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## Mosses of the Great Plains: Introduction and Catalogue

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### INTRODUCTION

This account initiates a series of articles concerning the mosses of the Great Plains. The boundary of this region (Fig. 1) is adopted in part from a parallel study currently in progress on vascular plants (McGregor et al., 1977). However, in addition, this moss study includes that region of Canada studied by Bird (1962). The total area included in this study of the Great Plains thus occupies about 665 thousand square miles, extending from southern Manitoba to southeastern Alberta, south to northeastern New Mexico and northwestern Oklahoma.

Crum, Steere and Anderson (1973) have listed 1,170 species, 267 genera, and 58 families of mosses for North America, north of Mexico. Based on literature records, there are 333 species, 118 genera, and 39 families of mosses for the Great Plains. No regional moss study has ever been conducted for this region of the United States, and, except for Kansas, none of the Great Plains states have been studied in much detail. Further field and herbarium work will be needed in order to know the kinds of mosses and their distribution within the Great Plains.

The Great Plains is often conceived as an uninteresting region of little floristic diversity. But this region is more than just flat prairies and plains. The diversity of the vegetation is made evident from the 21 vascular vegetation units recognized by Küchler (1964). The mosses parallel this diversity of the vascular plants.

The majority of Great Plains mosses have floristic affinities outside the area. Regions that contribute to this diversity, having their floristic affinities outside the Great Plains, include such ancient relict areas as the Black Hills of South Dakota, Turtle Mountains of North Dakota, Pine Ridge of Nebraska, and the Ozarkian region of Kansas. Finger-like extensions of drainage systems also support a number of eastern and western floristic elements that follow along and into the Great Plains by river systems, including the Missouri, Platte, Arkansas, Red, James and Cimarron Rivers.

The Great Plains is a relatively young floristic region. According to Stebbins (1975) in a discussion of the origins of North American grasslands, four factors have had great influence on present-day distribution and diversity: Pleistocene glaciation covering the northern Great Plains, climatic changes that affected vegetation, creation of large floodplains associated with changes in soil conditions as a result of glacial melting, and finally, the invasion of large herds of bison. These factors must then be taken into account when considering the degree of diversity that has been reached and the few endemic plants for this region. The

only known endemic moss in the Great Plains is *Aschisma kansanum* Andr., which was collected by E. Hall in the 1870's and described by Andrews in 1915. The habitat of this interesting moss has been studied in some detail by Cridland (1959).

An understanding of the vascular plant distribution patterns is helpful in explaining the distribution of mosses. Once the distributional data are compiled for both bryophytes and vascular plants, greater support can be given for possible dispersal patterns to account for the present day distribution of plants, e.g. Croizat (1958), Schofield (1969), and Schuster (1976). However, until sufficient collecting is completed in the Great Plains, the discussion of distribution of mosses and their correlation with the vascular plants will have to wait.

### CATALOGUE

This catalogue has been compiled from the literature. Sources have been both local studies within the Great Plains as well as other taxonomic literature, e.g., monographic revisions. The main emphasis has been on the four states that are fully within the boundaries of this study — Kansas, Nebraska, South Dakota and North Dakota. The catalogue thus serves as an up-dated state checklist for each of these states and should aid in the identification and in the recognition of additions to the region. No attempt has yet been made to verify the determination of taxa reported in this list. Names listed in the literature have been accepted but certainly some reports are questionable. In addition to the coded references cited in the catalogue, further references pertinent to the region of study are included in the 'Literature Cited and Bibliography' section.

Except where noted, nomenclature follows Crum, Steere, and Anderson (1973). Subspecific names have been excluded owing to confusion in usage.

The arrangement of the catalogue is alphabetical by genus; the family is listed parenthetically after each genus, which is followed by an alphabetical listing of species. State or province is abbreviated and the reference for each species is indicated by a coded number listed in the 'Literature Cited and Bibliography' section.

A complete floristic survey of the Great Plains mosses is now in progress by the author. Future collecting will be directed toward each of the basically recognized vegetation units, physiographic regions, or particular regions of interest in the Great Plains. The author would appreciate any further information concerning literature on the Great Plains mosses or of existing collections from this region.

