# A CHECKLIST OF MONTANA MOSSES (1880–2018)

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## INTRODUCTION

Montana has one of the richest recorded moss floras of the western United States (Eckel et al. 1997), even though large areas of the state remain under surveyed. The *Flora of North America* (FNA) volumes 27 (2007) and 28 (2014) include 1,402 species found in the continental United States, Canada, Greenland, and St. Pierre and Miquelon, of which 508 species have been recorded in Montana. Including varieties and subspecies, Montana has 522 moss taxa. The rich moss flora is due to the habitat and climatic diversity across the state and a long history of bryological exploration that began in the late 1800s.

This checklist is a revision to the second preliminary checklist (Elliott 1993), which listed 408 taxa. The substantial increase in the number of moss taxa since 1993 indicates that, as in much of the western United States, our knowledge of the Montana moss flora continues to expand with increased field and herbarium studies. The discovery of mosses in eastern North America appears to be reaching saturation, but this is not true for western North America, where the accumulation of new species has continued to rise steeply over the last three decades (Carter et al. 2016).

Another publication titled the "History, Biogeography, and Species of Montana Mosses (1880-2018)" will be published in Volume 36, Issue 2 of Evansia, a peer-reviewed quarterly of The American Bryological and Lichenological Society (2019).

## METHODS

The primary author, Joe Elliott, examined collection records for mosses found in Montana and deposited in herbaria by searching the Consortium of Pacific Northwest Herbaria (CPNWH; www.pnwherbaria.org) and the Consortium for North American Bryophyte Herbaria (CNABH; http://bryophyteportal.org) databases from 2016 to 2017. Searches for scientific names and synonyms listed in FNA (2007, 2014) were conducted in 2016.

Collection records from herbaria that are not included in the CPNWH and CNABH databases were researched in 2016 and 2017. The University of Montana herbarium (MONTU) houses approximately 2,500 Montana specimens, and many from outside the state. During 2016 and 2017 Joe Elliott reviewed the entire MONTU moss collection to verify identifications and update nomenclature. A grant from the Institute of Museum and Library Services is allowing this collection to be digitized and geo-referenced with a project completion date of November 2019. The Yellowstone National Park herbarium (YELLO-HRC) houses collections of 289 taxa from Park and Gallatin Counties in Montana. Montana collections from the herbaria at the University of Alberta (ALTA) and Royal Alberta Museum (PMAE) in Edmonton also were reviewed.

Collection records and specimens from personal herbaria were reviewed. These herbaria belong to Joe Elliott, Gerald Moore, Bruce McCune, Bonnie Heidel, Drake Barton, Peter Lesica, Michael Arvidson, Toby Spribille, Judy Hoy, Maria Mantas, Craig Odegard, and John Pierce. Field notes from collections made by Seville Flowers in 1967 from western Montana and by Dale Vitt in 1978 from Montana were reviewed.

The checklist also includes taxa for which specimens or their locations remain uncertain. Several old specimens have vague locations where the county is unknown. Another 16 taxa are present in Montana according to the FNA (2007, 2014), but the authors could not find the source of this information though attempts will continue.

This article identifies mosses tracked by the Montana Natural Heritage Program (MTNHP) as Species of Concern (SOC). The last update to the moss SOC list was made in 2010 (MTNHP 2010). Moss SOC are considered rare and/or at risk of extirpation in Montana due to declining population trends, threats to populations or their habitats, restricted distribution, and/or other factors (MTNHP 2018). This revised checklist has identified the majority of existing herbarium specimens and records and is allowing the MTNHP to update its database, and in the near future to revise the Moss SOC list.

## THE MONTANA MOSS CHECKLIST (1880-2018)

The checklist of 522 taxa are presented alphabetically by scientific name with authorities, synonyms, Montana habitat associations, herbarium records for particularly rare or unique species, and Montana county distribution maps. Herbarium codes can be searched at Index Herbariorum, hosted by the New York Botanical Garden (sweetgum.nybg.org/science/ih). A condensed checklist will also be published in the upcoming Evansia article, "History, Biogeography, and Species of Montana Mosses (1880-2018)" (expected June 2019). The condensed checklist is also anticipated to be published on the CNABH portal (http://bryophyteportal.org/portal/projects/index.php?). Additional moss taxa information and photographs can be found in the Plant Field Guide at the MTNHP website (http://fieldguide.mt.gov/). Taxonomic nomenclature follows FNA (2007, 2014) and names with asterisks (*) are MTNHP moss SOC (2010). County and many geographical names used in this checklist are referenced in **Figures 1** and **2**.

There are 56 counties in Montana (**Figure 1**), yet the 10 most frequently collected mosses are documented in 27 or fewer counties, except for *Syntrichia ruralis* which has been found in 31 counties (**Table 2**). Many moss species in Montana are represented by three or fewer collections. This may indicate a sparsity of bryologists more than a scarcity of mosses.

**Table 2. Summary of the Most Frequently Collected Moss Species in Montana.**

| Species | Number of Counties Where Collected | Number of Herbarium Records[1] |
|---|---|---|
| *Dicranum scoparium* | 17 | 310 |
| *Syntricia ruralis* | 31 | 279 |
| *Ceratodon purpureus* | 27 | 254 |
| *Polytrichum juniperinum* | 19 | 245 |
| *Mnium spinulosum* | 17 | 244 |
| *Scouleria aquatica* | 16 | 207 |
| *Timmia austriaca* | 20 | 197 |
| *Eurhynchiastrum pulchellum* | 18 | 193 |
| *Cratoneuron filicinum* | 20 | 192 |
| *Brachythecium albicans* | 17 | 183 |

[1] Number of herbarium records does not include collections made after 2015.

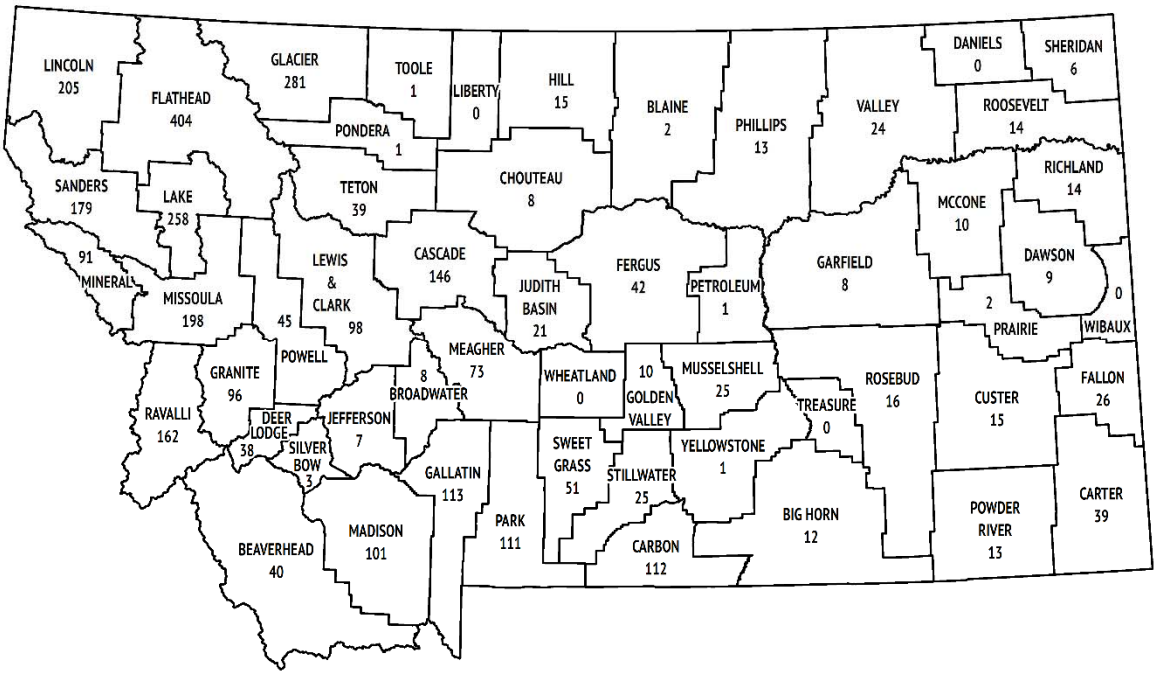



**Figure 1**. Montana's 56 counties with the number of moss taxa documented from herbarium specimens and collection records (1880-2018).

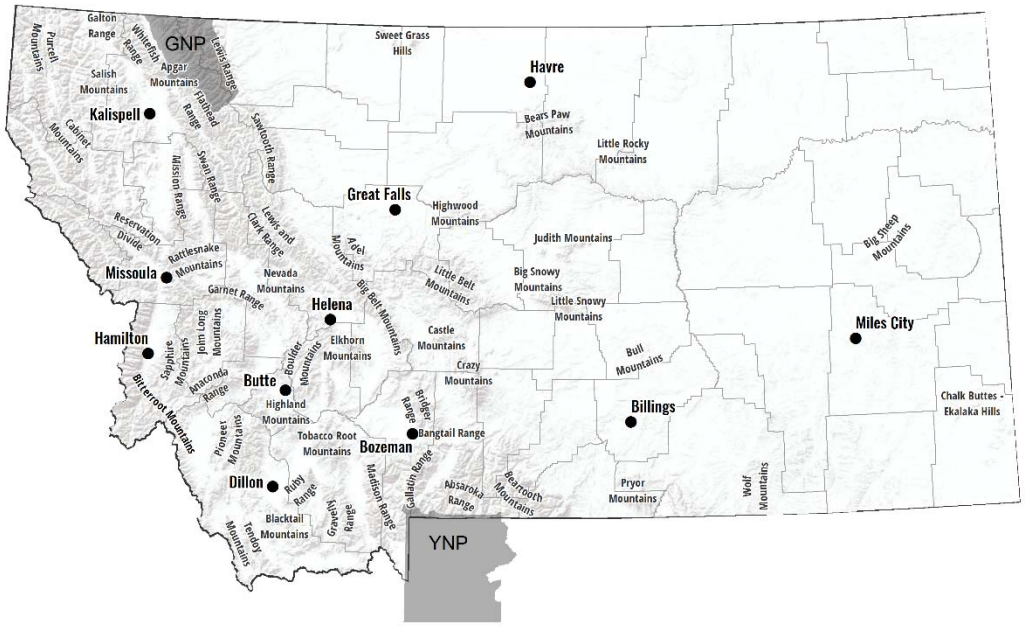
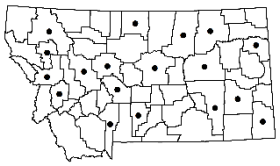



**Figure 2**. Geographical locations for Montana's larger cities, mountain ranges, Glacier National Park (GNP), and Yellowtone Nationa Park (YNP).

***Abietinella abietina*** (Hedw.) M. Fleisch.

Dry, exposed calcareous soil and rock.



***Aloina aloides* var. *ambigua*** (Bruch & Schimp.) E.J. Craig
*Barbula ambigua*

Sandstone.

****Aloina brevirostris*** (Hook. & Grev.) Kindb.

Bare or disturbed soil, often calcareous, at low to moderate elevations. Montana is the only state in the lower 48 where it has been found (FNA 2007).

***Aloina rigida*** (Hedw.) Limpr.

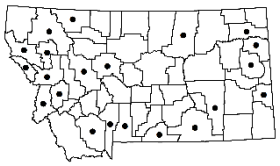
Dry soil and rock in conifer forest and plains at low to moderate elevations.

****Amblyodon dealbatus*** (Hedw.) P. Beauv.

Wet tufa face at spring. Rotten wood and organic soil of fens. Flathead County, Columbia Falls, *R. S. Williams s.n.* (NY); Cascade County, Isaac Walton Spring, *J. Elliott 4058* (MONTU).

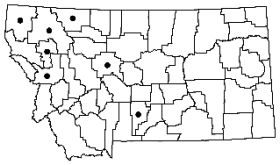
***Amblystegium serpens*** (Hedw.) Schimp.
*Amblystegium serpens* var. *juratzkanum*

Tree trunks, rotten wood, and soil in wet to dry habitats.



***Amphidium lapponicum*** (Hedw.) Schimp.

Seasonally wet rock crevices, from low to high elevations.



***Amphidium mougeotii*** (Bruch & Schimp.) Schimp.

Seasonally wet rock crevices, from low to moderate elevations.

***Anacolia menziesii*** (Turner) Paris

Humus and soil on rock ledges at moderate to high elevations.

***Andreaea blyttii*** Schimp.

Rock.
Lincoln County, Saint Paul Peak, Cabinet Range, *T. Spribille 8588* (UBC).

***Andreaea rupestris*** Hedw.

Rock faces, boulders, and walls, often wet, at moderate to high elevations.

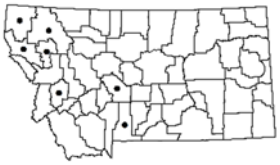
***Anomobryum concinnatum*** (Spruce) Lindb.
*Bryum concinnatum*

Acidic, damp soil over rocks and ledges at low to high elevations.
The distribution in the FNA (2014) includes Montana; however,
no herbarium specimens have been found.
This is a widespread boreal-temperate species, rarely separated from
*A. julaceum* (Spence 2014).

***Anomobryum julaceum*** (Schrad. ex G. Gaertn., B. Mey. & Scherb.) Schimp.
*Pohlia filiformes, Anomobryum filiforme*

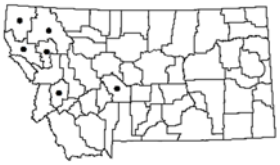
Acidic, damp soil over rocks and ledges at low to high elevations.
Park County, Cooke City, *J. Elliott 3014* (field notes);
Cascade County, Little Belt Mountains, *D. Baker s.n.* (MONTU).

***Antitrichia californica*** Sull. ex Lesq.



Rotten wood, organic soil, and humus and rock at low to moderate elevations

***Antitrichia curtipendula*** (Hedw.) Brid.
*Antitrichia curtipendula* var. *gigantea*



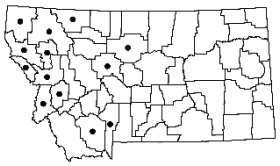
Rotten wood, soil, humus, and rock at low to high elevations.

***Arctoa fulvella*** (Dicks.) Bruch & Schimp.

Rock and soil on exposed ridges and summits, often at the edges of
snowfields with *Kiaeria falcata* (Newmaster 2007).
The distribution in the FNA (2007) includes Montana; however,
no herbarium specimens or collection records were found.

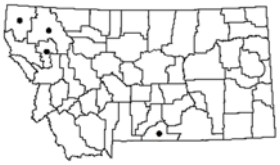
***Atrichum selwynii*** Austin

Bare soil on disturbed sites, often root masses of overturned trees.



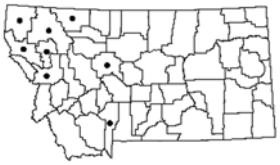
***Atrichum tenellum*** (Röhl.) Bruch & Schimp.

Clay or sandy soil in exposed habitats.



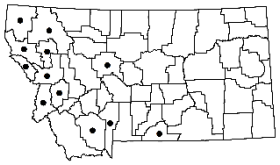
***Atrichum undulatum*** (Hedw.) P. Beauv.

This species has been misidentified in North America and most records are probably *Atrichum selwynii*.
*Atrichum undulatum* is a European species that has was introduced to a few areas of the United States (Smith and Ireland 2007).



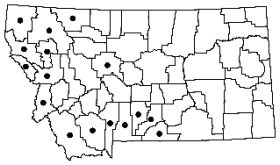
***Aulacomnium androgynum*** (Hedw.) Schwägr.

Soil in wetlands, including fens, marshes, and swamps.



***Aulacomnium palustre*** (Hedw.) Schwägr.

Soil in wetlands, including fens, marshes, and swamps.



***Barbula convoluta*** Hedw.

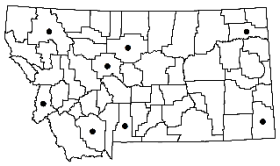
Soil and rock.

***Barbula convoluta* var. *eustegia*** (Cardot & Thér.) R. H. Zander
*Barbula eustegia*

Soil in conifer forest.
The distribution in the FNA (2007) includes Montana; however, no herbarium specimens or collection records were found.

***Barbula unguiculata*** Hedw.

Soil and walls, usually calcareous.



***Bartramia ithyphylla*** Brid.

Exposed organic soil in alpine tundra.

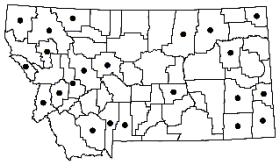
***Bartramia pomiformis*** Hedw.

Soil and soil over rock.

***Blindia acuta*** (Hedw.) Bruch & Schimp.

Moist, often dripping rock faces in alpine and montane habitats.

***Brachytheciastrum collinum*** (Schleich. ex Müll. Hal.) Ignatov & Huttunen
*Brachythecium collinum*

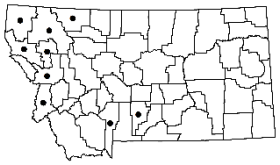


Soil and soil over rock.

***Brachytheciastrum fendleri*** (Sull.) Ochyra & Żarnowiec
*Brachythecium fendleri*

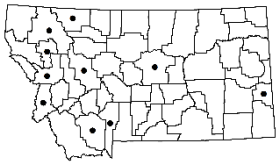
Previously, a synonym of the widespread *B. collinum* (Ignatov 2014).
Rock and soil over rock at high elevations.
Cascade County, Belt Mountains, *R. S. Williams s.n.* (WIS).

***Brachytheciastrum leibergii*** (Grout) Ignatov & Huttunen
*Brachythecium leibergii*



Soil, humus, rotting logs, and tree bases in conifer forests.

***Brachytheciastrum velutinum*** (Hedw.) Ignatov & Huttunen
*Bracythecium velutinum*



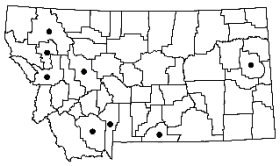
Mineral soil, humus, rotting wood, and tree bases from low to high elevations.

***Brachytheciastrum velutinum* var. *salicinum*** (Schimp.) Ochyra & Żarnowiec

Rock and soil.
The distribution in the FNA (2014) includes Montana; however, no herbarium specimens or collection records were found.

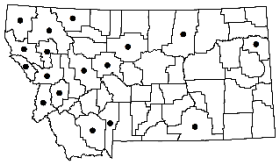
***Brachythecium acutum*** (Mitt.) Sull.

Rotten wood and humus in wetlands.



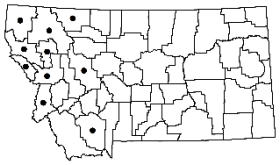
***Brachythecium albicans*** (Hedw.) Schimp.

Soil and humus, often relatively dry and disturbed sites.



***Brachythecium asperrimum*** (Mitt. ex Müll. Hal.) Sull.

Soil, rotting wood, and lower tree trunks.



***Brachythecium campestre*** (Müll. Hal.) Schimp.
*Brachythecium calcareum*

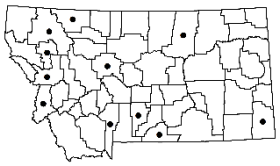
Soil, limestone, concrete, and lower tree trunks.

***Brachythecium cirrosum*** (Schwägr.) Schimp.
*Cirriphyllum cirrosum*

Seasonally wet rock in subalpine.
Lewis and Clark County, Rogers Pass, *J. Elliott 4003* (MONTU).

***Brachythecium erythrorrhizon*** Schimp.

Soil and humus.

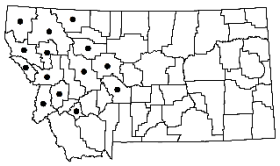


***Brachythecium erythrorrhizon*** Schimp. **var. *erythrorrhizon***

Soil and duff.

***Brachythecium frigidum*** (Müll. Hal.) Besch.

Wetlands, often emergent from springs and streams.

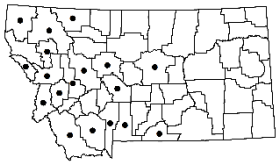


***Brachythecium laetum*** (Brid.) Schimp. in Bruch & Schimp.
*Brachythecium oxycladon*

Soil in dry conifer forest.

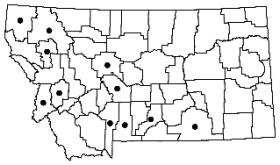
***Brachythecium rivulare*** Schimp. in Bruch & Schimp.

Wet soil and rocks near streams, often emergent from water.



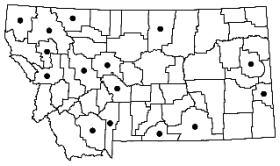
***Brachythecium rutabulum*** (Hartm.) Kindb.

Moist soil, rock, and wood.
A taxonomically difficult species that may be confused with *Brachythecium salebrosum* (Crum and Anderson 1981).



