

Annotated Checklist of the Myxomycetes of Montana

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Abstract: A checklist is provided of all species of myxomycetes known to have been collected in or reported from the state of Montana. The records are based on specimens collected by the author during the 1981, 1985, 1989, and 2009 field seasons along with all known records from the literature and the MyCoPortal and University of Arkansas digitized databases. These data indicate that a total of 129 species in 41 genera have been recorded from Montana. The vast majority of the records are from the northwestern portion of the state, with relatively few records from the remainder of the state.

Keywords: biodiversity, biogeography, northern Rocky Mountains, slime molds

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Introduction

Myxomycetes (plasmodial slime molds or myxogastriids) have been reported from the eastern United States for more than three centuries (Stephenson et al. 2020), but these organisms remained understudied in the western United States until William C. Sturgis collected extensively in Colorado during the period of 1904 to 1917 while he was a member of the faculty at Colorado College. Sturgis recorded approximately 116 species for the state (Sturgis 1907, 1913, 1917). Later, Cooke (1968), Mitchel et al. (1980), and Novozhilov et al. (2003) reported records of myxomycetes from the state, increasing the total number of species known to at least 170. Much less is known about most of the other western states, especially those that encompass portions of the Rocky Mountains. Morris (1954), Gabel et al. (2010), and Rollins and Stephenson (2013) provided some limited data for Wyoming, and Graff (1938) listed 36 species for Montana. The latter appears to be the only publication dealing specifically with the myxomycetes from this state.

The objective of the project reported in this paper was to compile a checklist of all species of myxomycetes known to have been collected in or reported from the state of Montana. The checklist is based upon specimens collected by the author during the 1981, 1985, and 2009 field seasons along with

all known records from the literature and the MyCoPortal (MyCoPortal 2023) and University of Arkansas (UARK) digitized databases.

Study area

Montana, with a total area of 380 800 km², is the fourth-largest state in the United States. It borders on the states of North Dakota and South Dakota to the east, Wyoming to the south, Idaho to the west and southwest, and the Canadian provinces of British Columbia, Alberta, and Saskatchewan to the north. The Continental Divide splits the state into distinct eastern and western regions. The mountainous western region of the state is part of the northern Rocky Mountains, while the eastern region (which makes up about 60% of the entire state) is part of the northern Great Plains (Arno et al. 1979). Coniferous forests make up the predominant type of vegetation in the mountainous western region of the state, where most of the collecting for myxomycetes has been carried out.

The state falls between 44° and 49° N latitude and extends from 104° to 116° W longitude. Elevations range from about 600 m to 3904 m, with all higher elevation areas located in the western region of the state. Mean annual precipitation for the state is about 38 cm, but averages for the western region are appreciably higher (ca 76 cm) than in the east (ca 25 cm). Average daily high temperatures over the state range from 29°C in July to 18°C in January. High-elevation areas are both cooler and wetter. Considerable snowfall occurs during winter and amounts of more than 700 cm occur in some places (Weather Atlas for Montana 2002-2020). At the very highest elevations, the snow that falls during the winter persists as snowbanks into late spring and early summer, thus providing a suitable habitat for a special ecological group of “snowbank” or “nivicolous” myxomycetes.

Materials and methods

Field work by the author in Montana during 1981, 1985, 1989, and 2009 was based at the University of Montana Biological Station (47°53'12"N, 114°01'60"W) on Flathead Lake in the northwestern corner of the state. Collecting was carried out both in the vicinity of the Biological Station and other localities throughout northwestern Montana. Substrates upon which the fruiting bodies of myxomycetes might be expected to occur were examined in an opportunistic manner as described by Cannon and Sutton (2004). Whenever the fruiting bodies were observed, the portion of the substrate upon which fruiting had occurred was collected and returned to the laboratory, where the fruiting bodies were dried at room temperature. Afterwards, the pieces of substrates with fruiting bodies present were glued to paper trays and the latter placed in small pasteboard boxes for permanent storage.