The initial set of specimens collected by the author have been and will continue to be deposited with the Missouri Botanical Garden Cryptogamic Herbarium (MO). Representative duplicate collections will be deposited with the following herbaria: ALTA, COLO, MEXU, MICH, SMS, SMU, TENN, US. Partial assistance has been provided by the Missouri Botanical Garden for field work.

Individuals who have assisted in various ways are gratefully acknowledged: Drs. Frank Bowers, Marshall Crosby, Howard Crum, and Dale Vitt. I would like to especially acknowledge Dr. Howard Crum for commenting on this paper.

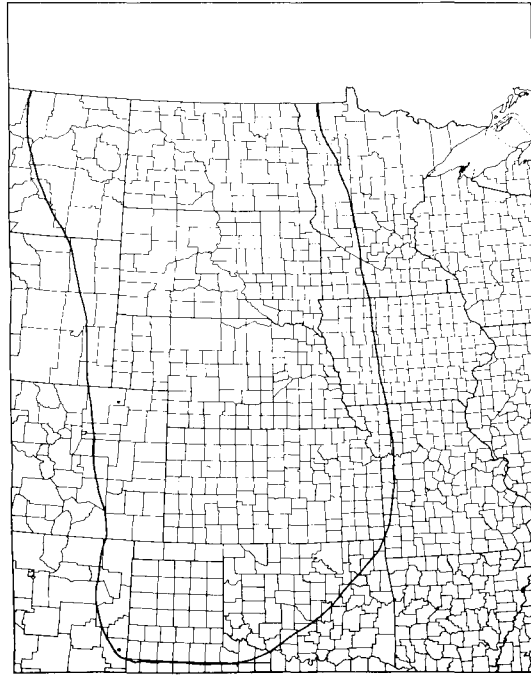


FIGURE 1. Area of study within the United States.

## CATALOGUE OF THE MOSSES OF THE GREAT PLAINS

### *Acaulon* C. Muell. (Pottiaceae)

*A. Muticum* (Hedw.) C. Muell. Kan. 61; Neb. 35.

*A. schimperianum* (Sull.) Sull. ex Sull. & Lesq. Ia. 10, 20; Kan. 61.

*A. triquetrum* (Spruce) C. Muell. Kan. 15, 61.

### *Aloina* (C. Muell.) Kindb. (Pottiaceae)

*A. brevirostris* (Hook. & Grev.) Kindb. Kan. 15, 61.

*A. rigida* (Hedw.) Limpr. Colo. 29, 68; Ia. 10, 22; Kan. 61; Neb. 22.

### *Amblystegium* B.S.G. (Amblystegiaceae)

*A. juratzkanum* Schimp. Alta. 6; Ia. 10; Kan. 43, 61; Mo. 26; N.D. 31; Okla. 3; Sask. 6; S.D. 39.

*A. serpens* (Hedw.) B.S.G. Alta. 6; Ia. 10; Kan. 28, 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39.

*A. varium* (Hedw.) Lindb. Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Neb. 70; N.D. 31; Okla. 3.

### *Anomodon* Hook. & Tayl. (Thuidiaceae)

*A. attenuatus* (Hedw.) Hueb. Ia. 10; Kan. 28, 43; Minn. 30; Mo. 26; Neb. 8; Okla. 3; S.D. 39.

*A. minor* (Hedw.) Fuernr. Ia. 10; Kan. 28, 43; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; S.D. 27.

*A. rostratus* (Hedw.) Schimp. Ia. 10; Kan. 28, 43; Minn. 30; Mo. 26; Neb. 8, 70; Okla. 3.

### *Aphanorrbegma* Sull. (Funariaceae)

*A. serratum* (J. Hook. & Wils. ex Drumm.) Sull. Kan. 43, 61; Mo. 26; Neb. 36.