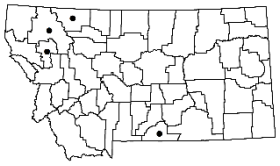
***Brachythecium salebrosum*** (Hoffm. ex F. Weber & D. Mohr) Schimp.

Humus and rotten wood in forests.



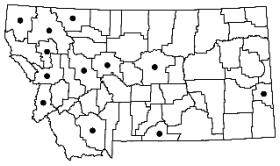
****Brachythecium turgidum*** (Hartm.) Kindb.

Wet soil or rocks in alpine and subalpine meadows and fens.



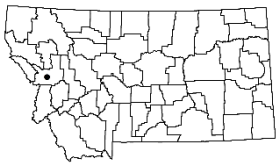
***Bryoerythrophyllum recurvirostrum*** (Hedw.) P. C. Chen
*Bryoerythrophyllum recurvirostre*

Soil and rock, often calcareous.



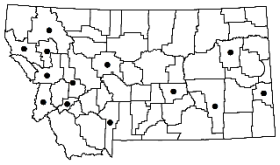
***Bryolawtonia vancouveriensis*** (Kindb.) D. H. Norris & Enroth
*Bestia occidentalis, Bestia holzingeri, Bestia vancouveriensis, Heterocladium vancouveriense, Hypnum occidentale, Isothecium occidentale, Porotrichum vancouveriense, Pseudoleskea occidentalis, Thamnium hozingeri, Thamnium vancouveriense, Thuidium vancouveriense*

Shaded rock and broad-leaved tree bark.
Missoula County, Lolo National Forest, *F. Hermann 20,179* (MONTU).



***Bryum argenteum*** Hedw.

A pioneer species on soil and in rock and concrete crevices.
Many collections of *B. argenteum* deposited at MONTU are *B. lanatum*.

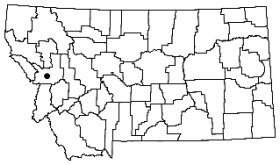


***Bryum blindii*** Bruch & Schimp.

Calcareous mineral soil.
The distribution in the FNA (2014) includes Montana; however, no herbarium specimens or collection records were found.

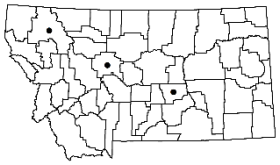
***Bryum calobryoides*** J. R. Spence

Calcareous damp soil and rocks from moderate to high elevations.
Missoula County, Mount Sentinal, *B. McCune 4,072* (COLO).



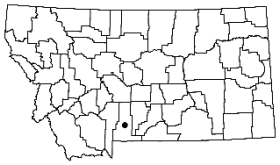
***Bryum lanatum*** (P. Beauv.) Brid.

Soil and rock crevices.
Typically considered a variety of *B. argenteum*, but *B. lanatum* is characteristic of native undisturbed plant communities, whereas, *B. argenteum* is typical of highly disturbed sites (Spence 2014). Herbarium collections of *B. argenteum* likely include specimens of *B. lanatum*.



***Bryum veronense*** De Not.

Damp soil.
Park County, Lower Aero Lake, *P. Lesica s.n.* (MONTU).

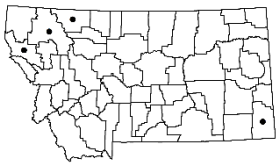


***Buckiella undulata*** (Hedw.) Ireland
*Hypnum undulatum, Neckeropsis undulatum, Plagiothecium undulatum, Stereodon undulates*

Wet soil at calcareous spring.

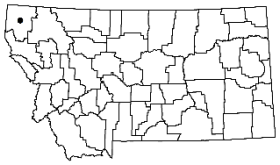
***Bucklandiella affinis*** (Schleich. ex F. Weber & D. Mohr) Bedn.-Ochyra & Ochyra
*Racomitrium affine*

Acidic moist and periodically dry soil (Ochyra and Bednarek-Ochyra 2007).



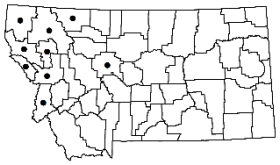
***Bucklandiella brevipes*** (Kindb.) Bedn.-Ochyra & Ochyra
*Racomitrium brevipes*

Dry and exposed acidic rocks in mountains.
Lincoln County, Whitefish Range, *T. Spribille 4126A* (personal herbarium).



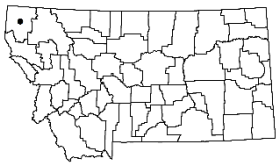
***Bucklandiella heterosticha*** (Hedw.) Bedn.-Ochyra & Ochyra
*Racomitrium heterostichum, Trichostomum heterosticha*

Dry and exposed acidic rocks and cliffs.



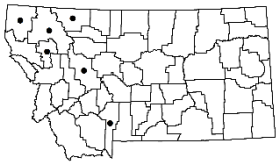
***Bucklandiella macounii*** (Kindb.) Bedn.-Ochyra & Ochyra
*Racomitrium brevipes*

Wet rocks in streams and near waterfalls, and wet barren soil.
Glacier County, Logan Pass, GNP, *W. Schofield 12,288* (NY).



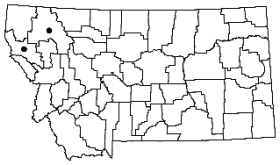
***Bucklandiella macounii* subsp. *alpina*** (E. Lawton) Bedn.-Ochyra & Ochyra
*Racomitrium sudeticum*

Montane species on wet rock faces and rocky soils near streams and in late snow patches (Ochyra and Bednarek-Ochyra 2007).



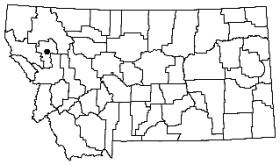
***Bucklandiella macounii*** (Kindb.) Bedn.-Ochyra & Ochyra
**subsp. *macounii***

Acidic rocks in streams and waterfalls.
Flathead County, GNP, *H. Hermann 20,756* (NY).



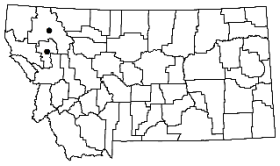
***Bucklandiella microcarpa*** (Hedw.) Bedn.-Ochyra & Ochyra
*Racomitrium microcarpon, Racomitrium heterostichum* var. *microcarpon*

Acidic rocks, cliffs, and soil, often in late-snow areas.



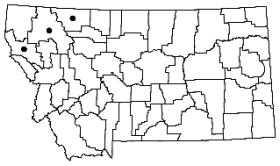
***Bucklandiella occidentalis*** (Renauld & Cardot) Bedn.-Ochyra & Ochyra
*Racomitrium occidentale*

Moist and dry acidic rocks over a range of elevations.



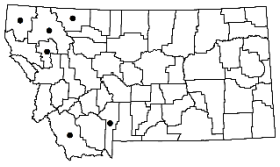
***Bucklandiella pacifica*** (Ireland & J. R. Spence) Bedn.-Ochyra & Ochyra

Wet rock in or near streams.



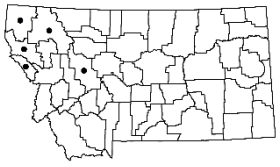
***Bucklandiella sudetica*** (Funck) Bedn.-Ochyra & Ochyra
*Racomitrium sudeticum*

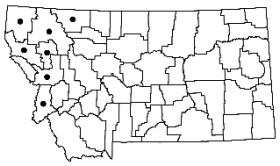
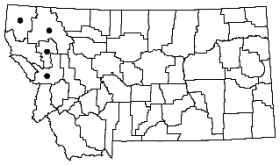
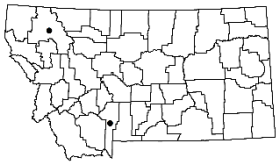
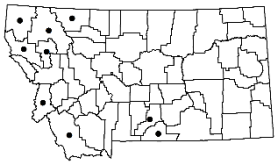
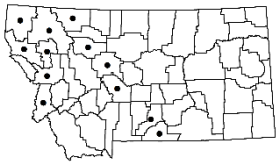
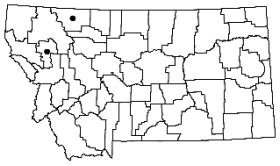
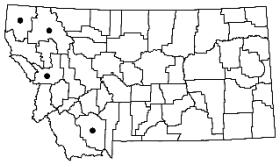
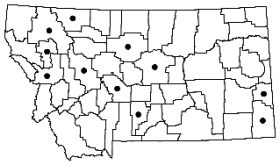
Dry, exposed or sheltered acidic rock and talus slopes.



***Buxbaumia aphylla*** Hedw.

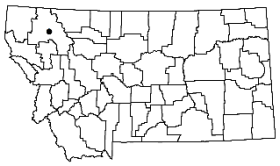
Shallow, acidic soil in mountains.



| | |
|---|---|
| ***Buxbaumia piperi*** Best<br><br>Rotting logs. |  |
| ***Buxbaumia viridis*** (DC.) Moug. & Nestl.<br><br>Rotting wood. |  |
| ****Callicladium haldanianum*** (Grev.) H. A. Crum<br><br>Logs and stumps in forests. |  |
| ***Calliergon cordifolium*** (Hedw.) Kindb.<br><br>Wetlands and shallow water. |  |
| ***Calliergon giganteum*** (Schimp.) Kindb.<br><br>Mineral-rich wetlands and shallow water. |  |
| ****Calliergon richardsonii*** Kindb. ex G. Roth<br><br>Mineral-rich wetlands and shallow water. |  |
| ***Calliergonella cuspidata*** (Hedw.) Loeske<br><br>Calcareous wetlands and watered lawns. |  |
| ***Campyliadelphus chrysophyllus*** (Brid.) Kanda<br>*Campylium chrysophyllum*<br><br>Mineral-rich rock and soil, often temporarily wet. |  |

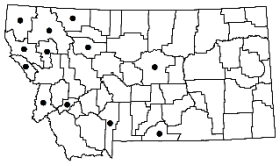
***Campylium protensum*** (Brid.) Kindb.
*Campylium stellatum* var. *protensum*

Mineral-rich wetlands.
Flathead County, Avalanche Basin, GNP, *J. Holzinger 60* (NY);
Flathead County, Hidden Lake Trail, GNP, *F. Hermann 18,313* (NY).



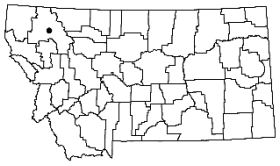
***Campylium stellatum*** (Hedw.) C. E. O. Jensen

Mineral-rich wetlands.



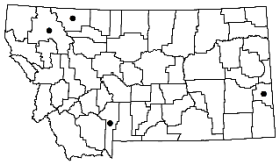
***Campylophyllum halleri*** (Hedw.) M. Fleisch.
*Campylium halleri*

Calcium-rich rock in mountains.



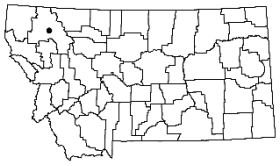
***Campylophyllum hispidulum*** (Brid.) Hedenäs
*Campylium hispidulum*

Soil, tree bases, and decaying wood.



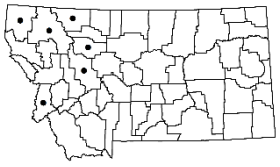
***Campylopus flexuosus*** (Hedw.) Brid.
*Campylopus paradoxus, Dicranum flexuosum*

Humus-covered boulders and peaty soil.
Flathead County, Columbia Falls, *R. S. Williams s.n.* (MSC).



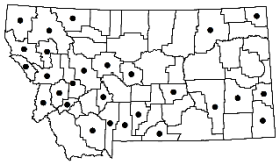
****Catoscopium nigritum*** (Hedw.) Brid.

Circumboreal species restricted to calcareous fens and wetlands.



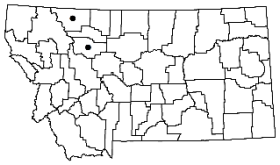
***Ceratodon purpureus*** (Hedw.) Brid.

Soil, often disturbed sites.



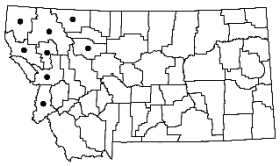
****Cinclidium stygium*** Sw.

Restricted to rich, calcareous fens and seeps.
Teton County, Pine Butte Fen, *J. Elliott 1403, 3144* (MONTU);
Glacier County, Lee Creek Fen, GNP, *P. Lesica s.n.* (field notes).



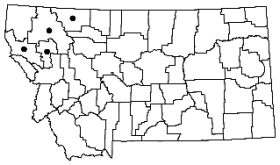
***Claopodium bolanderi*** Best

Rock and soil.



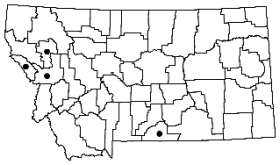
***Claopodium crispifolium*** (Hook.) Renauld & Cardot

Wet soil.



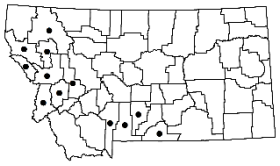
***Climacium americanum*** Brid.

Wet soil at margins of streams, ponds, and wetlands.



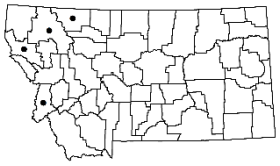
***Climacium dendroides*** (Hedw.) F. Weber & D. Mohr

Wet soil at the edges of streams and wetlands.



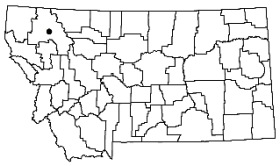
***Codriophorus acicularis*** (Hedw.) Beauv.
*Racomitrium aciculare*

Rock in and near streams.



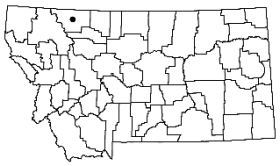
***Codriophorus fascicularis*** (Schrad. ex Hedw.) Bedn.-Ochyra & Ochyra
*Racomitrium fasciculare*

Rock in montane habitats.
Flathead County, Lake MacDonald, GNP, *R. S. Williams 313* (COLO).



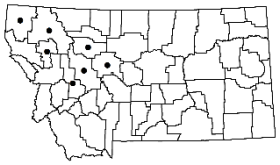
***Codriophorus ryszardii*** (Bedn.-Ochyra) Bedn.-Ochyra & Ochyra
*Racomitrium aquaticum*

Moist to dry granite near streams at low to high elevations.
Specimens identified as *R. aquaticum* were determined to be a new species, *C. ryzardii* (Ochyra and Bednarek-Ochyra 2007).
Glacier County, GNP, *W. Schofield 12,260* (MONTU).



***Conardia compacta*** (Müll. Hal.) H. Rob.

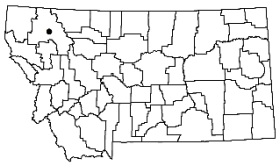
Wet rock and wood, often in calcareous fens.



***Conostomum tetragonum*** (Hedw.) Lindb.

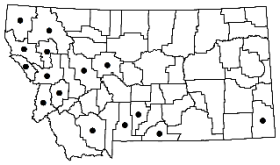
Moist soil and rock in alpine areas.

J. Holzinger's and W. Schofield's collections are from GNP.



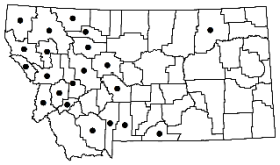
***Coscinodon calyptratus*** (Drumm.) C. E. O. Jensen
*Grimmia calyptrata*

Dry rock.



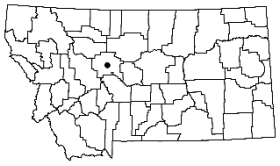
***Cratoneuron filicinum*** (Hedw.) Spruce

Wet soil and rock.



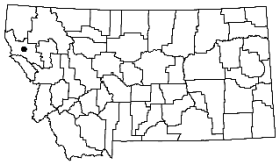
***Crumia latifolia*** (Kindb.) W. B. Schofield

Wet rock and soil.
Cascade County, banks of Missouri River prior to dam construction, *R. S. Williams 120* (MIN, F, WIS, WTU).



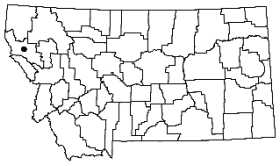
***Cynodontium glaucescens*** (Lindb. & Arnell) Paris

Soil over rock.
Sanders County, near Paradise, *G. Moore and P. Lesica s.n.* (MONTU).



***Cynodontium jenneri*** (Schimp.) Stirt.

Shady rock and soil over rock.
Sanders County, Cascade Creek, *G. Moore and P. Lesica s.n.* (MONTU).

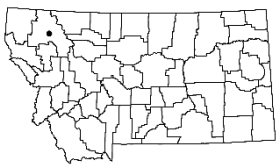


***Cynodontium polycarpon*** (Hedw.) Schimp.

Shady acidic rock and soil over rock.
The distribution in the FNA (2007) includes Montana; however, no herbarium specimens or collection records were found.

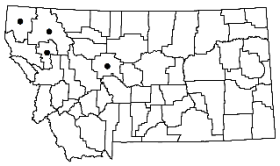
***Cynodontium schisti*** (F. Weber & D. Mohr) Lindb.

Rock crevices and soil over rock.
Flathead County, Bad Rock Canyon, *R. S. Williams 295* (F, NY, MIN, WIS).



***Cynodontium strumiferum*** (Hedw.) Lindb.

Soil over rock.



****Cynodontium tenellum*** (Schimp.) Limpr.

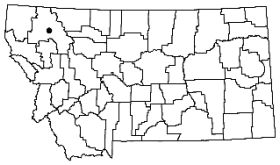
Rock and crevices.
Cascade County, Neihart, *R. S. Williams 183* (MIN, F, NY, WIS);
Beaverhead County, Pioneer Range, *P. Lesica s.n.* (MONTU).

**Cyrtomnium hymenophylloides** (Huebener) T.J. Kop.
*Mnium hymenophylloides, Astrophyllum hymendophylloides, Bryum hymenophylloides*

Wet rock in stream.
Madison Count, Tobacco Root Mountains, J. *Elliott 5045* (MONTU).

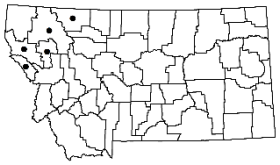
****Dendroalsia abietina*** (Hook.) E. Britton ex Broth.

Tree trunks. Flathead County, Columbia Falls, *R. S. Williams 210* (MIN, CAS, MSC, NY, WIS).



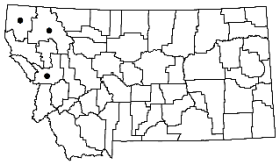
***Dichelyma uncinatum*** Mitt.

Tree trunks and branches.



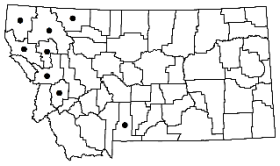
****Dichodontium olympicum*** Renauld & Cardot

Wet soil and soil over rock.



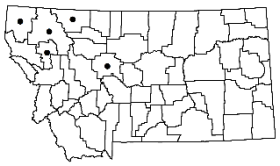
***Dichodontium pellucidum*** (Hedw.) Schimp.

Wet soil and rock.



***Dicranella crispa*** (Hedw.) Schimp.

Moist, sandy soil.