In addition to the field collections, samples of bark, ground litter, and dung from large herbivores were collected during the 1981, 1985, and 1989 field seasons, returned to the laboratory, and used to prepare moist chamber cultures in the manner described by Stephenson and Stempen (1994). Specimen appearing in these cultures were handled in the same manner as those collected in the field. All specimens were first deposited in the herbarium of the University of Arkansas (UARK) and then transferred to the University of Washington herbarium (WTU).

Results

More than 600 specimens of myxomycetes were collected in the field or obtained in moist chamber cultures. These specimens represented at least 129 different species in 41 genera. As indicated in the checklist that follows, many of the specimens represented species for which there were no previous records from Montana. Although the vast majority of specimens could be identified to species, this was not possible for poorly developed or aberrant material. Nomenclature follows Lado (2005-2023) except where noted. Recent molecular studies by García-Cunchillos et al. (2022), García-Martin et al. (2023), and Prikhodko et al. (2023) have resulted in a number of taxonomic rearrangements in the myxomycetes. As a result, some familiar species now have names that would not be immediately recognized by many of the people who collect and study myxomycetes.

Annotated List of Species

In the list that follows, all species of myxomycetes known to have been collected in or reported from Montana are arranged alphabetically by genus and then species. Information is provided on the source(s) of the record. Numbers given in parentheses are collecting numbers.

Angioridium sinuosum (Bull.) Grev., Scott. crypt. fl. 6(62):pl. 310 (1827)

Reported (as *Physarum sinuosum*) by Graff (1928). In earlier treatments of the myxomycetes, this species is listed as *Physarum bivalve*.

Arcyria cinerea (Bull.) Pers., Syn. meth. fung 1:184 (1801)

Collected by Stephenson (172) in 1981. This species is one of most common of all myxomycetes and occurs in all types of habitats.

Arcyria denudata (L.) Wettst., Verh. Zool.-Bot. Ges. Wien 35:535 (1886)

Reported by Graff (1928).

Arcyria incarnata (Pers. ex J.F. Gmel.) Pers., Observ. mycol. 1:58 (1796)

Collected by Stephenson (3287) in 1985.

Arcyria obvelata (Oeder) Onsberg, Mycologia 70(6):1286 (1979)

Collected by Stephenson (162) in 1981. In earlier treatments of the myxomycetes, this species is listed as *Arcyria nutans*.

Arcyria oerstedii Rostaf., Sluzowce monogr. 278 (1875)

Collected by R. L. Gilbertson (6340) in 1966.

Arcyria pomiformis (Leers) Rostaf., Sluzowce monogr. 271 (1875)

Collected by Stephenson (23536) in 2009.

Arcyria versicolor W. Phillips, Grevillea 5:115 (1877)

Collected by Stephenson (3338) in 1985. This species occurs in alpine snowbank habitats.

Badhamia affinis Rostaf., Sluzowce monogr. 143 (1874)

Collected by F. W. Anderson (528) in 1889.

Badhamia albescens (Ellis ex T. Macbr.) J.M. García-Martín, J.C. Zamora & Lado, Persoonia 51:113 (2023)

Reported by C. R. Stillinger (3271). This species is associated with melting snowbanks. In earlier treatments of the myxomycetes, this species is listed as *Physarum albescens*.

Badhamia polycephala (Schwein.) J.M. García-Martín, J.C. Zamora & Lado, Persoonia 51:113 (2023)

Reported by Graff (1928). In earlier treatments of the myxomycetes, this species is listed as *Physarum polycephalum*.

Badhamia nitens Berk., Proc. Linn. Soc. London 2:200 (1852)

Reported by Graff (1928).

Badhamia populina Lister & G. Lister, J. Bot. 42:129 (1904)

Reported by Graff (1928) and also listed by Martin and Alexopoulos (1969).

Badhamia utricularis (Bull.) Berk., Proc. Linn. Soc. London 2:199 (1852)

Reported by Graff (1928).

Calomyxa metallica (Berk.) Nieuwl., Amer. Midl. Naturalist 4:335 (1916)

Collected by R. L. Gilbertson (8973) in 1969.

