION
LICHEN


COLLEMA FURFURACEUM
DISTRIBUTION


BUXBAUMIA PIPERI
DISTRIBUTION

NONVASCULAR CONSERVATION

LOBARIA SCROBICULATA


NONVASCULAR CONSERVATION


MIRABILIS MACFARLANEII

LICHEN

PRIMULA ALCALINA

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NONVASCULAR CONSERVATION

RAMALINA THRAUSTA

PSEUDOCYPHELLARIA ANTHRASPIS

LOBARIA SCROBICULATA

LOBARIA HALLII

LOBARIA LINITA


NORTHERN FLYING SQUIRREL

GLAUCOMYS SABRINUS

SOUTHERN FLYING SQUIRREL

GLAUCOMYS VOLANS

SURVEY METHOD

REPRODUCTION

LICHEN

HABITAT

DISTRIBUTION


HOOKERIA LUCENS

DISTRIBUTION


HOOKERIA LUCENS

BRYOPHYTE

TAXONOMY

DISTRIBUTION


BUXBAUMIA APHYLLA

DISTRIBUTION

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**DISTRIBUTION**
**BUXBAUMIA APHYLLA**


**SPHAEROCARPUS HIANS**
**DISTRIBUTION**
**BRYOPHYTE**
**CHECKLIST**