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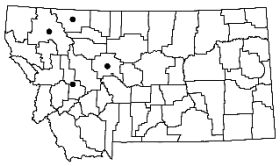
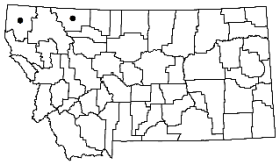
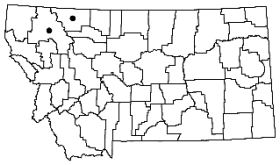
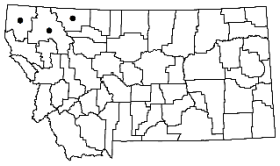
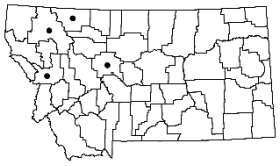
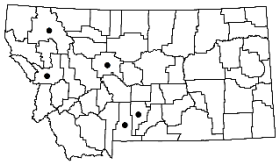
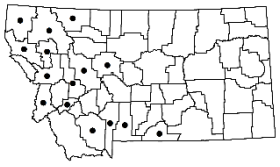
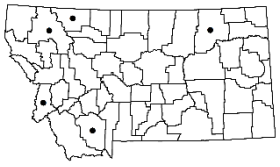
| ***Dicranella heteromalla*** (Hedw.) Schimp.<br><br>Damp soil. |  |
| ***Dicranella palustris*** (Dicks.) Crundw. ex E. F. Warb.<br><br>Wet rock and soil. |  |
| ***Dicranella schreberiana*** (Hedw.) Hilf. ex H. A. Crum & L. E. Anderson<br>*Dicranella grevilleana*<br><br>Damp soil. |  |
| ***Dicranella subulata*** (Hedw.) Schimp.<br><br>Damp soil. |  |
| ***Dicranella varia*** (Hedw.) Schimp.<br><br>Damp soil. |  |
| ***Dicranoweisia cirrata*** (Hedw.) Lindb. ex Milde<br><br>Trees, fence posts, and logs. |  |
| ***Dicranoweisia crispula*** (Hedw.) Milde<br><br>Acidic rock in coniferous forest. |  |
| ***Dicranum acutifolium*** (Lindb. & Arnell) C. E. O. Jensen<br><br>Rock outcrops and cliffs in alpine areas. |  |

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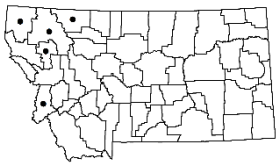
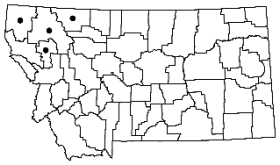
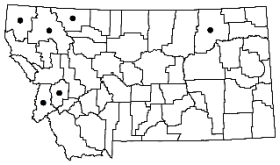
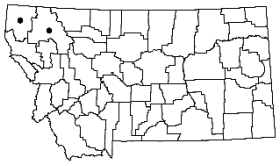
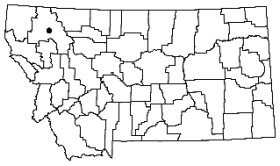
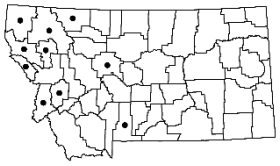
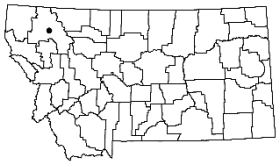
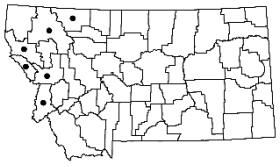
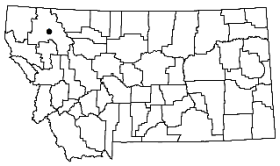
|---|---|
| ***Dicranum bonjeanii*** De Not. in Lisa<br><br>Soil, humus, and rotten wood. |  |
| ***Dicranum brevifolium*** (Lindb.) Lindb.<br><br>Humus or soil over rock at high elevations in mountains. |  |
| ***Dicranum elongatum*** Schleich. ex Schwägr.<br><br>Soil, humus, and rotting wood. |  |
| ***Dicranum flagellare*** Hedw.<br><br>Rotten wood and tree bases. |  |
| ****Dicranum fragilifolium*** Lindb.<br><br>Rotten wood and tree bases. |  |
| ***Dicranum fuscescens*** Turner<br><br>Rotten wood, tree bases, soil over rock. |  |
| ***Dicranum fuscescens*** Turner **var. *fuscescens***<br><br>Rotten wood, tree bases, and soil over rock.<br>Flathead County, Belton, GNP, *J. Holzinger s.n.* (MO). |  |
| ***Dicranum howellii*** Renauld & Cardot<br><br>Rotten wood, humus, and soil. |  |

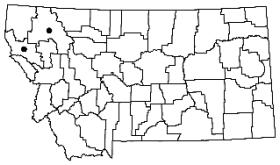
***Dicranum majus*** Turner

Rotten wood, humus, and soil.
Flathead County, Bigfork, *M. Jones 7,845* (NY).



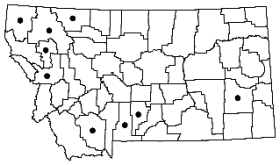
***Dicranum montanum*** Hedw.

Rotting logs, stumps, and tree bases.



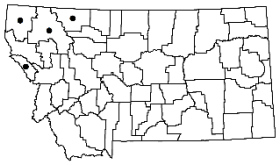
***Dicranum muehlenbeckii*** Bruch & Schimp.

Humus and sandy soil, often over boulders.



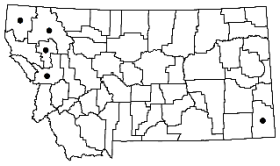
***Dicranum pallidisetum*** (J. W. Bailey) Ireland

Rotten wood, humus, and soil.



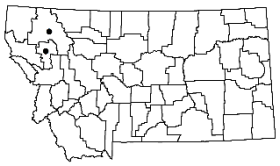
***Dicranum polysetum*** Sw.

Rotten wood, humus, and soil over rock.



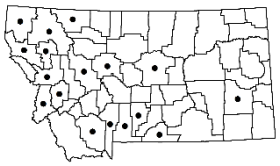
***Dicranum rhabdocarpum*** Sull.

Wet organic soil.
Flathead County, Ambrose Fen near Creston, *J. Elliott 2,528* (MONTU);
Lake County, Yellow Bay Creek, *W. Schofield 11,726* (UBC).



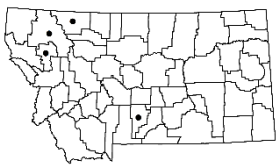
***Dicranum scoparium*** Hedw.

Rotten wood, humus, and soil over rock.



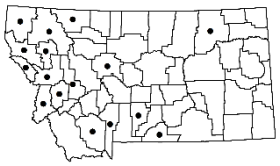
****Dicranum spadiceum*** J. E. Zetterst.
*Dicranum angustum*

Damp soil and rock in alpine areas.



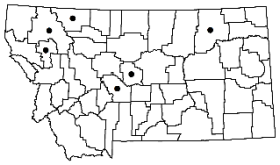
***Dicranum tauricum*** Sapjegin

Rotten wood.



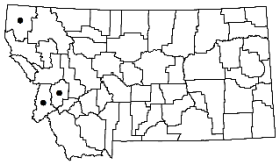
***Dicranum undulatum*** Schrad. ex Brid.

Organic soil in bogs and fens.



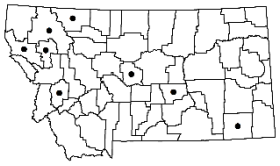
***Didymodon brachyphyllus*** (Sull.) R. H. Zander
*Didymodon vinealis* var. *brachyphyllus*

On dry soil and rock, including volcanic ash outcrops and mortar.



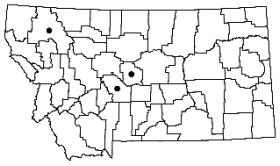
***Didymodon fallax*** (Hedw.) R. H. Zander
*Barbula fallax*

Soil, sandstone, conglomerate, and concrete.



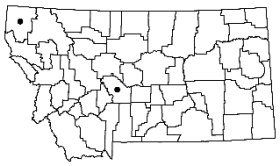
***Didymodon ferrugineus*** (Schimp. ex Besch.) M. O. Hill
*Didymodon fallax* var. *reflexus*

Soil and rock outcrops in wet areas and tundra.



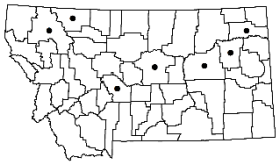
***Didymodon nicholsonii*** Culm.
*Didymodon vinealis* var. *nicholsonii*

Wet rocks on stream banks and canyon walls at low to high elevations. Meagher County, Tenderfoot Creek in the Belt Mountains, *R. S. Williams 142* (COLO); Lincoln County, Kootenai Falls, *S. Flowers 10,252* (MO).



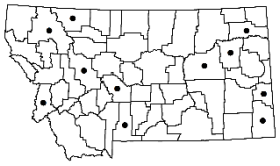
***Didymodon rigidulus*** Hedw.
*Barbula rididula*

Calcareous rock, cliffs, and soil.



***Didymodon rigidulus* var. *gracilis*** (Hook. & Grev.) R. H. Zander

Soil, calcareous outcrops, and basalt.



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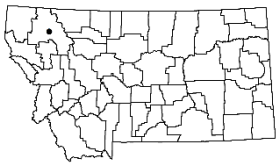
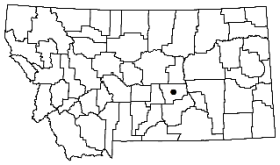
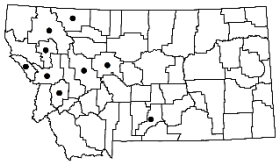
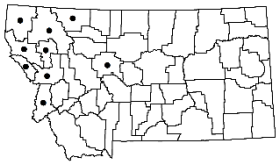
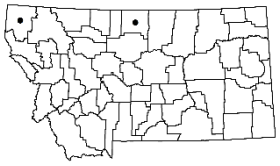
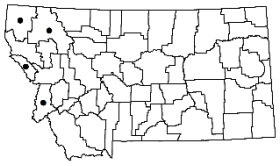
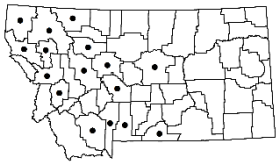
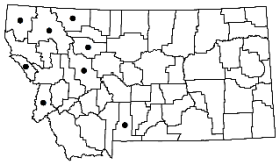
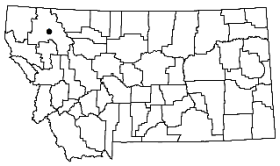
|---|---|
| ***Didymodon rigidulus* var. *icmadophilus*** (Schimp. ex Müll. Hal.) R.H. Zander<br>*Barbula icmadophila*<br><br>Limestone, sandstone, and soil. |  |
| ***Didymodon tectorum*** (Müll. Hal.) K. Saito<br><br>Soil over rock. |  |
| ***Didymodon tophaceus*** (Brid.) Lisa<br><br>Wet soil and rock. |  |
| ***Didymodon vinealis*** (Brid.) R. H. Zander<br><br>Wet soil and rock. |  |
| ***Didymodon vinealis* var. *rubiginosus*** (Mitt.) R. H. Zander<br><br>Rock and soil. |  |
| ***Didymodon vinealis*** (Brid.) R. H. Zander **var. *vinealis***<br><br>Calcareous rock, granite, sandstone, and volcanic ash. |  |
| ***Distichium capillaceum*** (Hedw.) Bruch & Schimp.<br><br>Soil and soil over rock. |  |
| ****Distichium inclinatum*** (Hedw.) Bruch & Schimp.<br><br>Soil and soil over rock, often calcareous. |  |

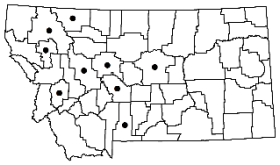
***Ditrichum ambiguum*** Best

Damp soil.
Flathead County, near Essex, *R. S. Williams 241* (MIN, WIS).



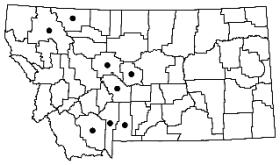
***Ditrichum flexicaule*** (Schwägr.) Hampe

Calcareous rock and soil.



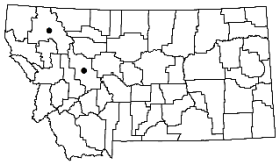
***Ditrichum gracile*** (Mitt.) Kuntze
*Ditrichum crispatissimum*

Soil and rocks at moderate to high elevations.



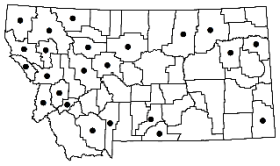
***Ditrichum heteromallum*** (Hedw.) E. Britton

Damp soil over range of elevations.



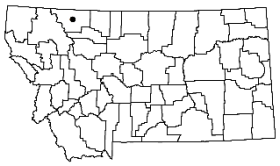
***Drepanocladus aduncus*** (Hedw.) Warnst.

Wet soil, sometimes semi-aquatic.



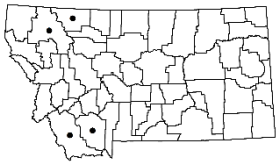
***Drepanocladus cardotii*** (Thér.) Hedenäs
*Campylium cardotii*

J. Holzinger's collection is from the Avalanche Basin in GNP (Jones 1910, Hedenas 1997). This is the only known occurrence in the world (Hedenas 2014).



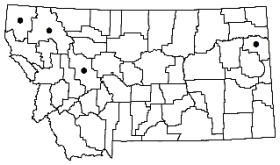
***Drepanocladus longifolius*** (Wilson ex Mitt.) Broth. ex Paris
*Drepanocladus capillifolius*

Wet soil.



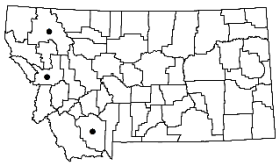
***Drepanocladus polygamus*** (Schimp.) Hedenäs
*Campylium polygamum*

Organic soil in mineral-rich wetlands.



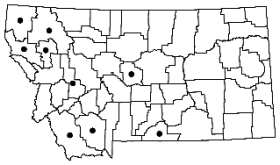
***Drepanocladus sordidus*** (Müller Hal.) Hedenäs

Wet soil in mineral-rich wetlands.
Specimens were identified as *Drepanocladus sendtneri* (Schimp.) Warnst., but are referred to here as *Drepanocladus sordidus*. Apparently, *D. sendtneri* is restricted to Eurasia and Africa and is distinguished from *D. sordidus* by a different ratio of medial laminal cell length to leaf length (Hedenäs *in* FNA 2014).



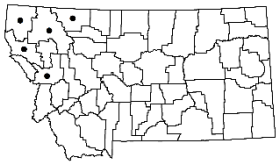
***Elodium blandowii*** (F. Weber & D. Mohr) Eckel
*Helodium blandowii*

Wet soil and humus in bogs and fens.



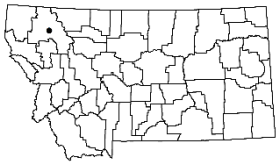
***Encalypta affinis*** R. Hedw.

Soil over rock.



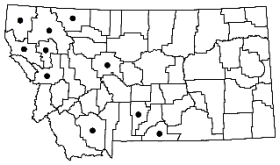
***Encalypta alpina*** Sm.

Soil and rock around waterfalls and seeps in montane habitats.
Flathead County, Mineral Park, GNP, *M. Jones 11,077* (MO).



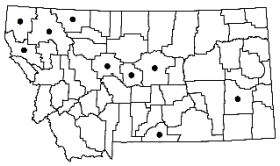
***Encalypta ciliata*** Hedw.

Soil over rock.



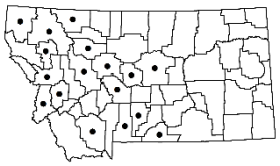
***Encalypta procera*** Bruch

Soil over rock.



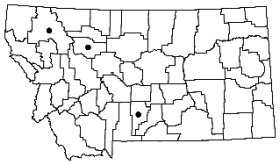
***Encalypta rhaptocarpa*** Schwägr.

Soil over rock.



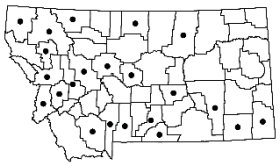
***Encalypta spathulata*** Müll. Hal.

Forms extensive mats on disturbed, calcareous soils.



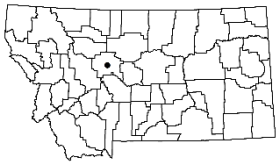
***Encalypta vulgaris*** Hedw.

Soil over rock.



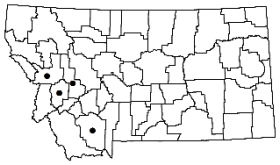
****Entosthodon rubiginosus*** (R. S. Williams) Grout

Dry soil.
Cascade County, Missouri River near Great Falls prior to dam construction, *R. S. Williams 31* (DUKE).



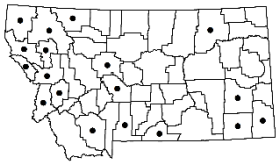
****Eucladium verticillatum*** (Brid.) Bruch & Schimp.

Wet, calcareous/tufa deposits at springs.



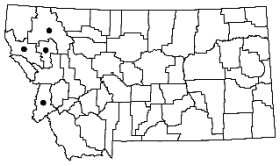
***Eurhynchiastrum pulchellum*** (Hedw.) Ignatov & Huttunen
*Eurhynchium pulchellum*

Rotten wood, humus, and tree bases.



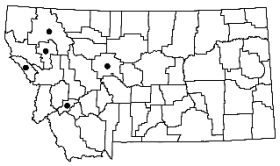
***Eurhynchiastrum pulchellum* var. *barnesii*** (Renauld & Cardot) Ignatov
*Eurhynchium pulchellum* var. *barnesii*

Soil, rock, and decaying logs.



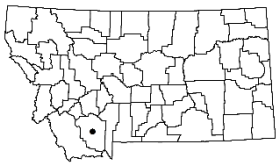
***Eurhynchiastrum pulchellum*** (Hedw.) Ignatov & Huttunen **var. *pulchellum***
*Eurhynchium pulchellum* var. *pulchellum*

Soil, rock, and decaying logs in forest.



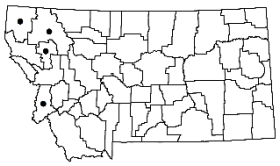
****Fabronia pusilla*** Raddi

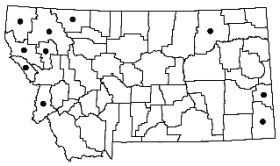
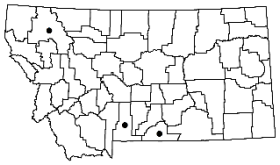
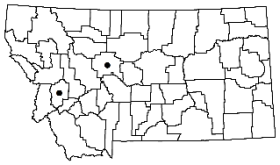
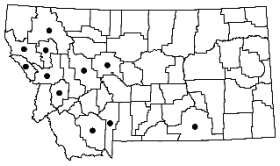
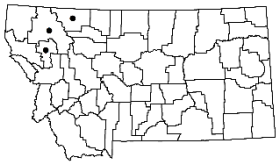
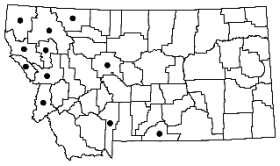
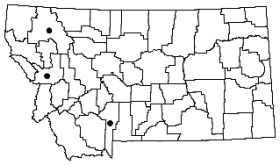
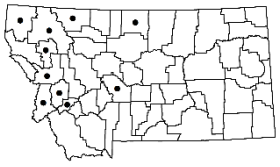
Rock and tree bases.
Madison County, granite along the South Fork of Willow Creek, *J. Elliott 1817* (MONTU).



***Fissidens adianthoides*** Hedw.

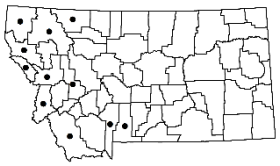
Moist soil, rock, and logs.



| | |
|---|---|
| ***Fissidens bryoides*** Hedw.<br><br>Shaded moist soil and rocks. |  |
| ***Fissidens crispus*** Mont.<br><br>Moist, shaded soil over rocks near streams. |  |
| ****Fissidens fontanus*** (Bach. Pyl.) Steud.<br><br>Submerged in springs, attached to wood and rocks. |  |
| ***Fissidens grandifrons*** Brid.<br><br>Wet limestone, often submerged. |  |
| ***Fissidens osmundioides*** Hedw.<br><br>Moist soil, rock, and wood. |  |
| ***Fontinalis antipyretica*** Hedw.<br>*Fontinalis antipyretica* var. *oregonensis*<br><br>Moist soil, rock, and wood. |  |
| ***Fontinalis howellii*** Renauld & Cardot<br><br>Substrates in streams, wetlands, and pools, often seasonally dry. |  |
| ***Fontinalis hypnoides*** Hartm.<br>*Fontinalis duriaei*<br><br>Flowing streams. |  |

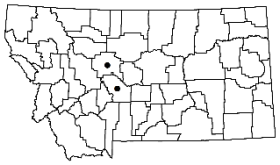
***Fontinalis neomexicana*** Sull. & Lesq.

Flowing streams and pools.



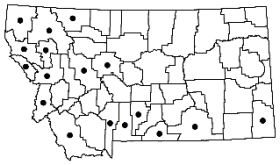
***Funaria americana*** Lindb.

Moist soil and humus.
Cascade County, Tenderfoot Creek drainage of Belt Mountains, *R. S. Williams 49* (MIN, MSC, NY, WIS, MU, YU).



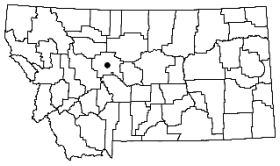
***Funaria hygrometrica*** Hedw.

Disturbed soil, often following fire.



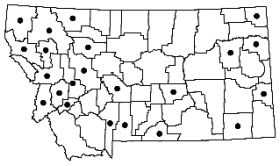
***Funaria muhlenbergii*** Turner

Exposed calcareous soils, often disturbed habitats along river bluffs.
These are R. S. Williams collections.



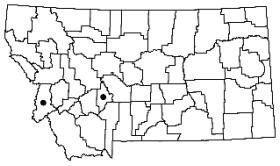
***Gemmabryum caespiticium*** (Hedw.) J. R. Spence
*Bryum caespiticium*

Soil, often disturbed sites.