Ceratiomyxa fruticulosa (O.F. Müll.) T. Macbr., N. Amer. Slime-moulds, ed. 1, 18 (1899)

Collected by Stephenson (185) in 1981. It should be noted that members of the genus *Ceratiomyxa* have long been considered to be myxomycetes, but they differ in a number of important respects (e.g., spores are formed individually on stalks on the surface of the fruiting body, whereas in myxomycetes the spores develop inside the fruiting body, with the latter surrounded [at least in the early stages] by a peridium). It has been suggested that *Ceratiomyxa* should be regarded as a sister group to the true myxomycetes (Fiore-Donno et al. 2010). However, species of *Ceratiomyxa* still tend to be considered in surveys for myxomycetes, which is the approach taken in this paper.

Collaria nigricapillitia (Nann.-Bremek. & Bozonnet) Lado, Cuad. Trab. Fl. Micol. Iber. 16:19 (2001)

Collected by Stephenson (5342) in 1985.

Colloderma oculatum (C. Lippert) G. Lister, J. Bot. 48:312 (1910)

Collected by Stephenson (3332) in 1985.

Comatricha elegans (Racib.) G. Lister, in Lister, Guide Brit. mycetozoa, ed. 3, 31 (1909)

Collected by Stephenson (3383) in 1985.

Comatricha fusiformis (Kowalski) Kowalski, Mycologia 60(4):763 (1968)

Collected by Stephenson (3424) in 1985. This species was originally described as *Lamproderma fusiforme*. It is associated with melting snowbanks.

Comatricha laxa Rostaf., Sluzowce monogr. 201 (1874)

Collected by Stephenson (481) in 1981.

- Comatricha nigra* (Pers. ex J.F. Gmel.) J. Schröt., in Cohn, Krypt.-Fl. Schlesien 3(1):118 (1885)
Collected by Stephenson (3321) in 1985.
- Comatricha sinuatocolumellata* G. Moreno, H. Singer, A. Sánchez & Illana. Bol. Soc. Micol. Madrid 28:26 (2004)
Collected by Stephenson (3312) in 1985. This species was originally described as *Comatricha alpina*. It is associated with melting snowbanks.
- Comatricha suksdorfii* Ellis & Everh., Bull. Washburn Lab. Nat. Hist. 1:5 (1884)
Collected by Stephenson (3323) in 1985. This species is associated with melting snowbanks.
- Craterium brunneolum* (W. Phillips) J.M. García-Martín, J.C. Zamora & Lado, Persoonia 51:117 (2023)
Reported by Graff (1928) also listed by Martin and Alexopoulos (1969). In earlier treatments of the myxomycetes, this species is listed as *Physarum brunneolum*.
- Craterium leucocephalum* (Pers. ex J.F. Gmel.) Ditmar, in Sturm, Deutschl. Fl., Abt. 3, Die Pilze Deutschlands 1:21 (1813)
Collected by Stephenson (213) in 1981.
- Craterium minutum* (Leers) Fr., Syst. mycol. 3(1):151 (1829)
Reported by Graff (1928).
- Cribraria argillacea* (Pers. ex J.F. Gmel.) Pers., Neues Mag. Bot. 1:91 (1794)
Collected by Stephenson (183) in 1981.
- Cribraria cancellata* (Batsch) Nann.-Bremek., Nederlandse Myxomyceten (Zutphen) 92 (1975)
Collected by Stephenson (167) in 1981. In earlier treatments of the myxomycetes, this species is listed as *Dictydium cancellatum*.
- Cribraria macrocarpa* Schrad., Nov. gen. pl. 8 (1797)
Collected by Stephenson (248) in 1981.
- Cribraria piriformis* Schrad., Nov. gen. pl. 4 (1797)
Collected by Stephenson (164) in 1981.
- Cribraria purpurea* Schrad., Nov. gen. pl. 8 (1797)
Reported by Graff (1928).
- Cribraria rufa* (Roth) Rostaf., Sluzowce monogr. 232 (1875)
Collected by Stephenson (245) in 1981.
- Cribraria violacea* Rex, Proc. Acad. Nat. Sci. Philadelphia 43:393 (1891)
Collected by Stephenson (264) in 1981.
- Cribraria vulgaris* Schrad., Nov. gen. pl. 6 (1797)
Collected by Stephenson (196) in 1981.
- Diderma alpinum* (Meyl.) Meyl., Bull. Soc. Vaud. Sci. Nat. 51:261 (1917)
Collected by Stephenson (3256) in 1985. This species is associated with melting snowbanks.