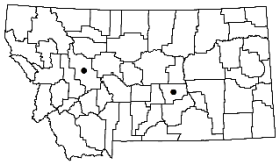
***Gemmabryum dichotomum*** (Hedw.) J. R. Spence & H. P. Ramsay
*Bryum bicolor, Bryum dichotomum*

Dry soil.
Broadwater County, Missouri Headwaters State Park, *C. Darigo 3786* (MO); Ravalli County, Birch Creek, *J. Hoy 306C* (personal herbarium).



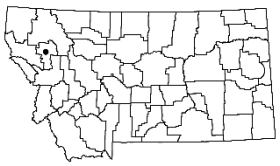
***Gemmabryum kunzei*** (Hornsch.) J. R. Spence
*Bryum kunzei*

Soil.
Musselshell County, Milton Ranch, *A. Pipp 2016-016* (MONTU);
Lewis and Clark County, MacDonald Pass, *J. Elliott 3,299* (MONTU).



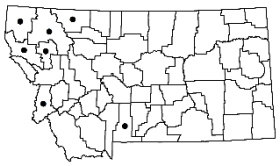
***Gemmabryum violaceum*** (Crundw. & Nyholm) J. R. Spence
*Bryum violaceum*

Damp soil.
Flathead County, Flathead Lake, *W. Schofield s.n.* (UBC).



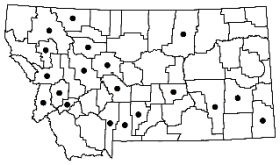
***Grimmia alpestris*** (F. Weber & D. Mohr) Schleich.

Acidic rock on warm, dry sites.



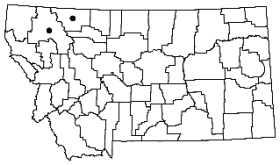
***Grimmia anodon*** Bruch & Schimp.

Calcareous sandstone, limestone and concrete.



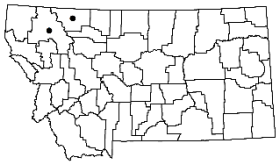
***Grimmia anomala*** Hampe ex Schimp.
*Grimmia hartmanii* subsp. *anomala*

Damp acidic rock in boreal and alpine meadows and slopes.



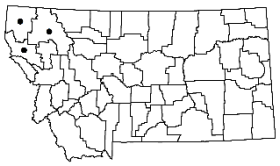
***Grimmia attenuata*** (Müll. Hal. & Kindb.) Kindb.
*Racomitrium alternuatum*

Dry rock at low to high elevations.
Herbarium specimens are often misidentified as *Racomitrium heterostichum* (Hastings and Greven 2007).



****Grimmia brittoniae*** R. S. Williams

Vernally moist rock faces.
Endemic to Montana and Idaho. R. S. Williams' type specimen is from Bad Rock Canyon near Columbia Falls (Williams 1900).

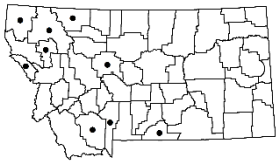


***Grimmia caespiticia*** (Brid.) Jur.

Exposed acidic granite and quartzite.

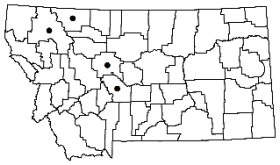
***Grimmia donniana*** Sm.

Acidic granite and sandstone.



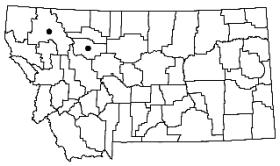
***Grimmia elatior*** Bruch ex Bals.-Criv. & De Not.

Exposed, dry rock.



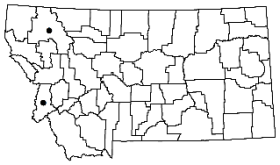
***Grimmia funalis*** (Schwägr.) Bruch & Schimp.

Damp, acidic rock.



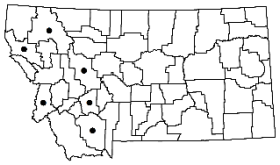
****Grimmia incurva*** Schwägr.

Shaded, damp, acidic rock.



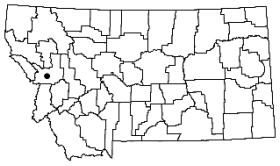
***Grimmia laevigata*** (Brid.) Brid.

Rock.



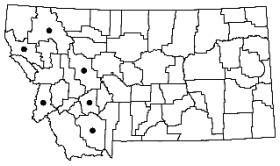
***Grimmia leibergii*** Paris
*Grimmia jacutica*

Dry acidic boulders at moderate elevations.
Often identified as a variety of *Racomitrium heterostichum*; consequently, it has not been commonly recognized in North America (Hastings and Greven 2007).
Missoula County, Lolo Hot Springs, *F. Hermann 20,167* (MICH).



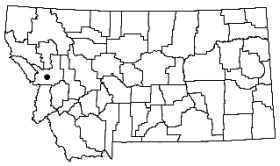
***Grimmia lisae*** DeNot.

Rock in full sun.
Park County, dry sagebrush steppe in YNP, *J. Harpel 41,761* (YELLO).



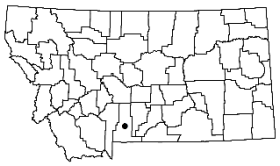
***Grimmia longirostris*** Hook.
*Grimmia affinis*

Dry, acidic granite and quartzite.



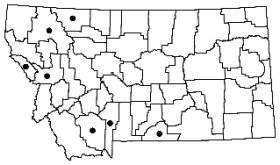
****Grimmia mollis*** Bruch & Schimp.
*Hydrogrimmia mollis*

Rock in or near mountain streams.



***Grimmia montana*** Bruch & Schimp.

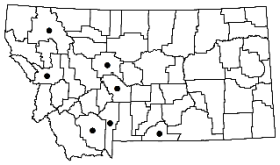
Exposed acidic granite and sandstone.



***Grimmia orbicularis*** Bruch in Smith

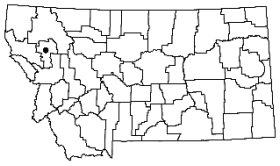
Dry, warm rocks.
Known mostly from scattered locations in the southwestern United States. The distribution in the FNA (2007) includes Montana, which is the northern-most location; however, no herbarium specimens or collection records were found.

***Grimmia ovalis*** (Hedw.) Lindb.



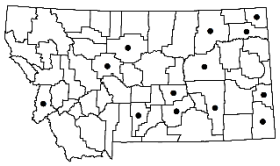
Dry, partially exposed, acidic granite, sandstone, and basalt.

***Grimmia pilifera*** P. Beauv.
*Grimmia pennsylvanica*



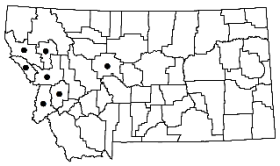
On a variety of rock types. Rare in the western United States (Hastings and Greven 2007). Lake County, University of Montana Biological Station, *M. Robertson s.n.* (PH).

***Grimmia plagiopodia*** Hedw.



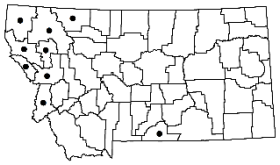
Sandstone, limestone, and volcanic ash.

***Grimmia pulvinata*** (Hedw.) Sm.



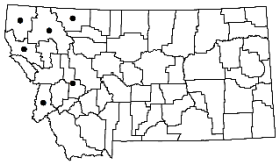
Acidic and basic rock, old concrete, and tree trunks.

***Grimmia ramondii*** (Lam. & DC.) Margad.
*Dryptodon patens*



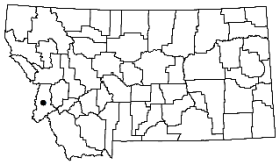
Vitt and Belland (1991) mapped its distribution, which includes a collection from Carbon County, the eastern-most record in North America.

***Grimmia sessitana*** De Not.
*Grimmia tenerrima*

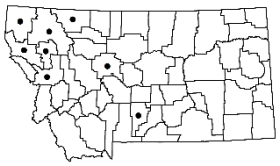
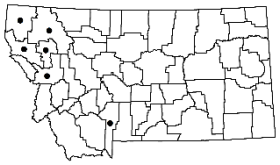
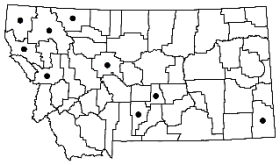
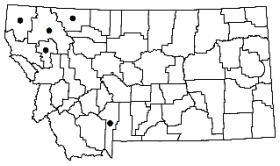
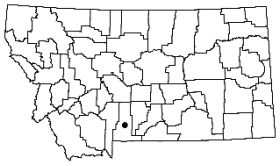
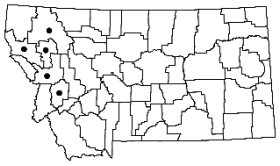
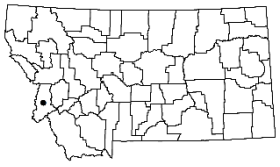
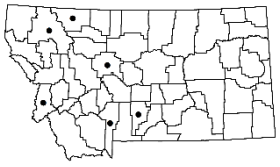


Exposed or sheltered sites on acidic granite and sandstone at moderate to high elevations.

***Grimmia teretinervis*** Limpr.

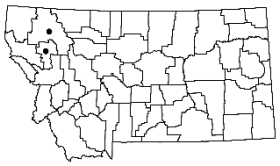


Moist calcareous rock at moderate to high elevations.

| | |
|---|---|
| ***Grimmia torquata*** Drumm.<br><br>Acidic rock, often vertical faces. |  |
| ***Grimmia trichophylla*** Grev.<br><br>Dry acidic rock. |  |
| ***Gymnostomum aeruginosum*** Sm.<br><br>Moist rock, often limestone. |  |
| ****Hamatocaulis vernicosus*** (Mitt.) Hedenäs<br>*Drepanocladus vernicosus*<br><br>Organic soil in mineral-rich wetlands. |  |
| ****Haplodontium macrocarpum*** (Hook.) J. R. Spence<br>*Bryum porsildii, Mielichhoferia macrocarpa*<br><br>Seepy rock faces at high elevations. Numerous collections, but all are from near Silver Gate and Cooke City. |  |
| ***Hedwigia ciliata*** (Hedw.) P. Beauv.<br><br>Acidic rock. |  |
| ***Hedwigia detonsa*** (M. Howe) W. R. Buck & D. H. Norris<br><br>Acidic rock and cliff faces near streams.<br>Ravalli County, near Bass Creek, *B. McCune 558* (OSC). |  |
| ****Hennediella heimii*** (Hedw.) R. H. Zander<br>*Desmatodon heimii*<br><br>Moist, often alkaline soil, including soil derived from volcanic ash. |  |

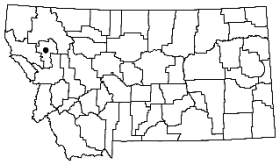
***Herzogiella seligeri*** (Brid.) Z. Iwats.

Rotten wood, rock, organic soil, and humus in coniferous forests.



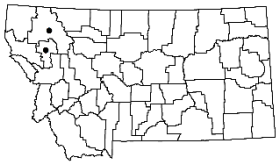
***Herzogiella striatella*** (Brid.) Z. Iwats.

Shaded soil, humus, rocks, logs, and tree bases.
Lake County, University of Montana Biological Station, *J. Shevock 15360* (CAS).



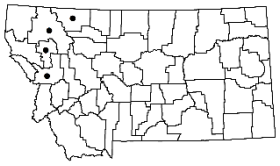
***Herzogiella turfacea*** (Lindb.) Z. Iwats.

Rotten wood, rock, organic soil, and humus in coniferous forests.



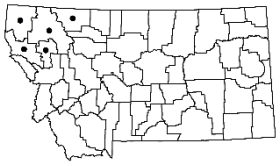
***Heterocladium dimorphum*** (Brid.) Schimp.

Rock, soil, and humus.



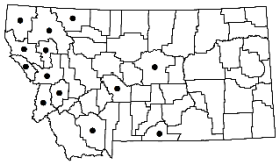
***Heterocladium procurrens*** (Mitt.) A. Jaeger

Rock, soil, rotten wood, and tree bases.



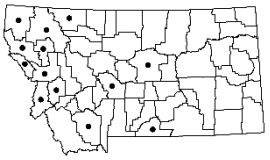
***Homalothecium aeneum*** (Mitt.) E. Lawton

Calcareous soil, rock, humus, and tree bases.



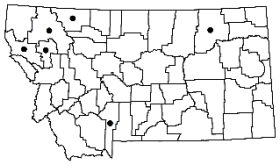
***Homalothecium aureum*** (Spruce) H. Rob.

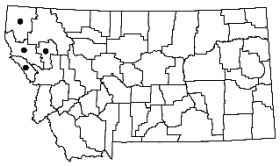
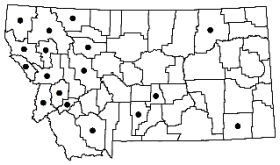
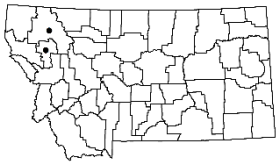
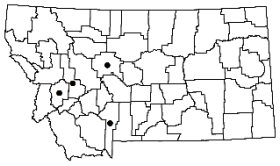
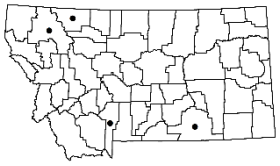
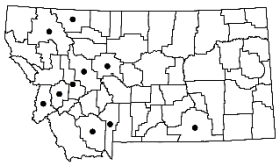
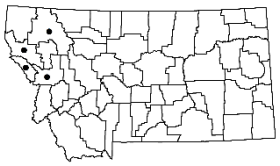
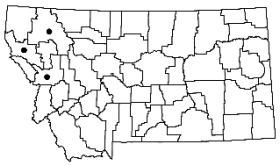
Shaded rock and rocky soil.



***Homalothecium fulgescens*** (Mitt. ex Müll. Hal.) A. Jaeger
*Homalothecium lutescens*

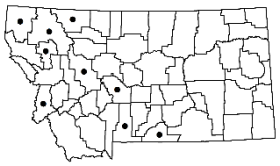
Tree bases, fallen logs, and rock.



| | |
|---|---|
| ****Homalothecium megaptilum*** (Sull.) H. Rob.<br>*Trachybryum megaptilum*<br><br>Litter, rock, soil, and humus in coniferous forests. |  |
| ***Homalothecium nevadense*** (Lesq.) Renauld & Cardot<br><br>Rock, soil, and logs. |  |
| ***Hygroamblystegium varium*** (Hedw.) Mönk.<br>*Amblystegium varium*<br><br>Wide variety of habitats. |  |
| ****Hygroamblystegium varium* subsp. *noterophilum*** (Sull. & Lesq.) Vanderp. &<br>*Amblystegium notorophyllum, Hygroamblystegium noterophilum*<br><br>Calcareous springs. |  |
| ***Hygroamblystegium varium* subsp. *varium* var. *humile*** (P. Beauv.) Vanderp. &<br>*Hygroamblystegium varium* var. *humile, Ambystegium humile,*<br>*Leptodictyum humile*<br><br>Wet meadows, fens, and marshes. |  |
| ***Hygroamblystegium varium*** (Hedw.) Mönk. **subsp. *varium* var. *varium***<br>*Hygroamblystegium fluviatile, Hygroamblystegium tenax*<br><br>Soil, rock, and tree bases, usually in wetlands. |  |
| ***Hygrohypnum alpestre*** (Hedw.) Loeske<br><br>Wet rock in montane streams. |  |
| ***Hygrohypnum alpinum*** (Lindb.) Loeske<br><br>Wet rock in montane streams. |  |

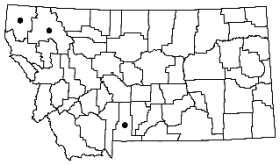
***Hygrohypnum bestii*** (Renauld & Bryhn) Holz.

Wet rock in montane streams.



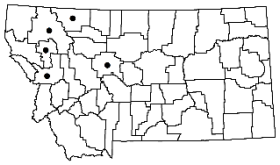
****Hygrohypnum cochleariifolium*** (Venturi) Broth.

Acidic rock in mountain streams.



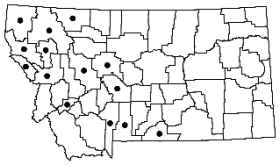
***Hygrohypnum duriusculum*** (De Not.) D. W. Jamieson

Rock in springs and streams.



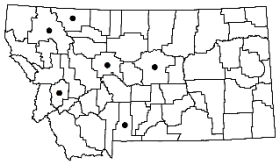
***Hygrohypnum luridum*** (Hedw.) Jenn.

Calcareous rock and wood in montane streams.



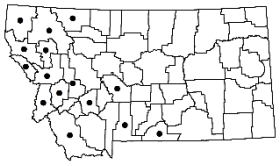
***Hygrohypnum molle*** (Hedw.) Loeske

Wet acidic rock in or near montane streams.



***Hygrohypnum ochraceum*** (Turner ex Wilson) Loeske

Acidic rock and wood in streams.

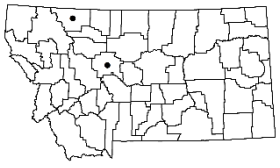


***Hygrohypnum smithii*** (Sw.) Broth.

Acidic rock in montane streams.

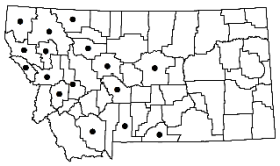
***Hygrohypnum styriacum*** (Limpr.) Broth.

Acidic rock in montane streams.



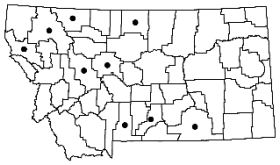
***Hylocomium splendens*** (Hedw.) Schimp.

Soil and humus in conifer forests.



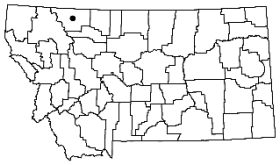
***Hymenostylium recurvirostrum*** (Hedw.) Dixon
*Hymenostylium recurvirostre*

Moist rock, often limestone.



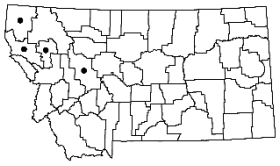
***Hypnum bambergeri*** Schimp.

Wet tundra in alpine areas.
Glacier County, Reynold Mountain in GNP, *B. McCune (s.n.) and P. Lesica* (UBC).



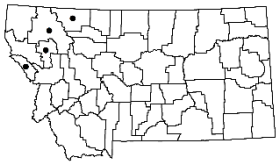
***Hypnum callichroum*** Brid.

Tree bases, soil, and rock.



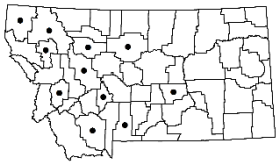
***Hypnum circinale*** Hook.

Tree bases, decaying logs, and rock.



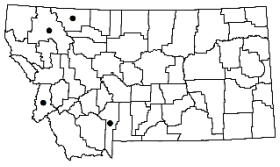
***Hypnum cupressiforme*** Hedw.

Tree bases and decaying wood.



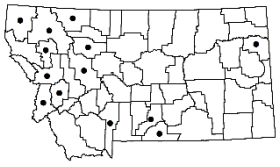
***Hypnum hamulosum*** Schimp.

Crevices in rock and soil at high elevations.



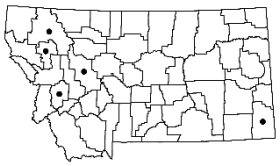
***Hypnum lindbergii*** Mitt.

Wet soil, humus, and logs.



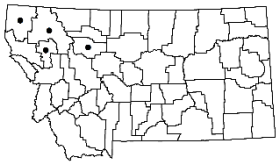
***Hypnum pallescens*** (Hedw.) P. Beauv.

Rock (usually acidic), humus, and rotting wood.



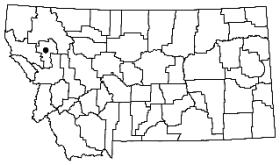
***Hypnum pratense*** W. D. J. Koch ex Spruce

Moist soil and humus.



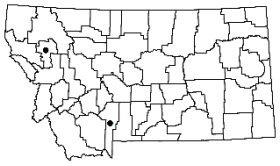
***Hypnum procerrimum*** Molendo

Rock, soil, and tree bases.
Lake County, Yellow Bay, Flathead Lake, *S. Flowers 10,130* (UTC).



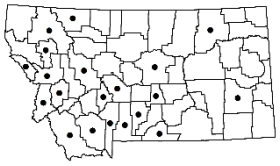
***Hypnum recurvatum*** (Lindb. & Arnell) Kindb.

Rock and soil over rock.



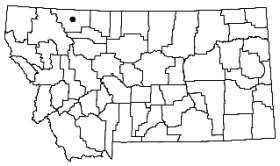
***Hypnum revolutum*** (Mitt.) Lindb.

Soil, rock, and tree bases.



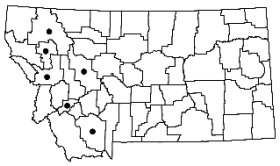
***Hypnum revolutum* var. *ravaudii*** (Boulay) Ando
*Hypnum ravaudii*

Soil, rock, tree bases, rotting logs.
Glacier County, Saint Mary Lake, GNP, *W. Schofield 11,847* (NY, VT).



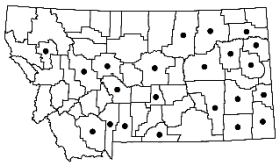
***Hypnum subimponens*** Lesq.

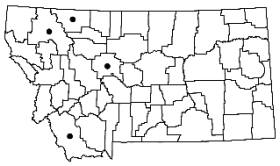
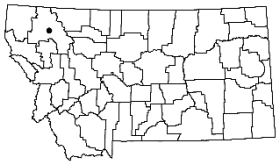
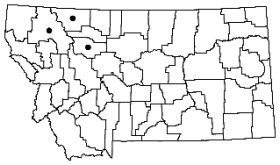
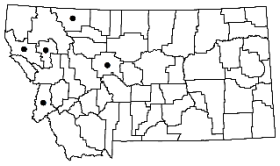
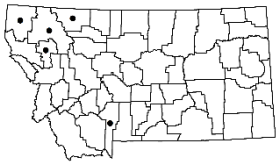
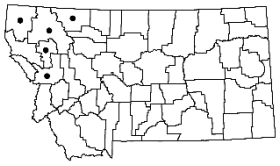
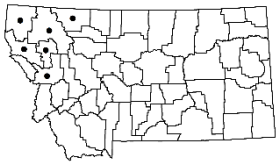
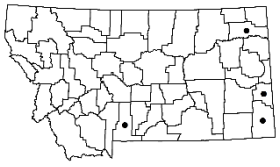
Tree bases, cliff faces, and decaying logs.



***Hypnum vaucheri*** Lesq.

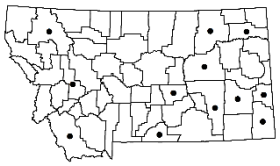
Rock, soil, tree bases, and decaying logs.



| | |
|---|---|
| ***Imbribryum alpinum*** (Huds. ex With.) N. Pedersen<br>*Bryum alpinum*<br><br>Moist, acidic rock and soil over rock. |  |
| ***Imbribryum gemmiparum*** (De Not.) J. R. Spence<br>*Bryum gemmiparum*<br><br>Damp to wet calcareous soil and rock. |  |
| ***Imbribryum miniatum*** (Lesq.) J. R. Spence<br>*Bryum miniatum*<br><br>Damp to wet rock and soil. |  |
| ***Imbribryum muehlenbeckii*** (Bruch & Schimp.) N. Pedersen<br>*Bryum muehlenbeckii*<br><br>Damp, shaded rock and soil in rock crevices. |  |
| ***Isopterygiopsis pulchella*** (Hedw.) Z. Iwats.<br><br>Soil, rock, and tree bases. |  |
| ***Isothecium myosuroides*** Brid.<br><br>Soil, rock, and tree bases. |  |
| ***Isothecium stoloniferum*** Brid.<br><br>Rock and tree bases. |  |
| ***Jaffueliobryum raui*** (Austin) Thér.<br><br>Calcareous rock and sandstone. |  |

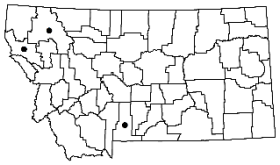
***Jaffueliobryum wrightii*** (Sull.) Thér.

Sandstone.



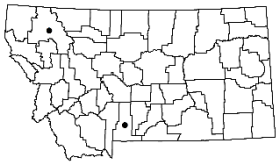
***Kiaeria blyttii*** (Bruch & Schimp.) Broth.

Soil and rock at high elevations.



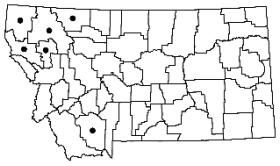
***Kiaeria falcata*** (Hedw.) I. Hagen

Moist soil at high elevations.



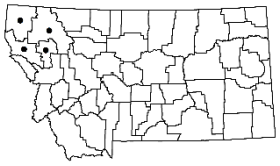
***Kiaeria starkei*** (F. Weber & D. Mohr) I. Hagen

Moist soil at high elevations.



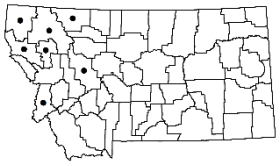
***Kindbergia oregana*** (Sull.) Ochyra
*Eurhynchium oreganum*

Rotting wood and humus.



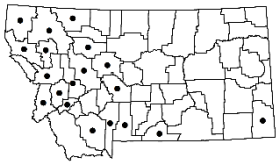
***Kindbergia praelonga*** (Hedw.) Ochyra
*Eurhynchium praelongum*

Rotting wood and humus.



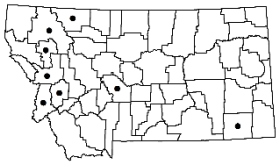
***Leptobryum pyriforme*** (Hedw.) Wilson

Rotting wood and humus.



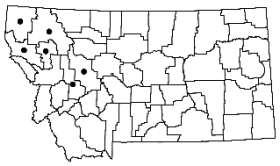
***Leptodictyum riparium*** (Hedw.) Warnst.
*Amblystegium riparium*

Wet soils, wood, humus, and tree bases.



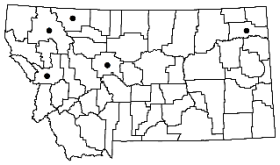
***Lescuraea saxicola*** (Schimp.) Molendo
*Lescuraea striata* var. *saxicola, Lescuraea iliamniana, Lescuraea julacea*

Rock in alpine and subalpine.



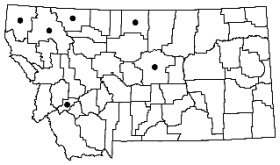
***Leskea polycarpa*** Hedw.

Tree bases and moist soil.



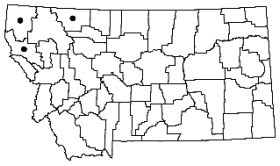
***Leskeella nervosa*** (Brid.) Loeske

Tree bark and rock.



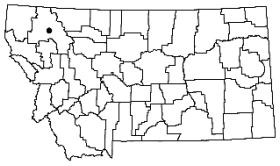
****Leucolepis acanthoneura*** (Schwägr.) Lindb.
*Leucolepis menziesii*

Soil, rock, tree bases, and humus in shaded habitats.



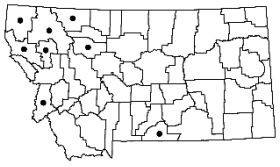
****Meesia longiseta*** Hedw.

Wet soil and humus in bogs and fens.
Flathead County, Salish Mountains, *T. Spribille 5471* (COLO);
Flathead County, Blanchard Lake Fen, *P. Lesica s.n.* (MONTU).



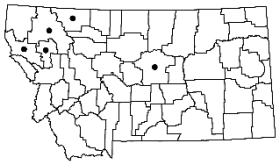
****Meesia triquetra*** (L. ex Jolycl.) Ångstr.

Wet soil and peat in bogs and fens.



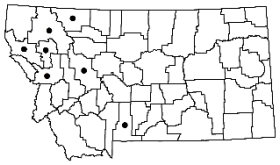
****Meesia uliginosa*** Hedw.

Wet soil and peat in fens.



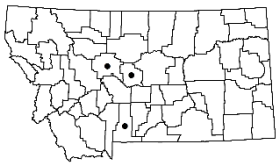
****Meiotrichum lyallii*** (Mitt.) G. L. Merr.
*Polytrichadelphus lyallii, Polytrichastrum lyallii, Polytrichum lyallii*

Soil and humus at high elevations.



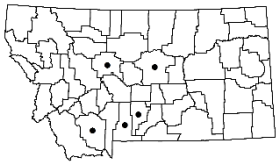
***Mielichhoferia elongata*** (Hoppe & Hornsch.) Nees & Hornsch.
*Mielichhoferia mielichhoferiana* var. *elongata, Weissia elongata*

Rock, soil, and mine tailings naturally enriched with heavy metals (Shaw 2014).



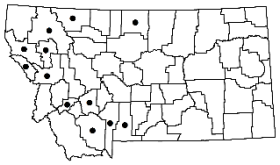
***Mnium arizonicum*** J. J. Amann

Damp soil, humus, and rock.



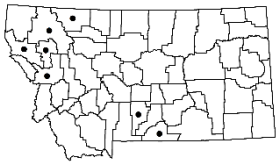
***Mnium blyttii*** Bruch & Schimp.

Moist soil, humus, and rock.



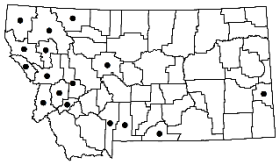
***Mnium lycopodioides*** Schwägr.

Shaded, often calcareous soils, humus, rock, and tree bases.



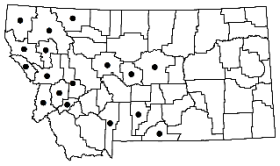
***Mnium marginatum*** (Dicks ex With.) P. Beauv.

Moist soil, humus, and rotting wood in forests.



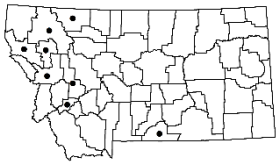
***Mnium spinulosum*** Bruch & Schimp.

Moist soil, humus, and rotting wood in forests.



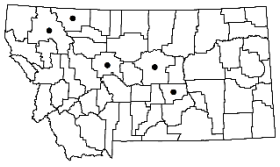
***Mnium thomsonii*** Schimp.

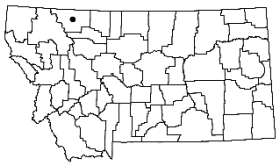
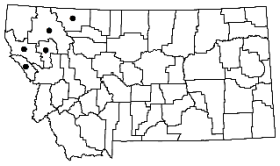
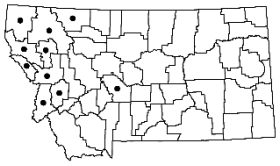
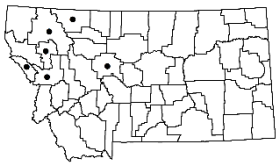
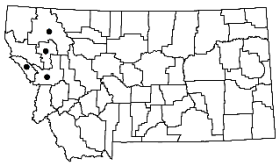
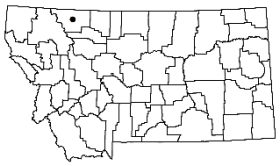
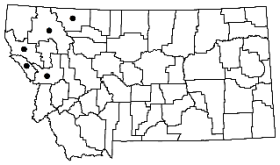
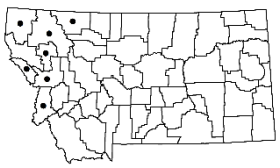
Calcareous soil, humus, and rotting wood along streams.



***Myurella julacea*** (Schwägr.) Schimp.

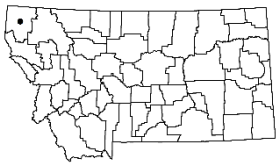
Soil over rock and logs.



| | |
|---|---|
| ***Myurella tenerrima*** (Brid.) Lindb.<br><br>Moist, calcareous habitats at high elevations.<br>Glacier County, Reynolds Creek, GNP, *F. Hermann 18,152.*<br>Reported byHermann (1969), but no specimen has been found. |  |
| ***Neckera douglasii*** Hook.<br><br>Trees, rocks, and humus. |  |
| ***Neckera menziesii*** Drumm.<br>*Metaneckera menziesii*<br><br>Rock and soil over rock. |  |
| ***Niphotrichum canescens*** (Hedw.) Bedn.-Ochyra & Ochyra<br>*Racomitrium canescens*<br><br>Rock and soil. |  |
| ***Niphotrichum canescens*** (Hedw.) Bedn.-Ochyra & Ochyra **subsp. *canescens***<br><br>Dry sandy or gravelly soils (Ochyra and Bednarek-Ochyra 2007). |  |
| ***Niphotrichum canescens* subsp. *latifolium*** (Lange & C. E. O. Jensen) Bedn.-O<br><br>Arctic-alpine on rock and humus.<br>Glacier County, Hanging Garden, GNP, *F. Hermann 18,102* (MONTU). |  |
| ***Niphotrichum elongatum*** (Ehrh. ex Frisvoll) Bedn.-Ochyra & Ochyra<br>*Racomitrium elongatum*<br><br>Dry sandy and gravelly soil in subalpine habitats.<br>This has recently been described as a distinct species (Ochyra and Bednarek-Ochyra 2007). |  |
| ***Niphotrichum ericoides*** (Brid.) Bedn.-Ochyra & Ochyra<br>*Racomitrium canescens* var. *ericoides, Racomitrium ericoides*<br><br>Dry or intermittently moist soil, soil over rock, and humus. |  |

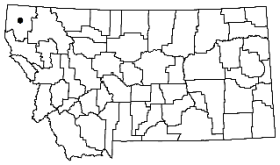
***Niphotrichum pygmaeum*** (Frisvoll) Bedn.-Ochyra & Ochyra
*Racomitrium pygmaeum*

Lincoln County, Whitefish Range, *T. Spribille 4127* (personal herbarium).



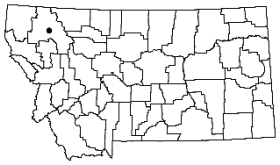
***Oligotrichum aligerum*** Mitt.

Soil and humus. Lincoln County, Cabinet Mountains, *S. Flowers 6675* (COLO); Lincoln County, Cabinet Mountains, *J. Elliott s.n.* (MONTU).



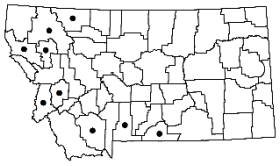
***Oligotrichum hercynicum*** (Hedw.) Lam. & DC.

Moist soil at high elevations.
Flathead County, Sperry Glacier Trail, GNP, *F. Hermann 20698* (F, NY).



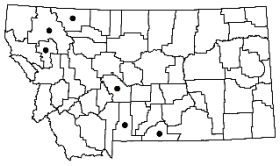
***Oncophorus virens*** (Hedw.) Brid.

Moist soil and rock.



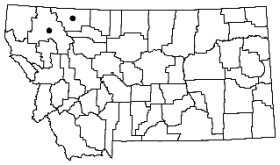
***Oncophorus wahlenbergii*** Brid.

Moist soil and rotten wood.



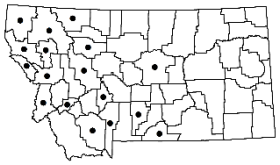
***Orthothecium chryseum*** (Schwägr.) Schimp. **var. *chryseum***

Wet soil and rock.



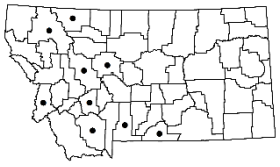
***Orthotrichum affine*** Schrad. ex Brid.

Tree trunks and rarely rock.



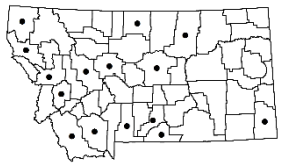
***Orthotrichum alpestre*** Hornsh. ex Bruch & Schimp.

Rock, sometimes trees.



***Orthotrichum anomalum*** Hedw.

Rock, especially limestone, and tree bases.



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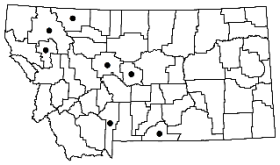
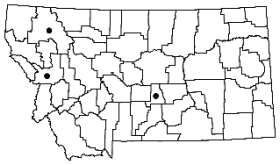
***Orthotrichum cupulatum***Brid.

Calcareous cliffs and large boulders.



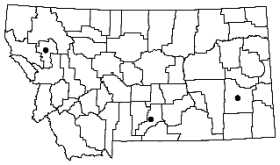
***Orthotrichum elegans*** Schwägr. ex Hook. & Grev.
*Orthotrichum speciosum* var. *elegans*

Deciduous trees, especially cottonwoods.



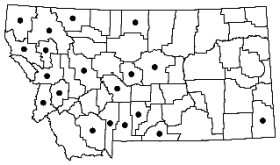
***Orthotrichum hallii*** Sull. & Lesq. in Sull.

Rock, usually limestone or calcareous sandstone.



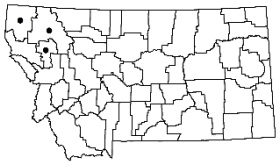
***Orthotrichum laevigatum*** J. E. Zetterst.

Noncalcareous rock in open forest.



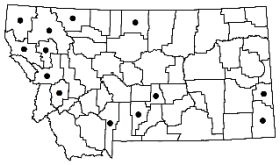
***Orthotrichum lyellii*** Hook. & Taylor

Tree trunks.



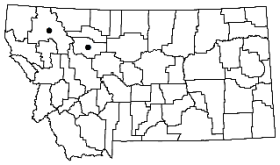
***Orthotrichum obtusifolium*** Brid.

Tree trunks.



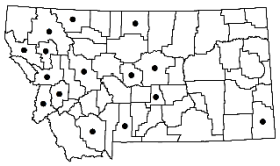
***Orthotrichum pallens*** Bruch ex Brid.

Trunks and branches of trees and dry rock.



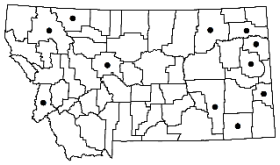
***Orthotrichum pellucidum*** Lindb.

Dry boulders and cliffs in direct sunlight.



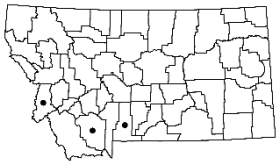
***Orthotrichum pumilum*** Sw.

Tree trunks and rock crevices.



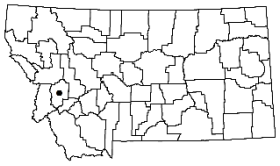
***Orthotrichum pylaisii*** (Brid.)

Granitic boulders in coniferous forests.



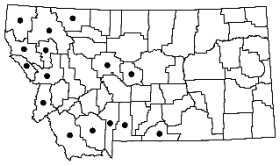
***Orthotrichum rivulare*** Turner

Granite County, near Welcome Creek Wilderness, *W. Schofield s.n.* (UBC).



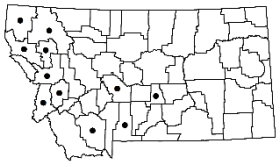
***Orthotrichum rupestre*** Schleich. ex Schwägr.

Noncalcareous boulders and cliff faces.



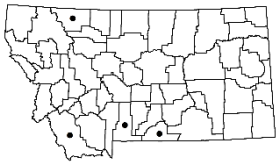
***Orthotrichum speciosum*** Nees in Sturm

Coniferous and deciduous trees.



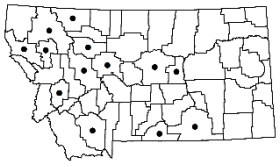
****Paludella squarrosa*** (Hedw.) Brid.

Calcareous fens.



***Palustriella falcata*** (Brid.) Hedenäs
*Cratoneruon commutata*

Seeps, springs, and fens.



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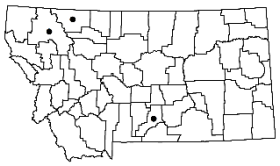
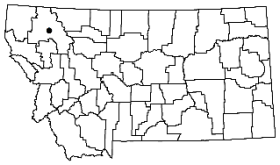
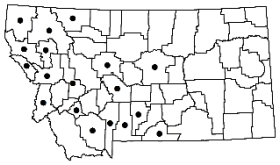
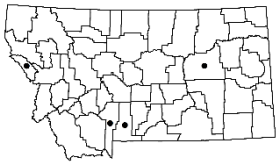
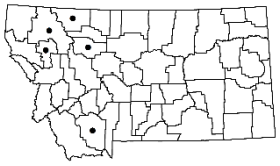
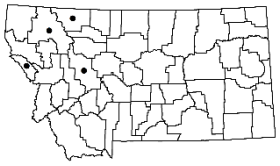
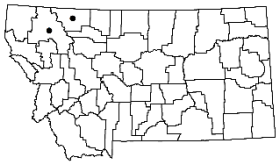
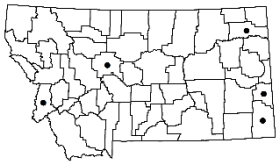
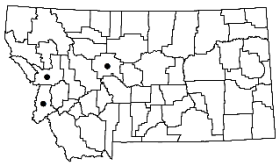
| ****Paraleucobryum enerve*** (Thed.) Loeske<br><br>Moist alpine tundra and rock. |  |
| ***Paraleucobryum longifolium*** (Ehrh. ex Hedw.) Loeske<br><br>Soil and rock in alpine areas.<br>All collections from GNP. |  |
| ***Philonotis fontana*** (Hedw.) Brid.<br><br>Wet soil along streams and seeps. |  |
| ***Philonotis fontana* var. *americana*** (Dism.) Flowers ex H. A. Crum<br><br>Wet soil along streams and seeps. |  |
| ***Philonotis fontana*** (Hedw.) Brid. **var. *fontana***<br>*Philonotis fontana* var. *caespitosa*<br><br>Wet soil along streams and seeps. |  |
| ***Philonotis fontana* var. *pumila*** (Turner) Brid.<br><br>Wet soil along streams and seeps. |  |
| ***Philonotis yezoana*** Besch. & Cardot<br>*Philonotis fontana* var. *seriata*<br><br>Wet soil. |  |
| ****Physcomitrium hookeri*** Hampe<br><br>Soil and gravel in ephemeral drainages. |  |

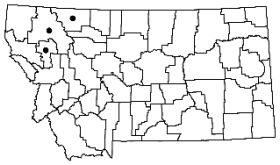
***Physcomitrium pyriforme*** (Hedw.) Hampe.
*Physcomitrium megalocarpum*

Wet soil, rock, and concrete.