- Diderma asteroides* (Lister & G. Lister, in Lister, Monogr. mycetozoa, ed. 2, 113 (1911)
Collected by Stephenson (283) in 1981.
- Diderma brooksii* Kowalski, Mycologia 60(3):595 (1968)
Collected by Stephenson (3318) in 1985. This species is associated with melting snowbanks.
- Diderma montanum* (Meyl.) Meyl., Annuaire Conserv. Jard. Bot. Genève 15-16:311 (1913)
Collected by Stephenson (3257) in 1985. This species is associated with melting snowbanks.
- Diderma niveum* (Rostaf.) E. Sheld., Minnesota Bot. Stud. 1:477 (1895)
Collected by Stephenson (3315) in 1985. This species is associated with melting snowbanks.
- Diderma radiatum* (L.) Morgan. J. Cincinnati Soc. Nat. Hist. 164(4):151
Reported by Graff (1928).
- Diderma tigrinum* (Schrad.) Prikhodko, Shchepin, Novozh. López-Vill., G. Moreno & Schnittler, in Prikhodko, Shchepin, Bortnikova, Novozhilov, Gmoshinskiy, Moreno, López-Villalba, Stephenson & Schnittler, Mycological Progress 22:11, p. 9 (2023)
Reported by Graff (1928). In earlier treatments of the myxomycetes, this species is listed as *Lepidoderma tigrinum*.
- Didymium difforme* (Pers.) Gray, Nat. arr. Brit. pl. 1:571 (1821)
Collected by Stephenson (23564) in 2009.
- Didymium melanospermum* (Pers.) T. Macbr., N. Amer. Slime-moulds, ed. 1, 88 (1899)
Collected by Stephenson (171) in 1981.
- Didymium nullifilum* (Kowalski (M.L. Farr), Mycologia 74(2):341 (1982)
Collected by Stephenson (5641) in 1989. This species is associated with the dung of large herbivores.
- Didymium quitense* (Pat.) Torrend. Brotéria, Sér. Bot. 7:90 (1908)
Reported by Graff (1928) also listed by Martin and Alexopoulos (1969).
- Didymium spongiosum* (Leyss.) J.M. García-Martín, J.C. Zamora & Lado, Persoonia 51:103 (2023)
Collected by Stephenson (3286) in 1985. In earlier treatments of the myxomycetes, this species is listed as *Mucilago crustacea*.
- Didymium squamulosum* (Alb. & Schwein.) Fr. & Palmquist, Symb. gasteromyc., fasc. 3:19 (1818)
Collected by Stephenson (23553) in 2009.
- Didymium sturgisii* Hagelst., Mycologia 29(4):397 (1937)
Reported (as *Didymium anomalum*) by Graff (1928).
- Echinostelium colliculosum* K.D. Whitney & H.W. Keller, Mycologia 72(3):641 (1980)
Collected by Stephenson (2340) in 1985.