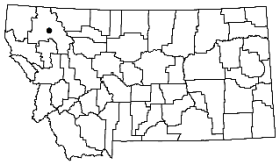
***Plagiobryum demissum*** (Hook.) Lindb.

Wet rock.



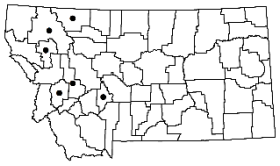
****Plagiobryum zieri*** (Dicks. ex Hedw.) Lindb.

Wet soil and rock.
Flathead County, MacDonald Lake, GNP, *R. S. Williams 317* (NY).



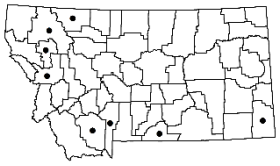
***Plagiomnium ciliare*** (Müll. Hal.) T. J. Kop.

Wet soil and rock.



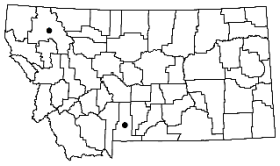
***Plagiomnium cuspidatum*** (Hedw.) T. J. Kop.

Moist soil and humus.



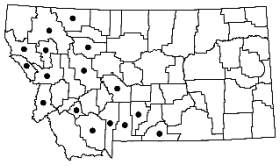
***Plagiomnium drummondii*** (Bruch & Schimp.) T. J. Kop.

Moist soil and humus.



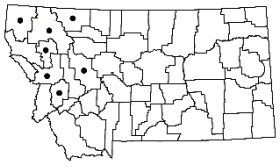
***Plagiomnium ellipticum*** (Brid.) T. J. Kop.
*Plagiomnium rugicum*

Moist soil and humus.



***Plagiomnium insigne*** (Mitt.) T. J. Kop.

Moist soil and humus.



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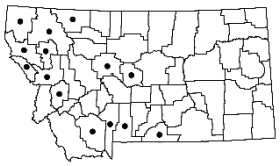
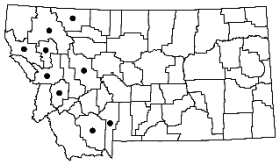
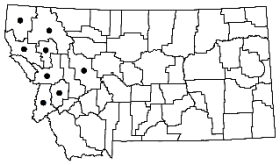
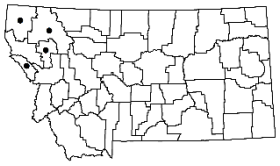
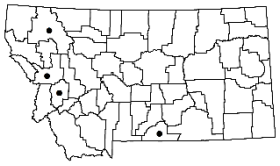
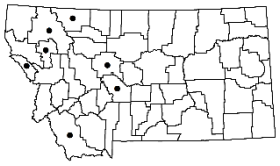
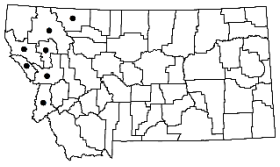
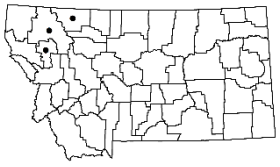
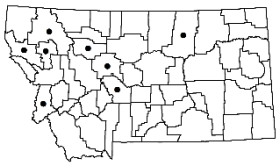
|---|---|
| ***Plagiomnium medium*** (Bruch & Schimp.) T. J. Kop.<br><br>Moist soil and humus. |  |
| ***Plagiomnium rostratum*** (Schrad.) T. J. Kop.<br><br>Moist soil and humus. |  |
| ***Plagiomnium venustum*** (Mitt.) T. J. Kop.<br><br>Moist soil and humus. |  |
| ***Plagiopus oederianus*** (Sw.) H. A. Crum & L. E. Anderson<br>*Plagiopus oederiana*<br><br>Calcareous rock. |  |
| ***Plagiothecium cavifolium*** (Brid.) Z. Iwats.<br><br>Shaded soil or humus on boulders and cliffs. |  |
| ***Plagiothecium denticulatum*** (Hedw.) Schimp.<br><br>Rotting logs, humus, and soil. |  |
| ***Plagiothecium laetum*** Schimp.<br><br>Decaying wood in coniferous forests. |  |
| ***Plagiothecium piliferum*** (Sw.) Schimp.<br><br>Moist to wet decaying wood and rocks. |  |

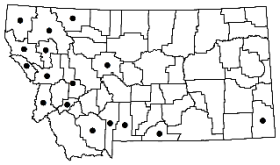
***Platydictya jungermannioides*** (Brid.) H. A. Crum

Wet soil, humus, and decaying wood.



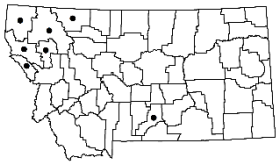
***Pleurozium schreberi*** (Wild. ex Brid.) Mitt.

Humus and decaying wood in coniferous forest.



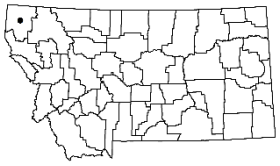
***Pogonatum urnigerum*** (Hedw.) P. Beauv.

Soil.



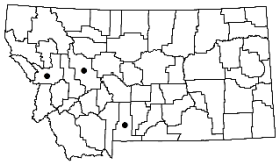
***Pohlia andalusica*** (Höhn.) Broth.

Acidic gravelly or sandy soil.
Lincoln County, Cabinet Mountains, *D. Gill 95* (COLO).



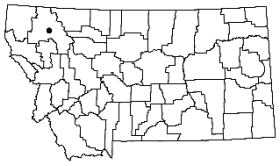
***Pohlia annotina*** (Hedw.) Lindb.

Damp soil.



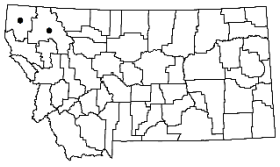
***Pohlia atropurpurea*** (Wahlenb.) H. Lindb.

Moist soil.



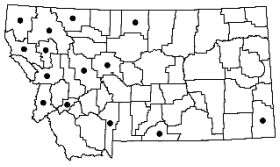
***Pohlia camptotrachela*** (Renauld & Cardot) Broth.

Acidic sandy or gravelly disturbed soil.



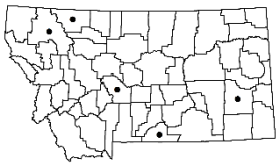
***Pohlia cruda*** (Hedw.) Lindb.

Soil.



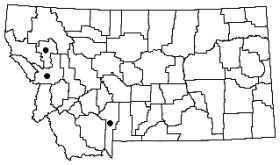
***Pohlia drummondii*** (Müll. Hal.) A. L. Andrews

Moist soil.



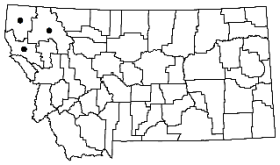
***Pohlia elongata*** Hedw.
*Pohlia acuminata*

Humus and organic soil along streams, paths, and tree bases at moderate to high elevations.



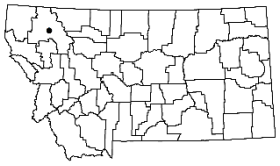
***Pohlia filum*** (Schimp.) Mårtensson

Gravelly, organic-poor soil.
Sanders County, upper Clear Creek, *C. Odegard 113, 116* (MONTU).



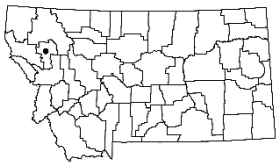
***Pohlia lescuriana*** (Sull.) Ochi
*Bryum lescuriana*

Disturbed soil on upturned tree bases, along paths and streams, and in rock crevices at low elevations.
Flathead County, Columbia Falls, *R. S. Williams s.n.* (DUKE, ILL, WIS).



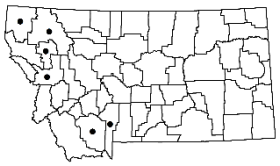
***Pohlia longibracteata*** Broth. in Roell

Humus in fen. Lake County, Point Pleasant Fen, *D. Barton s.n.* (MONTU).



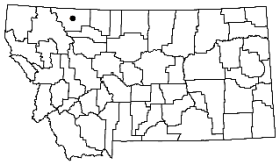
***Pohlia longicolla*** (Hedw.) Lindb.

Humus-rich soil along streams and trails.



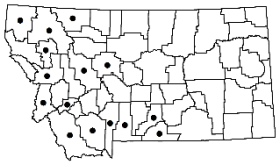
***Pohlia ludwigii*** (Spreng. ex Schwägr.) Broth.

Soil in late snowmelt areas of alpine and subalpine.
Glacier County, Lunch Creek, GNP, *J. Shaw 2733* (DUKE).



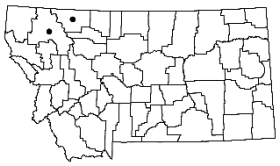
***Pohlia nutans*** (Hedw.) Lindb.

Soil and decaying wood.



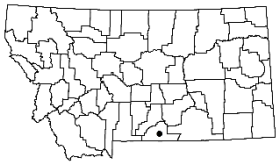
***Pohlia obtusifolia*** (Vill. ex Brid.) L. F. Koch

Damp soil in alpine and subalpine habitats.



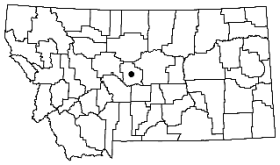
***Pohlia proligera*** (Kindb. ex Breidl.) Lindb. ex Arnell

Acidic, sandy, disturbed soil.
Carbon County, near Red Lodge, *W. Welch 15,901* (NY).



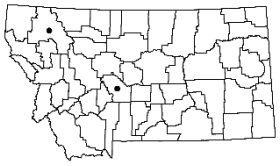
***Pohlia tundrae*** A. J. Shaw

Acidic humus-rich soil in alpine habitats.
Judith Basin County, Belt Mountains, *R. S. Williams 119* (WIS).



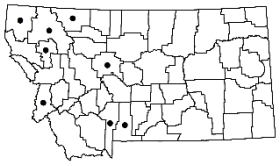
***Pohlia vexans*** (Limpr.) H. Lindb.

Disturbed sandy or clay soils along streams.
Meagher and Flathead Counties, *R. S. Williams 145, 289* (F, WTU, WIS, MU).



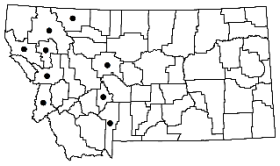
***Pohlia wahlenbergii*** (F. Weber & D. Mohr) A. L. Andrews

Moist soil.



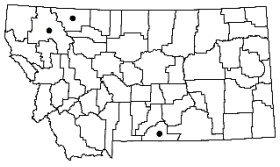
***Polytrichastrum alpinum*** (Hedw.) G. L. Sm.

Crevices and ledges of moist shaded rock.



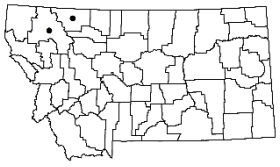
***Polytrichastrum alpinum*** (Hedw.) G. L. Sm. **var. *alpinum***
*Pogonatum alpinum* var. *alpinum*

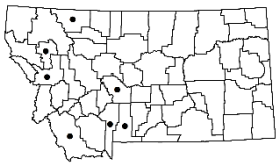
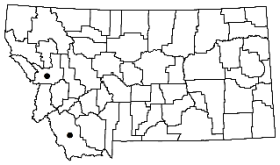
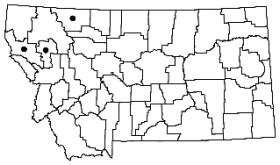
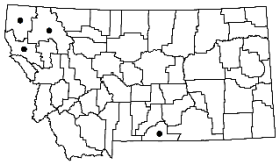
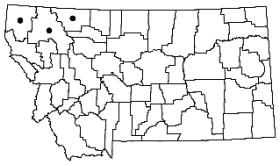
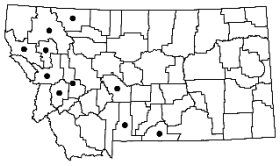
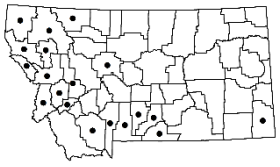
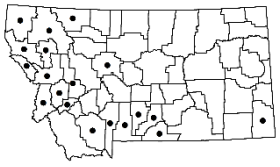
Crevices and ledges of moist shaded rock.



***Polytrichastrum alpinum* var. *septentrionale*** (Sw. ex Brid.) G. L. Sm.
*Polytrichum alpinum* var. *septentrionale*

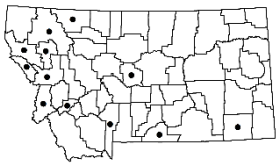
Soil in alpine and subalpine habitats.



| | |
|---|---|
| ***Polytrichastrum formosum*** (Hedw.) G. L. Sm.<br>*Polytrichum formosum*<br><br>Soil and humus in moist coniferous forests. |  |
| ***Polytrichastrum formosum* var. *densifolium*** (Wilson ex Mitt.) Z. Iwats. & Nog<br><br>Soil and humus at moderate to high elevation. |  |
| ***Polytrichastrum formosum*** (Hedw.) G. L. Sm. **var. *formosum***<br><br>Soil and duff at moderate to high elevation. |  |
| ***Polytrichastrum longisetum*** (Sw. ex Brid.) G. L. Sm.<br>*Polytrichum longisetum*<br><br>Moist acidic soil and humus in alpine and subalpine habitats. |  |
| ***Polytrichastrum sexangulare*** (Flörke ex Brid.) G.L. Sm.<br>*Polytrichum sexangulare*<br><br>Damp, gravelly soil and rocks in alpine and subalpine habitats. |  |
| ***Polytrichum commune*** Hedw.<br><br>Moist organic soils. |  |
| ***Polytrichum jensenii*** I. Hagen<br><br>Periodically flooded areas in wetlands and meadows. |  |
| ***Polytrichum juniperinum*** Hedw.<br><br>Soil and humus and soil over rock. |  |

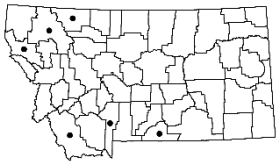
***Polytrichum piliferum*** Hedw.

Shallow, well-drained sandy or gravelly soil.



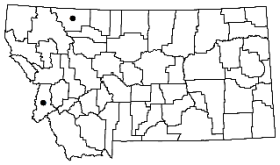
***Polytrichum strictum*** Menzies ex Brid.

Organic soil and peat in wetlands and alpine tundra.



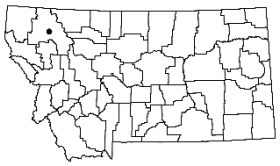
****Porotrichum bigelovii*** (Sull.) Kindb.

Shaded soil, rock, and tree bases along streams.
Glacier County, Iceberg Lake Trail, GNP, *E. Gadsby s.n.* (PH);
Ravalli County, Bear Creek, Bitterroot Mountains, *B. McCune 4605* (OSC).



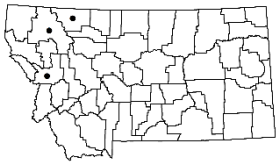
***Pseudocalliergon brevifolium*** (Lindb.) Hedenäs
*Drepanocladus brevifolius*

Calcium-rich wetland habitats in the alpine.
Collections from GNP represent a substantial range expansion from the Alaska-Canadian Arctic-Greenland distribution (FNA 2014).
Glacier County, Reynolds Creek, *W. Schofield 12,078* (TENN, WTU);
Glacier County, Lunch Creek cirque, GNP, *B. McCune 5507, 5494* (OSC).



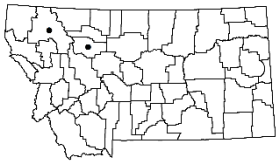
****Pseudocalliergon trifarium*** (F. Weber & D. Mohr) Loeske
*Calliergon trifarium*

Calcareous fens.



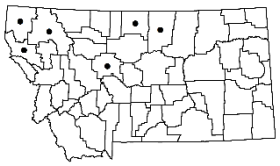
****Pseudocalliergon turgescens*** (T. Jensen) Loeske
*Calliergon turgescens, Scorpidium turgescens*

Open, calcareous wetland habitats.



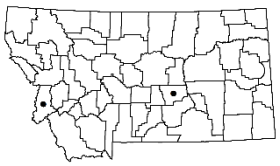
***Pseudocampylium radicale*** (P. Beauv.) Vanderp. & Hedenäs
*Campylium radicale*

Mineral-rich wetlands.



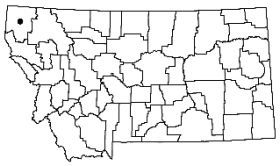
****Pseudocrossidium obtusulum*** (Lindb.) H.A. Crum & L.E. Anderson

Calcareous soils at low to moderate elevations in grassland and steppe vegetation.
Ravalli County, Bitterroot Valley, *J. Hoy 306* (MONTU) and published in Eckel et al. (1997).



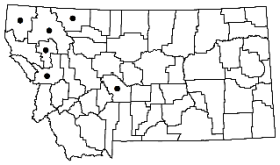
***Pseudoleskea atricha*** (Kindb.) Kindb.
*Lescuraea atricha*

Mineral soil and rock in alpine and subalpine habitats.
Lincoln County, Midvale, *L. Umbach 529* (WIS).



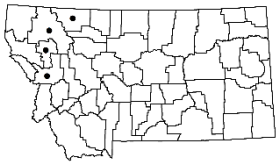
***Pseudoleskea incurvata*** (Hedw.) Loeske
*Lescuraea incurvata*

Boulders and mineral soil along streams.



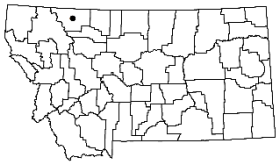
***Pseudoleskea incurvata*** (Hedw.) Loeske **var. *incurvata***

Boulders and mineral soil along streams.



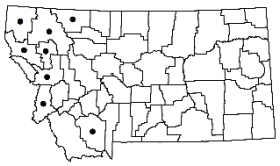
***Pseudoleskea incurvata* var. *tenuiretis*** (Culm.) Podp.
*Lescurea incurvata* var. *tenuiretes*

Dry boulders and mineral soil.
Meagher County, Tenderfoot Creek, *R. S. Williams 151* (F);
Glacier County, GNP, *F. Hermann 18,071* (WTU).



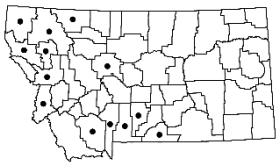
***Pseudoleskea patens*** (Lindb.) Kindb.
*Lescuraea patens*

Rock and mineral soil near streams.



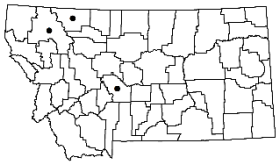
***Pseudoleskea radicosa*** (Mitt.) Macoun & Kindb.
*Lescuraea radicosa*

Rock, tree bases, and mineral soil.



***Pseudoleskea radicosa* var. *compacta*** Best
*Lescuraea radicosa* var. *compacta, Pseudoleskea pallida*

Dry boulders and mineral soil in alpine and subalpine habitats.

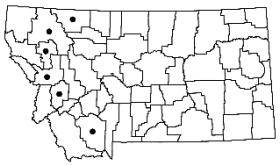


***Pseudoleskea radicosa* var. *denudata*** (Kind.) Wijk & Margad.

The distribution in the FNA (2014) includes Montana; however, no herbarium specimens or collection records were found.

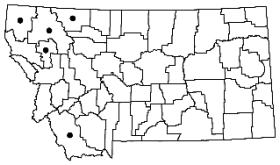
***Pseudoleskea radicosa*** (Mitt.) Macoun & Kindb. **var. *radicosa***

Rock, mineral soil, and tree bases.

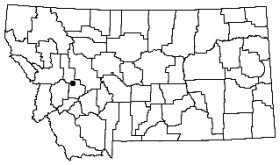


***Pseudoleskea stenophylla*** Renauld & Cardot
*Lescuraea stenophylla*

Twigs and branches of trees and shrubs and tree bases.