- Echinostelium minutum* de Bary, in Rostafinski, Sluzowce monogr. 215 (1874)
Collected by Stephenson (2339) in 1981.
- Enerthenema melanospermum* T. Macbr. & G.W. Martin, in Martin, J. Wash. Acad. Sci. 22(4):91 (1932)
Collected by Stephenson (3458) in 1985. This species is associated with melting snowbanks.
- Fuligo intermedia* T. Macbr., N. Amer, Slime-moulds, ed. 2, 30 (1922)
Reported by Graff (1928).
- Fuligo septica* (L.) F.H. Wigg., Prim. fl. holsat. 112 (1780)
Collected by Stephenson (3384) in 1985.
- Gulielmina vermicularis* (Schwein.) García-Cunch., J.C. Zamora & Lado, in García-Cunchillos, Zamora, Ryberg & Lado, Mol. Phylogenet. Evol. 177:107609, p. 15 (2022)
Collected by S. Mitchel (4149) in 1973. In earlier treatments of the myxomycetes, this species is listed as *Perichaena vermicularis*.
- Hemitrichia clavata* (Pers.) Rostaf., in Fuckel, Jahrb. Nassauischen Vereins Naturk. 27-28:75 (1873)
Collected by Stephenson (241) in 1981.
- Hemitrichia decipiens* (Pers.) García-Cunch., J.C. Zamora & Lado, in García-Cunchillos, Zamora, Ryberg & Lado, Mol. Phylogenet. Evol. 177:107609, p. 14 (2022)
Reported by Graff (1928). In earlier treatments of the myxomycetes, this species is listed as *Trichia decipiens*.
- Hemitrichia leiotricha* (Lister) G. Lister, in Lister, Monogr. mycetozoa, ed. 2, 224 (1911)
Collected by T. Brooks (41) with no date given.
- Hemitrichia montana* (Morgan) T. Macbr., N. Amer. Sime-moulds, ed. 1, 208 (1899)
Collected by Stephenson (3243) in 1985. This is a species associated with melting snowbanks.
- Kelleromyxa fimicola* (Dearn. & Bisby) Eliasson, Keller & Schoknecht, Mycol. Res. 95:1206 (1991)
Collected by Stephenson (3895) in 1989. This species is associated with dung of large herbivores.
- Lamproderma arcyrioides* (Sommerf.) Rostaf., Sluzowce monogr. 206 (1874)
Collected by Stephenson (3438) in 1985.
- Lamproderma columbinum* (Pers.) Rostaf., in Fuckel, Jahrb. Nassauischen Vereins Naturk. 27-28:69 (1873)
Reported by Graff (1928).
- Lamproderma disseminatum* Kowalski, Mycologia 62(4):663 (1970) [see pdf]
Collected by Stephenson (5331) in 1985. The only previous records of this species in North America were from California.
- Lamproderma maculatum* Kowalski, Mycologia 62(4):654 (1970)
Collected by Stephenson (3337) in 1985. This species is associated with melting snowbanks.

Lamproderma sauteri Rostaf., Sluzowce monogr. 205 (1874)

Reported by Graff (1928) also listed by Martin and Alexopoulos (1969). This species is associated with melting snowbanks.

Lamproderma zonatum Mar. Mey. & in Poulain, Meyer & Moreau, Bull. Soc. Mycol. France 119(3-4):277 (2004)

Collected by Stephenson (3241) in 1985. This is another species of *Lamproderma* that appears to be rare in North America, although there are numerous records from Europe.

Leocarpus fragilis (Dicks.) Rostaf., Suzowce monogr. 132 (1874)

Collected by Stephenson (189) in 1981.

Licaethalium olivaceum (Ehrenb.) Rostaf., Sluzowce monogr. 227 (1875)

Collected by Stephenson (3286) in 1985. This species was originally described as *Reticularia olivaceum*.

Licea biforis Morgan, J. Cincinnati Soc. Nat. Hist. 15(3-4):131 (1893)

Collected by Stephenson (23532) in 2009.

Licea kleistobolus G.W. Martin, Mycologia 34(6):702 (1942)

Collected by Stephenson (275) in 1981.

Licea minima Fr. Syst. mycol. 3(1):199 (1829)

Collected by Stephenson (170) in 1981.

Licea parasitica (Zukal) G.W. Martin, Mycologia 34(6):702 (1942)

Collected by Stephenson (3382) in 1985.

Licea pygmaea (Meyl.) Ing, Trans. Brit. Mycol. Soc. 78(3):443 (1982)

Collected by Stephenson (3896) in 1985.

Licea variabilis Schrad., Nov. gen. Pl. 18 (1797)

Collected by Stephenson (275) in 1981.

Lindbladia tubulina Fr., Summa veg. Scand. 449 (1849)

Collected by Stephenson (3239) in 1985.

Lycogala epidendrum (L.) Fr., Syst. Mycol. 3(1):80 (1829)

Reported by Graff (1928).