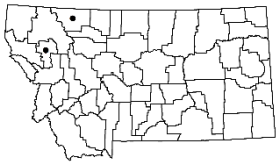


~~***Pseudoleskeella arizonae*** (R.S. Williams) E. Lawton~~
Verified to be *Pseudoleskea radicosa* by John Spence, January 2020.
Dry Rock.
Powell County, Chamberlain Meadow, *J. Elliott 4037* (MONTU).



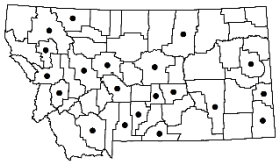
***Pseudoleskeella rupestris*** (Berggr.) Hedenäs & L. Söderstr.
*Leskeella nervosa* var. *sibirica*, *Pseudoleskeella sibirica*

Dry, shaded calcareous rock.



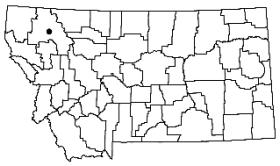
***Pseudoleskeella tectorum*** (Funck ex Brid.) Kindb. ex Broth.

Shaded calcareous rock, tree bases, and wood.



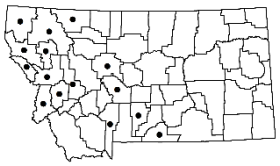
***Pseudotaxiphyllum elegans*** (Brid.) Z. Iwats.
*Isothecium elegans*

Acidic rock, soil, humus.



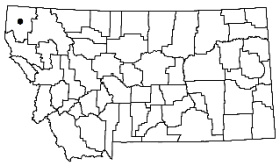
***Pterigynandrum filiforme*** Hedw.

Rock in montane forests.



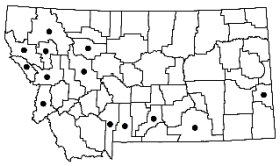
***Pterygoneurum lamellatum*** (Lindb.) Jur.

Soil and rock faces.
Lincoln County, Murphy Lake, *T. Spribille 6657* (personal herbarium).



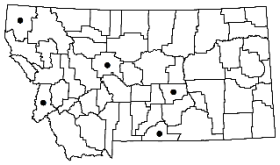
***Pterygoneurum ovatum*** (Hedw.) Dixon

Volcanic and dry saline soil.



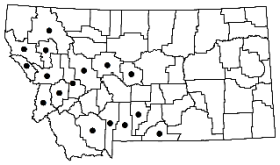
***Pterygoneurum subsessile*** (Brid.) Jur.

Sandy, saline, or volcanic soil.



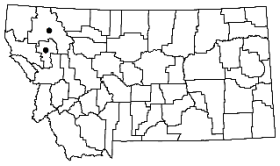
***Ptilium crista-castrensis*** (Hedw.) De Not.

Humus and duff on coniferous forest floors.

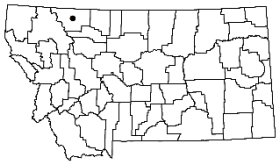


***Ptychomitrium gardneri*** Lesq.

Soil and humus.

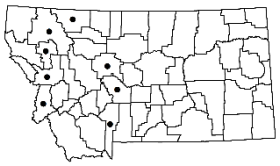


***Ptychostomum arcticum*** (R. Br.) J. R. Spence
*Bryum arcticum*
Moist and wet soils at high elevations.
Glacier County, Blackfeet Indian Reservation, *R. S. Williams 392* (MIN, WIS).
This is one of the most variable and confusing species in the genus (Spence 2014).



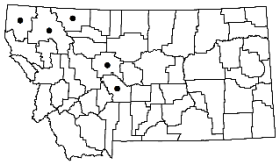
***Ptychostomum bimum*** (Schreb.) J. R. Spence
*Bryum pseudotriquetrum* var. *bimum*

Wet soil and soil over rock.



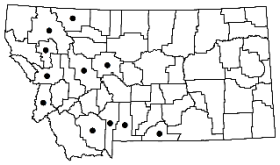
***Ptychostomum cernuum*** (Hedw.) Hornsch.
*Bryum uliginosum*

Wet soil along streams and wetlands.



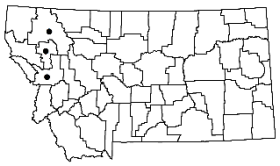
***Ptychostomum creberrimum*** (Taylor) J. R. Spence & H. P. Ramsay
*Bryum creberrimum, Bryum lisae* var. *cuspidatum*

Soil and soil over rocks.



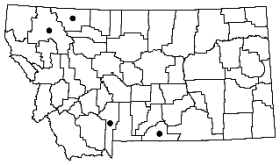
***Ptychostomum cyclophyllum*** (Schwägr.) J. R. Spence
*Bryum cyclophyllum*

Wet soil along streams and wetlands.



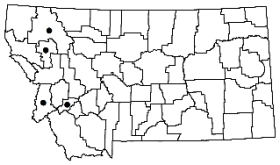
***Ptychostomum inclinatum*** (Sw. ex Brid.) J. R. Spence
*Bryum inclinatum*

Dry soil in alpine habitats.



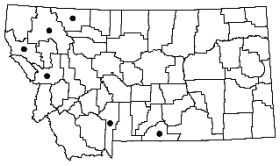
***Ptychostomum lonchocaulon*** (Müll. Hal.) J. R. Spence
*Bryum cirrhatum, Bryum lonchocaulon*

Soil.



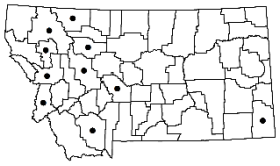
***Ptychostomum pallens*** (Sw.) J. R. Spence
*Bryum pallens*

Moist soil in boreal habitats.



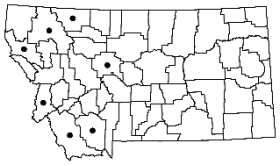
***Ptychostomum pallescens*** (Schleich. ex Schwägr.) J. R. Spence
*Bryum pallescens*

Soil.



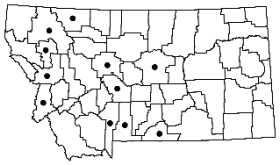
***Ptychostomum pendulum*** Hornsch.
*Bryum algovicum*

Dry, calcareous soil or rock.



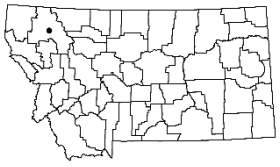
***Ptychostomum pseudotriquetrum*** (Hedw.) J. R. Spence & H. P. Ramsay ex Hol
*Bryum pseudotriquetrum*

Wet soil or soil over rock.



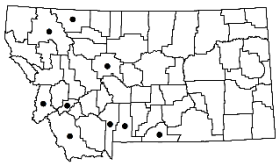
****Ptychostomum schleicheri*** (Schwägr.) J. R. Spence
*Bryum schleicheri*

Wet soil in alpine and subalpine habitats. Flathead County, Logan Pass, GNP, *J. Elliott 1,122* (MONTU).



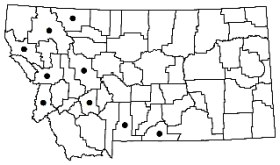
***Ptychostomum turbinatum*** (Hedw.) J. R. Spence
*Bryum turbinatum*

Soil in calcareous wetlands.



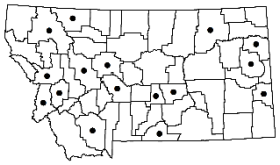
***Ptychostomum weigelii*** (Spreng.) J. R. Spence
*Bryum weigelii*

Soil in wetlands and along streams.



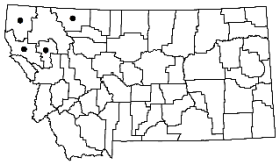
***Pylaisia polyantha*** (Hedw.) Schimp.
*Pylaisiella polyantha*

Moist soil, humus, and tree bases.



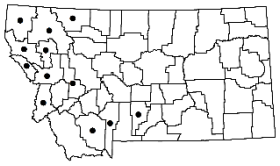
***Racomitrium lanuginosum*** (Hedw.) Brid.

Soil and rock in dry, exposed habitats.



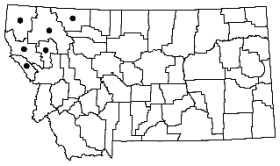
***Rhizomnium magnifolium*** (Horik.) T. J. Kop.

Moist soil and humus along streams in forest.



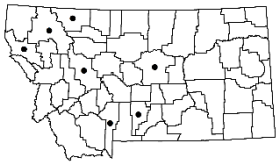
***Rhizomnium nudum*** (R. S. Williams) T. J. Kop.

Moist soil and humus.



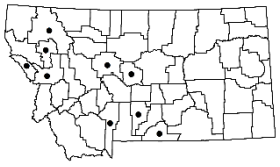
***Rhizomnium pseudopunctatum*** (Bruch & Schimp.) T. J. Kop.

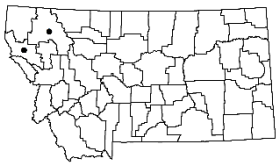
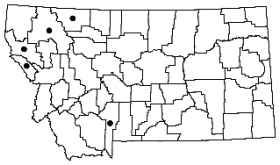
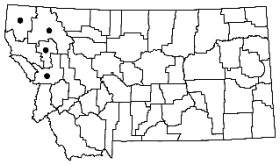
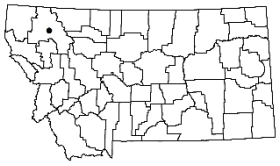
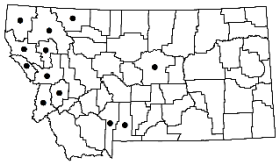
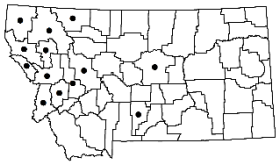
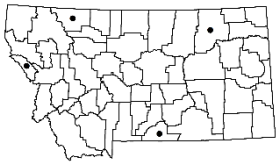
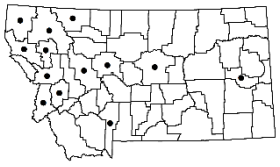
Moist soil and humus.



***Rhizomnium punctatum*** (Hedw.) T. J. Kop.

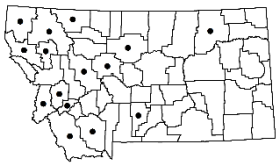
Moist soil and humus.



| | |
|---|---|
| ****Rhynchostegium aquaticum*** A. Jaeger<br>*Eurhynchium riparioides, Platyhypnidium aquaticum, Platyhypnidium riparioides*<br><br>Rock and wood in running water of streams and springs. |  |
| ***Rhytidiadelphus loreus*** (Hedw.) Warnst.<br><br>Soil, humus, and decaying wood in coniferous forests. |  |
| ***Rhytidiadelphus squarrosus*** (Hedw.) Warnst.<br><br>Partially shaded soil and rock. |  |
| ***Rhytidiadelphus subpinnatus*** (Lindb.) T. J. Kop.<br><br>Damp to wet soil and humus on shaded sites along streams and in the spray of waterfalls.<br>Historically, this species has been combined with *R. sqarrosus*, but DNA analysis indicates genetic discontinuity between them (Rohrer 2014). |  |
| ***Rhytidiadelphus triquetrus*** (Hedw.) Warnst.<br><br>Soil and humus in coniferous forest. |  |
| ***Rhytidiopsis robusta*** (Hook.) Broth.<br><br>Soil, litter, and rock in coniferous forest.<br>Pacific Northwest regional endemic. |  |
| ***Rhytidium rugosum*** (Hedw.) Kindb.<br><br>Soil and soil over rock. |  |
| ***Roellobryon roellii*** (Broth.) Ochyra<br>[*Roellia roellii*, invalid]<br><br>Litter and rich humus in coniferous forests. |  |

***Rosulabryum capillare*** (Hedw.) J. R. Spence
*Bryum capillare*

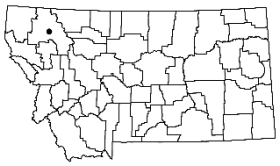
Moist shaded soil and rotted wood.



***Rosulabryum laevifilum*** (Syed) Ochyra
*Bryum laevifilum*
Bark, rotten wood, and rock at low to high elevations.
The most widespread species of the genus in North America (Spence 2014).
The distribution in the FNA (2014) includes Montana; however, no herbarium specimens or collections records were found.

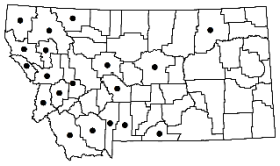
***Sanionia nivalis*** Hedenäs
*Sanionia georgico-uncinata*

Soil and humus at high elevations.
Flathead County, Sperry Glacier,GNP, *J. Holzinger 64* (NY).
Reported by Hedenas (1989).



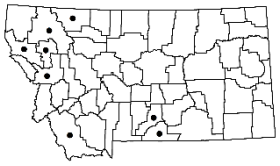
***Sanionia uncinata*** (Hedw.) Loeske
*Drepanocladus uncinatus*

Soil, humus, logs, and rock.



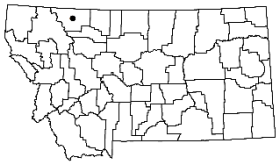
****Sarmentypnum exannulatum*** (Schimp.) Hedenäs
*Warnstorfia exannulata*

Soil and humus in fens, springs, and lakes.



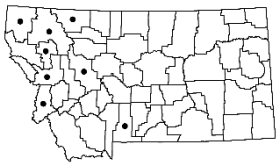
****Sarmentypnum sarmentosum*** (Wahlenb.) Tuom. & T. J. Kop.
*Calliergon sarmentosum*

Soil and humus in fens, springs, and lakes.



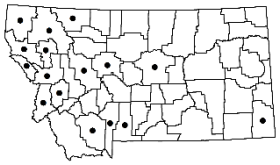
***Schistidium agassizii*** Sull. & Lesq.

Wet or dry rocks along watercourses.



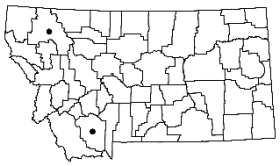
***Schistidium apocarpum*** (Hedw.) Bruch & Schimp.

Rock.



***Schistidium atrichum*** (Müll. Hal. & Kindb.) W. A. Weber

Dry limestone at high elevations.

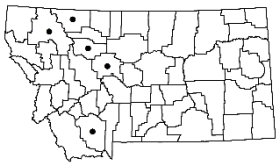


***Schistidium crassipilum*** H. H. Blom

Calcareous rocks and substrates such as concrete at low to moderate elevations.
The distribution in the FNA (2007) includes Montana; however, no herbarium specimens or collection records have been found. Previously, it may have been confused with *Grimmia apocarpa* (McIntosh 2007).

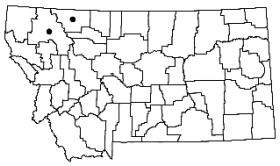
***Schistidium dupretii*** (Thér.) W. A. Weber

Rock in dry habitats.



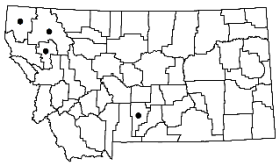
***Schistidium frigidum*** H. H. Blom

Rock.



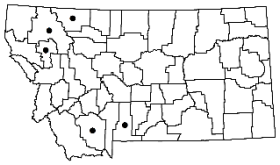
***Schistidium occidentale*** (E. Lawton) S. P. Churchill
*Grimmia occidentalis*

Wet or dry rocks along intermittent watercourses.



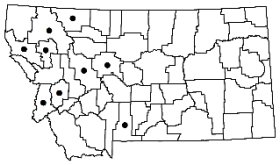
***Schistidium papillosum*** Culm. in Amann

Rock or rarely tree bark in mesic habitats.



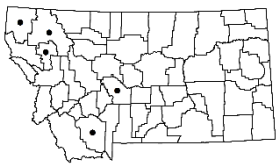
***Schistidium rivulare*** (Brid.) Podp.

Wet to dry rocks along watercourses.



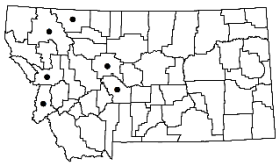
***Schistidium strictum*** (Turner) Loeske ex Mårtensson
*Grimmia stricta*

Rock.



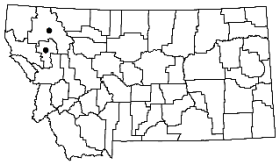
***Schistidium tenerum*** (J. E. Zetterst.) Nyholm
*Grimmia tenera*

Rock and rock crevices.



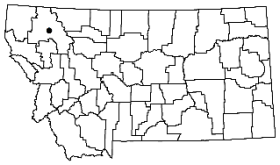
***Schistidium trichodon*** (Brid.) Poelt
*Grimmia trichodon*

Calcareous rock over a range of elevations.



***Schistostega pennata*** (Hedw.) F. Weber & D. Mohr

Mineral soil in crevices and caves and other shaded habitats.
Flathead County, near Lake McDonald.

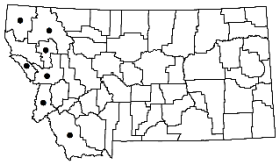


***Sciuro-hypnum curtum*** (Lindb.) Ignatov
*Brachythecium curtum, Hypnum curtum*

Soil and humus in coniferous forests.

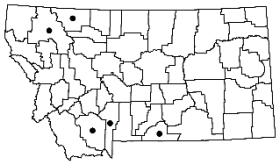
***Sciuro-hypnum hylotapetum*** (B. L. Higinb. & N. L. Higinb.) Ignatov & Huttunen
*Brachythecium hylotapetum*

Soil, litter, rotting wood in coniferous forest.



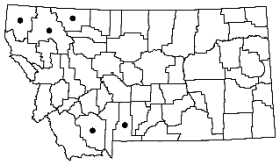
***Sciuro-hypnum latifolium*** (Kindb.) Ignatov & Huttunen
*Brachythecium nelsonii*

Wet soil and rock in boreal habitats.



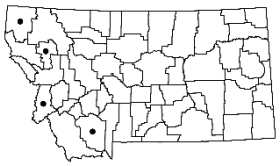
***Sciuro-hypnum oedipodium*** (Mitt.) Ignatov & Huttunen
*Brachythecium collinum* var. *holzingeri, Brachythecium holzingeri, Brachythecium oedipodium, Sciuro-hypnum holzingeri*

Mineral soil, duff, humus, and decaying wood.



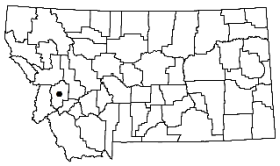
***Sciuro-hypnum plumosum*** (Hedw.) Ignatov & Huttunen
*Brachythecium plumosum*

Wet rock in streams and on cliffs.



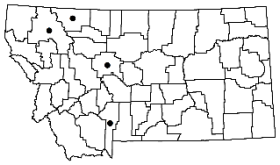
***Sciuro-hypnum populeum*** (Hedw.) Ignatov & Huttunen
*Brachythecium populeum*

Rock, concrete, and tree bases.



***Sciuro-hypnum reflexum*** (Starke) Ignatov & Huttunen
*Brachythecium reflexum*

Base of trees and wood in boreal forests.

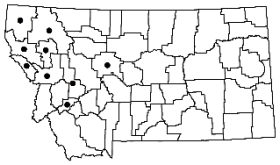


***Sciuro-hypnum starkei*** (Brid.) Ignatov & Huttunen
*Brachythecium starkei, Hypnum starkei*

Wet soil and humus in forests.

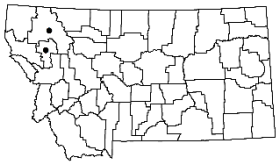
***Scleropodium obtusifolium*** (Mitt.) Kindb.

Wet rock, often submerged.



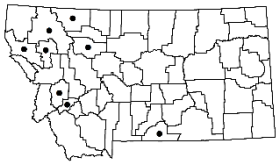
***Scleropodium touretii*** (Brid.) L. F. Koch
*Scleropodium touretei*

Soil and rock.



***Scorpidium cossoni*** (Schimp.) Hedenäs
*Limprichtia cossonii*

Calcium-rich soil and humus in wetlands.

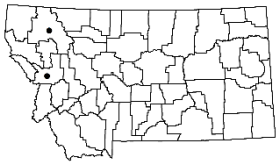


****Scorpidium revolvens*** (Sw.) Rubers
*Drepanocladus revolvens, Limprichtia revolvens*

Mineral-rich soil and peat in calcareous fens and other wetlands.

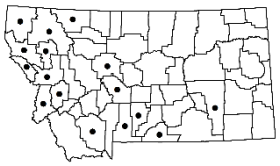
****Scorpidium scorpioides*** (Hedw.) Limpr.

Mineral-rich soil and peat in calcareous fens.



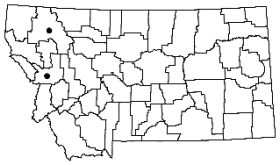
***Scouleria aquatica*** Hook.

Exposed or submerged rocks in rivers and streams.



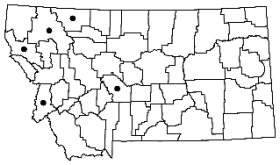
***Scouleria marginata*** E. Britton

Exposed or submerged rocks in rivers and streams.



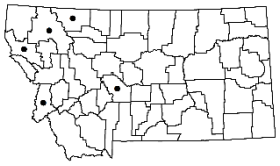
***Seligeria calcarea*** (Hedw.) Bruch & Schimp.
*Weissea calcarea*

Calcareous substrates.
Also recorded for "Montana," by *R. S. Williams s.n.* (YU).



***Seligeria campylopoda*** Kindb.

Moist rock, often limestone.

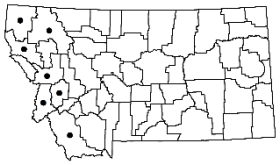


***Seligeria donniana*** (Sm.) Müll. Hal.

Crevices and protected areas on bare, calcareous rock.
D. Vitt's field notes state it was collected near Beta Lake, southwest of Hungry Horse.

****Sphagnum angustifolium*** (Warnst.) C. E. O. Jensen

Poor fens.

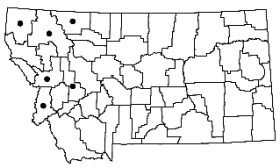


***Sphagnum annulatum*** Warnst.

Poor to medium fens.
The distribution in the FNA (2007) includes Montana; however, no herbarium specimens or collection records were found.

***Sphagnum capillifolium*** (Ehrh.) Hedw.

Wet soil and peat.



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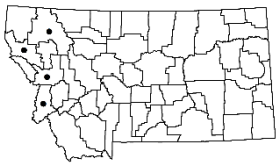
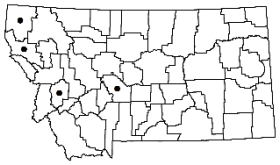
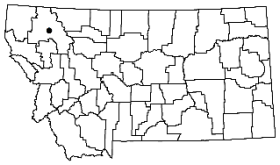
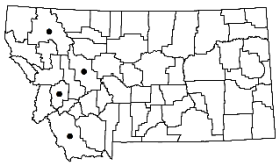
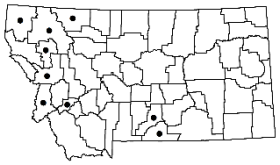
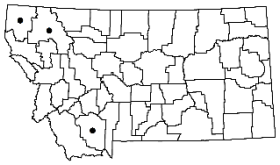
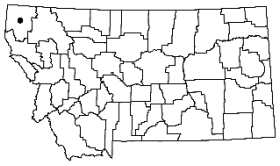
|---|---|
| ****Sphagnum centrale*** C. E. O. Jensen<br><br>Wet soil and peat. |  |
| ****Sphagnum compactum*** Lam. & DC.<br><br>Wet soil and peat. |  |
| ****Sphagnum contortum*** Schultz<br><br>Wet soil and peat.<br>Flathead County, Lake MacDonald, GNP, *L. Umbach 794* (ILL);<br>Flathead County, Fish Lake, GNP, *J. Elliott 1,118* (WIS, MONTU). |  |
| ***Sphagnum cuspidatum*** Ehrh. ex Hoffm.<br><br>Low hummock with shrubs in fen.<br>Missoula County, Shoofly Meadows, *J. Elliott 5,044* (MONTU). |  |
| ****Sphagnum fimbriatum*** (Wilson & Hook.) in Hook.<br><br>Wet soil and peat. |  |
| ****Sphagnum fuscum*** (Schimp.) H. Klinggr.<br><br>Wet soil and peat. |  |
| ****Sphagnum girgensohnii*** Russow<br><br>Wet soil and peat. |  |
| ***Sphagnum lindbergii*** Schimp.<br><br>Peatlands.<br>Lincoln County, Drip Creek Fen in the Big Creek watershed, *T. Spribille 5751, 5753* (ALTA). |  |

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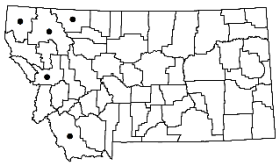
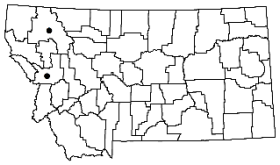
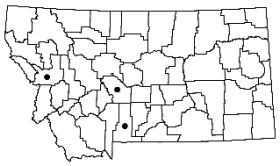
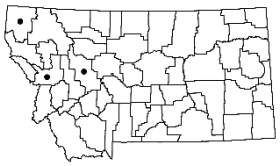
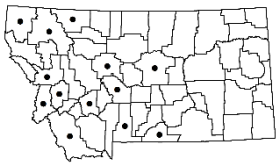
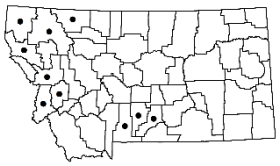
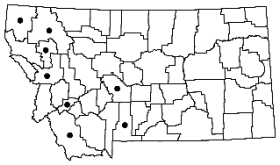
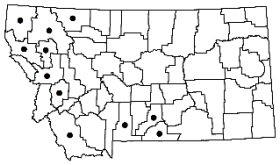
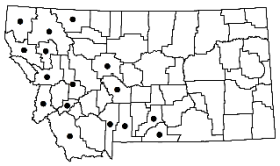
|---|---|
| ***Sphagnum magellanicum*** Brid.<br><br>Wet soil and peat. |  |
| ***Sphagnum mendocinum*** Sull. & Lesq.<br><br>Wet soil and peat.<br>Missoula County, Mary's Frog Pond, *J. Moore 3* (Elliott and Moore 1989);<br>Flathead County, Apgar Mountains, GNP, *T. Spribille 1,921* (MONTU). |  |
| ***Sphagnum platyphyllum*** (Lindb. ex Braithw.) Sull. ex Warnst.<br><br>Wet soil and peat in fens. |  |
| ***Sphagnum riparium*** Ångstr.<br><br>Wet soil and peat. |  |
| ***Sphagnum russowii*** Warnst.<br><br>Wet soil and peat. |  |
| ***Sphagnum squarrosum*** Crome<br><br>Wet soil and humus. |  |
| ***Sphagnum subsecundum*** Nees in Sturm<br><br>Wet soil and peat. |  |
| ***Sphagnum teres*** Ångstr. in Hartm.<br><br>Wet soil and peat. |  |

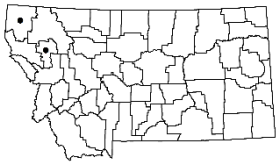
***Sphagnum warnstorfii*** Russow

Wet soil and peat.



**Sphagnum wulfianum*** Girg.

Wet soil and peat, often under conifers.
Lincoln County, Purcell Mountains, *M. Arvidson 431* (ALTA, MONTU);
Lake County, Swan River State Forest, *D. Barton 256* (MONTU).

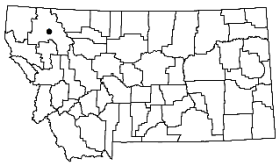


***Splachnum ampullaceum*** Hedw.

Dung of large boreal ungulates (e.g., moose) in boggy habitats.
The most common species of the genus (Marino 2014).
The distribution in the FNA (2014) includes Montana; however, no herbarium specimens or collection records were found.

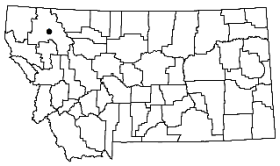
***Splachnum luteum*** Hedw.

Dung of boreal herbivores in wetland habitats.
Reported by Jones (1910) from a collection near Big Fork; however, an herbarium was not found.



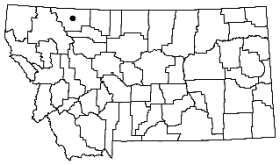
***Splachnum sphaericum*** Hedw.
*Splachnum ovatum*

Dung of large boreal ungulates (e.g., moose) in boggy habitats.
Flathead County, willow swamp near Marion, *A. J. Sharp M-24* (TENN).



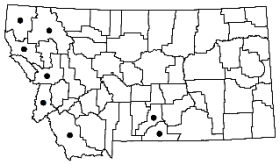
**Stegonia latifolia*** (Schwägr.) Venturi ex Broth.

High-elevation soils.
Glacier County, Swiftcurrent Mountain, GNP, *H. Imshaug 7,830* (MICH).



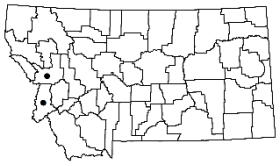
***Straminergon stramineum*** (Dicks. ex Brid.) Hedenäs
*Calliergon stramineum*

Wetlands, often intermixed with *Sphagnum*.



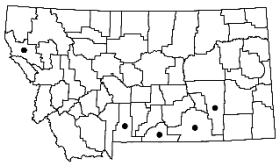
**Syntrichia bartramii*** (Steere) R. H. Zander
*Tortula bartramii*

Dry soil and rock, including soil derived from volcanic ash.
Ravalli County, Willoughby Bluffs Natural Area, *J. Hoy 321b* (personal herbarium); Missoula County, Missoula, *B. McCune s.n.* (OSC).



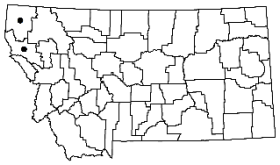
***Syntrichia caninervis*** Mitt.
*Tortula bistratosa, Tortula caninervis*

Soil in desert and steppe habitats; often forms extensive carpets.
Can be confused with *S. ruralis* (Mishler 2007).



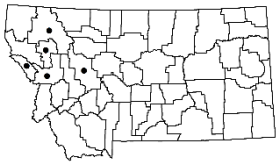
***Syntrichia latifolia*** (Bruch ex Hartm.) Huebener
*Tortula latifolia*

Bark of trees, rarely on rocks.
Lincoln County, Kootenai Falls, *J. Elliott 2890* (MONTU);
Sanders County, Clark Fork River, *C. Odegard 241* (MONTU).



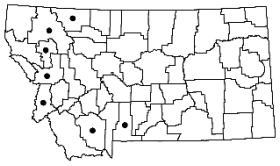
***Syntrichia montana*** Nees
*Tortula intermedia*

Soil and rocks.



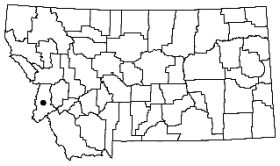
****Syntrichia norvegica*** F. Weber
*Tortula norvegica*

Soil and rock, including soil derived from volcanic ash.



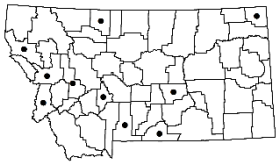
***Syntrichia papillosa*** (Wilson ex Spruce) Spruce
*Tortula papillosa*

Soil and rock.
Ravalli County, Skalkaho area, *H. Iltis 3,930* (ISC).



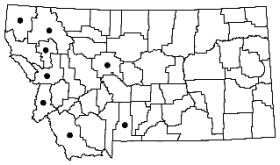
****Syntrichia papillosissima*** (Copp.) Loeske
*Tortula papillosissima*

Dry soil and rock on dry microsites in grassland and sagebrush steppe vegetation.



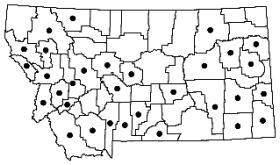
***Syntrichia princeps*** (De Not.) Mitt.
*Tortula princeps*

Soil and rock.



***Syntrichia ruralis*** (Hedw.) F. Weber & D. Mohr
*Tortula ruralis*

Soil and rock, often disturbed sites.



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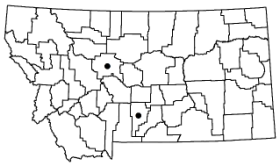
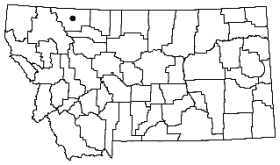
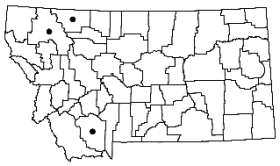
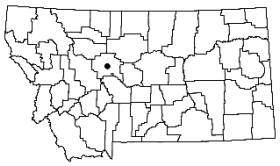
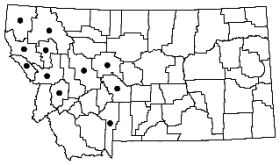
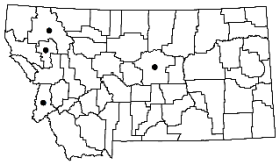
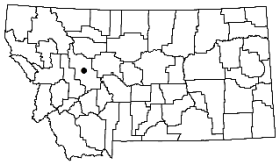
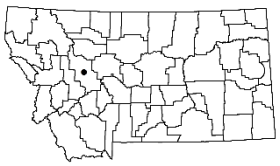
|---|---|
| ***Tayloria acuminata** Hornsch.<br><br>Damp humus and rotting wood. |  |
| ***Tayloria lingulata*** (Dicks.) Lindb.<br><br>Damp soil, humus, and other organic matter.<br>Glacier County, near Hanging Gardens, GNP, *W. Schofield 12347*, *12254* (DUKE). |  |
| ***Tayloria serrata*** (Hedw.) Bruch & Schimp.<br><br>Organic matter of animal origin. |  |
| ***Tayloria splachnoides*** (Schleich. ex Schwägr.) Hook.<br><br>Humus and rotting wood.<br>Cascade County, Belt Mountains, *R. S. Williams 109* (WIS, YU). |  |
| ***Tetraphis pellucida*** (Hedw.)<br><br>Rotting wood and humus. |  |
| ***Tetraphis pellucida* var. *trachypoda*** (Kindb.) Harpel<br><br>Rotting wood and peaty soil. |  |
| ***Tetraplodon angustatus*** (Hedw.) Bruch & Schimp.<br><br>Humus and carnivore dung.<br>Lewis and Clark County, Rimini, *J. Elliott 972* (MONTU).<br>The Montana collection represents the southernmost station in western North America (Marino 1988). |  |
| ***Tetraplodon mnioides*** (Hedw.) Bruch & Schimp.<br><br>Carnivore dung, bones, and owl pellets.<br>Lewis and Clark County, Indian Meadows fen, *D. Barton 220* (MONTU). |  |

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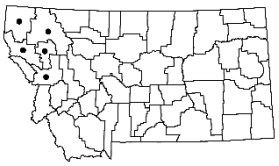
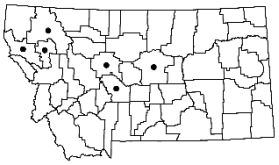
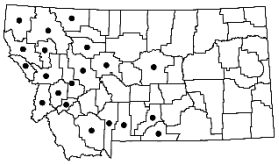
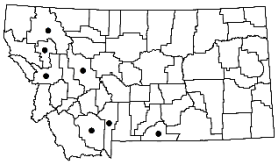
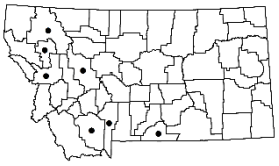
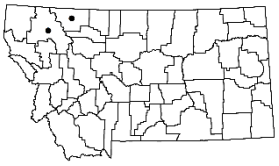
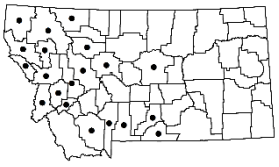
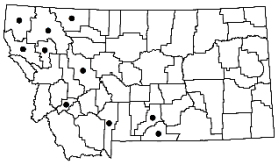
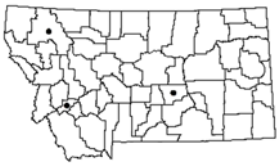
| ***Thamnobryum neckeroides** (Hook.) E. Lawton<br><br>Soil, rock, and tree bases. |  |
| ***Thuidium recognitum*** (Hedw.) Lindb.<br><br>Soil, rock, and humus in calcareous habitats. |  |
| ***Timmia austriaca*** Hedw.<br>*Timmia austriaca* var. *brevifolia, Timmia austriaca* var. *papillosa*<br><br>Soil and humus. |  |
| ***Timmia megapolitana*** Hedw.<br><br>Soil and rock. |  |
| ***Timmia megapolitana* subsp. *bavarica*** (Hessl.) Brassard<br><br>Soil and rock. |  |
| ***Timmia norvegica*** J. E. Zetterst.<br><br>Rock. |  |
| ***Timmiella crassinervis*** (Hampe) L. F. Koch<br>*Trichostomum crassinerve*<br><br>Soil on roadside banks and moist sites.<br>Flathead County, Birch Creek, Swan Range, *A. Sharp 261* (F, CHSC, TENN, WIS). |  |
| ***Tomentypnum nitens*** (Hedw.) Loeske<br>*Homalothecium nitens*<br><br>Damp soil and humus in fens and other wetlands. |  |

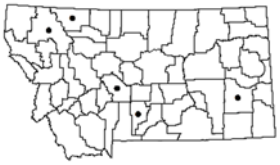
***Tortella alpicola*** Dixon
*Tortella fragilis* var. *tortelloides*

Wet or dry rocks in canyons and cliffs. Flathead County, Bad Rock Canyon, *F. Hermann 20,649* (DUKE); Deer Lodge County, Storm Lake, *W. Weber s.n.* (COLO).



***Tortella fragilis*** (Hook. & Wilson) Limpr.

Soil and rock.

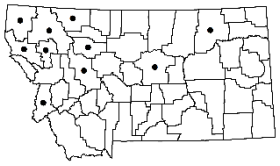


***Tortella inclinata*** (R. Hedw.) Limpr.

Wet soil and rock.
Flathead County, Mud Creek in GNP, *F. Hermann 22,377* (MICH, WTU).

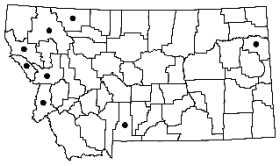
***Tortella tortuosa*** (Hedw.) Limpr.

Soil and rock.



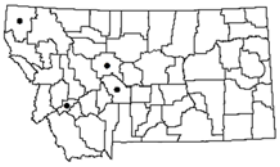
****Tortula acaulon*** (With.) R. H. Zander
*Phascum acaulon, Phascum cuspidatum*

Soil.



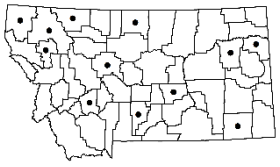
****Tortula cernua*** (Huebener) Lindb.
*Desmatodon cernuus*

Soil and limestone.



***Tortula hoppeana*** (Schultz) Ochrya
*Desmatodon latifolius*

Calcareous soil.



***Tortula inermis*** (Brid.) Mont.

Soil, full sun.
Park County, sagebrush steppe, *J. Harpel 38,804* (YELL0).

***Tortula laureri*** (Schultz) Lindb.
*Desmatadon laureri, Trichostomum laureri*

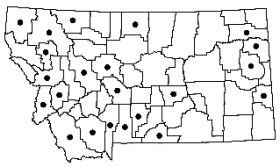
Soil and rock, usually calcareous.
The distribution in the FNA (2007) includes Montana; however, no herbarium specimens or collection records were found.

***Tortula leucostoma*** (R. Br.) Hook. & Grev.

Soil, usually calcareous.
The distribution in the FNA (2007) includes Montana; however, no herbarium specimens or collection records were found.

***Tortula mucronifolia*** Schwägr.

Soil and soil over rock.

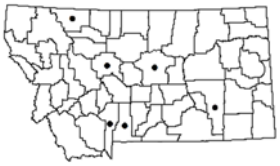


***Tortula muralis*** Hedw.

Calcareous soils and rock, including steep deposits of volcanic ash.

***Tortula obtusifolia*** (Schwägr.) Mathieu
*Desmatodon obtusifolius*

Calcareous rock, walls, and crevices.



***Tortula subulata*** Hedw.

Soil.

***Tortula truncata*** (Hedw.) Mitt.
*Pottia truncata*

Soil.
Ravalli County, Bitterroot Valley, *J. Hoy s.n.* (MONTU); Cascade County, Crooked Falls on the Missouri River prior to dam construction, *R. S. Williams s.n.* (WIS).

***Trichodon cylindricus*** (Hedw.) Schimp.

Soil.

***Trichostomum tenuirostre*** (Hook. & Taylor) Lindb.
*Oxystegus tenuirostris*

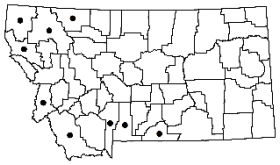
Calcareous rock and soil.

***Tripterocladium leucocladium*** (Mull. Hal.) A. Jaeger
*Hypnum leucocladulum*

Sandstone.

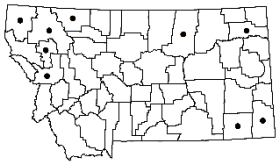
***Warnstorfia fluitans*** (Hedw.) Loeske

Wet soil and humus.



***Weissia controversa*** Hedw.

Soil.



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