Macbrideola cornea (G. Lister & Cran) Alexop., Mycologia 59(1):112 (1967)

Collected by Stephenson (3391) in 1985.

Macbrideola scintillans H.C. Gilbert, Stud. Nat. Hist. Iowa Univ. 16(2):156 (1934)

Collected by Stephenson (3382) in 1985.

Meriderma carestiae (Ces. & De Not.) Mar. Mey. & Poulain, in Poulain, Meyer & Bozonnet, Myxomycètes 551 (2011)

Collected by Stephenson (3228) in 1985. This species was originally described as *Lamproderma carestiae* and is associated with melting snowbanks.

Meriderma cribrarioides (Fr.) Mar. Mey. & Poulain, in Poulain, Meyer & Bozonnet, *Myxomycètes* 551 (2011)

Collected by Stephenson (33392). This species was originally described as *Lamproderma atrosporum* and is associated with melting snowbanks.

Metatrichia floriformis (Sshwein.) Nann.-Bremek., *Proc. Kon. Ned. Akad. Wetensch.*, C. 88(1): 127 (1985)

Collected by Stephenson (242) in 1981. In earlier treatments of the myxomycetes, this species is listed as *Trichia floriformis*.

Metatrichia vesparia (Batsch) Nann.-Bremek. ex G.W. Martin & Alexop., *Myxomycetes* 143 (1969)

Reported (as *Hemitrichia vesparium*) by Graff (1928)

Nannengaella contexta (Pers.) J.M. García-Martín, J.C. Zamora & Lado, *Persoonia* 51:110 (2023)

Collected by Stephenson (200) in 1981. In earlier treatments of the myxomycetes, this species is listed as *Physarum contextum*.

Nannengaella sulphurea (Alb. & Schwein.) J.M. García-Martín, J.C. Zamora & Lado, *Persoonia* 51:110 (2023)

Collected by J. Clemens (no number given) in 1908. In earlier treatments of the myxomycetes, this species is listed as *Physarum sulphureum*.

Oligonema affine (de Bary) García-Cunch., J.C. Zamora & Lado, in García-Cunchillos, Zamora, Ryberg & Lado, *Mol. Phylogenet. Evol.* 177:107609, p. 15 (2022)

Reported by Graff (1928). In earlier treatments of the myxomycetes, this species is listed as *Trichia affinis*.

Oligonema favogineum (Batsch) García-Cunch., J.C. Zamora & Lado, in García-Cunchillos, Zamora, Ryberg & Lado, *Mol. Phylogenet. Evol.* 177:107609, p. 15 (2022)

Reported by Stephenson (3201) in 1985. In earlier treatments of the myxomycetes, this species is listed as *Trichia favoginea*.

Oligonema persimile (P. Karst.) García-Cunch., J.C. Zamora & Lado, in García-Cunchillos, Zamora, Ryberg & Lado, *Mol. Phylogenet. Evol.* 177:107609, p. 15 (2022)

Reported by Graff (1928). In earlier treatments of the myxomycetes, this species is listed as *Trichia persimilis*.

Oligonema verrucosum (Berk.) García-Cunch., J.C. Zamora & Lado, in García-Cunchillos, Zamora, Ryberg & Lado, *Mol. Phylogenet. Evol.* 177:107609, p. 15 (2022)

Collected by S. Mitchel (11914) in 1981. In earlier treatments of the myxomycetes, this species is listed as *Trichia verrucosa*.

Ophiotheca chrysosperma Curr., *Quart. J. Microscop. Sci.* 2:241 (1854)

Collected by Stephenson (2418) in 1985. In earlier treatments of the myxomycetes, this species is listed as *Perichaena chrysosperma*.

Paradiacheopsis frimbriata (G. Lister & Cran) Hertel ex Nann.-Bremek., *Nederandse Myxomyceten* (Zutphen) 232 (1975)

Collected by Stephenson (2329) from a moist chamber culture in 1985.

Perichaena depressa Lib., *Pl. crypt. Arduenna* 378 (1837)

Collected by Stephenson (3884) in 1985.

Perichaena liceoides Rostaf., *Sluzowce monogr.* 295 (1875)

Collected by Stephenson (3884) in 1989. This species is associated with dung of large herbivores.

Physarum album (Bull.) Chevall., *Fl. gén. env. Paris* 1:336 (1826)

Collected by Stephenson (254) in 1981. In earlier treatments of the myxomycetes, this species is listed as *Physarum nutans*.

Physarum auriscalpium Cooke, *Ann. Lyceum Nat. Hist. New York* 11:384 (1877)

Reported by Graff (1928).

Physarum bitectum G. Lister, in Lister, *Monogr. Mycetozoa*, ed. 2, 78 (1911)

Reported by Graff (1928).

Physarum carneum G. Lister & Sturgis, in G. Lister, *J. Bot.* 48:73 (1910)

Reported by Graff (1928) also listed by Martin and Alexopoulos (1969).

Physarum cinereum (Batsch) Pers., *Neues Mag. Bot.* 1:89 (1794)

Collected by T. W. Anderson (528) with no date given.

Physarum crateriforme Petch, *Ann. Roy. Bot. Gard. (Peradeniya)* 4:304 (1909)

Collected by R. L. Gilbertson (6145) in 1966.

Physarum diderma Rostaf., *Sluzowce monogr.* 110 (1874)

Reported by Graff (1928).

Physarum leucophaeum Fr. & Palmquist, *Symb. Gasteromyc.*, fasc. 3:24 (1818)

Collected by Stephenson (203) in 1981.

Physarum notabile T. Macbr., *N. Amer. Slime-moulds*, ed. 2, 80 (1922)

Collected by R. L. Gilbertson (6624) in 1966.

Physarum pusillum (Berk. & M.A. Curtis) G. Lister, in Lister, *Monogr. Mycetozoa*, ed. 2, 64 (1911)

Collected by R. L. Gilbertson (6373) in 1966.

Physarum rubiginosum Fr. & Palmquist, *Symb. Gasteromyc.*, fasc. 3:21 (1818)

Collected by J. States (19) in 1987.

Physarum tenerum Rex, *Proc. Acad. Nat. Sci. Philadelphia* 42:192 (1890)

Reported by Graff (1928).

Physarum viride (Bull.) Pers., Ann. Bot. (Usteri) 15:6 (1795)

Collected by Stephenson (290) in 1981.

Polyschismium carestianum (Rabenh.) A. Ronikier, J.M. García-Martín, A. Kuhnt, J.C. Zamora, M. de Haan, Janik & Lado, in Ronikier, Janik, de Haan, Kuhnt & Zankowicz, Mycologia 114(6):1028 (2022)

Collected by Stephenson (3259) in 1985. This species is associated with melting snowbanks. In earlier treatments of the myxomycetes, this species is listed as *Lepidoderma carestianum*.

Polyschismium fallax (Rostaf.) A. Ronikier, J.M. García-Martín, A. Kuhnt, J.C. Zamora, M. de Haan, Janik & Lado, in Ronikier, Janik, de Haan, Kuhnt & Zankowicz, Mycologia 114(6):1028 (2022)

Collected by Stephenson (3340) in 1985. This species is associated with melting snowbanks.

Prototrichia metallica (Berk.) Masee, J. Roy. Microscop. Soc. London 1889(3):350 (1889)

Collected by R. L. Gilbertson (6144) in 1985. This is a species typically found in alpine habitats but not necessarily associated with melting snowbanks.

Reticularia lycoperdon Bull., Herb. France 10(109-120):pl. 446. Fig 4 (1790)

Reported by Graff (1928).

Reticularia splendens Morgan, J. Cincinnati Soc. Nat. Hist. 15(3-4):137 (1893)

Collected by Stephenson (3205) in 1985.

Stemonitis axifera (Bull.) T. Macbr., N. Amer. Slime-moulds, ed. T, 120 (1899)

Collected by Stephenson (3282) in 1985.

Stemonitis flavogenita E. Jahn, Verh. Bot. Vereins Prov. Branderburg 45:165 (1904)

Reported by Graff (1928).

Stemonitis fusca Roth, Bot. Mag. (Romer & Usteri) 1(2):26 (1787)

Reported by Graff (1928).

Stemonitis nigrescens Rex, Proc. Acad. Nat. Sci. Philadelphia 43:392 (1891)

Collected by Stephenson (23665) in 2009. Martin and Alexopoulos (1969) and Ing (1999) recognized *Stemonitis nigrescens* as distinct from *S. fusca*, but most recent treatments consider the two taxa to be synonymous. Ing pointed out the ecological differences between the two taxa. *Stemonitis nigrescens* is primarily corticolous, while *S. fusca* is lignicolous. The specimen upon which this record is based appeared on bark in a moist chamber culture.

Stemonitis smithii T. Macbr., Bull. Univ. Lab. Nat. Hist. 2(4):381 (1893)

Collected by Stephenson (174) in 1981. Some taxonomic treatments (e.g., Martin and Alexopoulos 1969, Ing 1999, Poulain et al. 2011) recognized *Stemonitis smithii* as a distinct from *S. axifera*, while others have considered the two taxa to be synonymous. In its typical expression, the much smaller size of both the clusters of sporangia and the individual sporangia making up each cluster are the distinguishing features of *S. smithii*.

Stemonitis splendens Rostaf., Sluzowce monogr. 195 (1874)

Reported by Graff (1928).

- Stemonitis uvifera* T. Macbr., N. Amer. Slime-moulds, ed. 2, 161 (1922)
Reported by Graff (1928).
- Stemonitis virginensis* Rex, Proc. Acad. Nat. Sci. Philadelphia 43:391 (1891)
Collected by Stephenson (193) in 1981.
- Stemonitiopsis hyperopta* (Meyl.) Nann.-Bremek., Nederlandse Myxomyceten (Zutphen) 206 (1975)
Collected by Stephenson (258) in 1981.
- Stemonitopsis typhina* (F.H. Wigg.) Nann.-Bremek., Nederlandse Myxomyceten (Zutphen) 209 (1975)
Reported (as *Comatricha typhoides*) by Graff (1928).
- Symphytocarpus flaccidus* (Lister) Ing & Nann.-Bremek., Proc. Kon. Ned. Akad. Wetensch., C. 70(2):217 (1967)
Reported (as *Comatricha flaccida*) by Graff (1928).
- Trichia botrytis* (J.F. Gmel.) Pers., Neues Mag. Bot. 1:89 (1794)
Collected by Stephenson (283) in 1981.
- Trichia contorta* (Ditmar) Rostaf., Sluzowce monogr. 259 (1875)
Collected by Stephenson (3452) in 1985.
- Trichia fimicola* (Marchal) Ing, Trans. Brit. Mycol. Soc. 50:557 (1967)
Collected by Stephenson (5741) in 1989. This species is associated with the dung of large herbivores.
- Trichia scabra* Rostaf., Sluzowce monogr. 258 (1875)
Reported by Graff (1928).
- Trichia sordida* Johannesen, Mycotaxon 20(1):81 (1984)
Collected by Stephenson (3313) in 1985. This species was reported as *Trichia bicolor* by Stephenson and Farr (1990).
- Trichia subfusca* Rex, Proc. Acad. Nat. Sci. Philadelphia 42:102 (1890)
Collected by Stephenson (208) in 1981.
- Trichia varia* (Pers. ex J.F. Gmel.) Pers., Neues Mag. Bot. 1:90 (1794)
Reported by Graff (1928).
- Tubifera ferruginosa* (Batsch) J.F. Gmel., Syst. nat., ed. 13 (Leipzig), 2(2):1472 (1792)
Collected by Stephenson (3276) in 1985.

Discussion

The most important contribution of the study reported in this paper is that it expands the number of species of myxomycetes known to occur in the state of Montana and by extension the northern Rocky Mountains. The records reported herein include both specimens collected in the field as well as those obtained with the use of moist chamber cultures. However, the vast majority of the records are from the

northwestern portion of the state, with relatively few records from the remainder of the state. As such, this checklist cannot be considered complete. Additional surveys, especially those involving more extensive use of moist chamber cultures, are warranted.

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