- Archidium* Brid. (Archidiaceae)  
*A. ohioense* Schimp. ex C. Muell. Kan. 61; Minn. 30; Okla. 3.
- Aschisma* Lindb. (Pottiaceae)  
*A. kansanum* Andr. Kan. 15, 27, 43, 61.
- Astomum* Hampe (Pottiaceae)  
*A. ludovicianum* Sull.) Sull. Kan. 61.  
*A. mublenbergianum* (Sw.) Grout Ia. 10; Kan. 15, 28, 43, 61; Minn. 30; Mo. 26; Neb. 35; Okla. 3.  
*A. phascoides* (Hook. ex Drum.) Grout Kan. 61; Neb. 35; Okla. 3; Tex. 69.
- Atrichum* P. Beauv. (Polytrichaceae)  
*A. altecristatum* (Ren. & Card.) Irel. Kan. 33; Neb. 33, 36; Mo. 26.  
*A. angustatum* (Brid.) B.S.G. Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Neb. 36, 70; Okla. 3.  
*A. crispum* (James) Sull. Mo. 26.  
*A. selwynii* Aust. Kan. 27, 43; S.D. 39.  
*A. undulatum* (Hedw.) P. Beauv. Ia. 20; Kan. 43, 61; Mo. 26; Neb. 36, 66, 70; Okla. 3; S.D. 39.
- Aulacomnium* Schwaegr. (Aulacomniaceae)  
*A. heterostichum* (Hedw.) B.S.G. Kan. 15, 27, 43; Mo. 26; Okla. 3.  
*A. palustre* (Hedw.) Schwaegr. Ia. 10; Kan. 42; Minn. 30; Neb. 8; N.D. 27, 31; S.D. 39.
- Barbula* Hedw. (Pottiaceae)  
*B. acuta* (Brid.) Brid. Alta. 6; Neb. 36; Sask. 6.  
*B. cancellata* C. Muell. Kan. 28, 43, 61.  
*B. convoluta* Hedw. Neb. 35, 70; Okla. 3.  
*B. ehrenbergii* (Lor.) Fleisch. Mo. 26.  
*B. fallax* Hedw. Alta. 6; Ia. 10; Kan. 42, 43, 61; Minn. 30; Mo. 26; Neb. 35; N.D. 31; Sask. 6; S.D. 39.  
*B. unguiculata* Hedw. Colo. 29, 68; Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 35, 66, 70; N.D. 31; Okla. 3.
- Bartramia* Hedw. (Bartramiaceae)  
*B. pomiformis* Hedw. Ia. 10; Kan. 43; Minn. 30; Mo. 26; Okla. 3; S.D. 39.  
*B. subulata* B.S.G. S.D. 39.
- Brachythecium* B.S.G. (Brachytheciaceae)  
*B. acuminatum* (Hedw.) Aust. Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Neb. 70; N.D. 31; Okla. 3.  
*B. acutum* (Mitt.) Sull. Minn. 30; Neb. 70; N.D. 31.  
*B. albicans* (Hedw.) B.S.G. S.D. 39.  
*B. calcareum* Kindb. Ia. 10; Kan. 43; Mo. 26; Okla. 3.  
*B. campestre* (C. Muell.) B.S.G. Neb. 70.  
*B. collinum* (Schleich. ex C. Muell.) B.S.G. Alta. 6; N.D. 27, 31; Sask. 6; S.D. 39.  
*B. curtum* (Lindb.) Limpr. Okla. 3.  
*B. oxycladon* (Brid.) Jaeg. & Sauerb. Ia. 10; Kan. 27, 28, 43, 61; Minn. 30; Mo. 26; Neb. 27, 66, 70; N.D. 31; S.D. 39.  
*B. plumosum* (Hedw.) B.S.G. Ia. 10; Neb. 70; Okla. 3.  
*B. rivulare* B.S.G. Alta. 6; Minn. 30; Mo. 26; S.D. 39.  
*B. rutabulum* (Hedw.) B.S.G. Alta. 6; Ia. 10; Minn. 30; Neb. 70; Okla. 3; Sask. 6.  
*B. salebrosum* (Web. & Mohr) B.S.G. Alta. 6; Colo. 57; Ia. 10; Kan. 28, 43, 61; Mo. 26; Neb. 27, 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39, 63.  
*B. velutinum* (Hedw.) B.S.G. Kan. 61; S.D. 39.
- Brotherella* Loeske ex Fleisch. (Sematophyllaceae)  
*B. recurvans* (Michx.) Fleisch. Kan. 44.
- Bruchia* Schwaegr. (Dicranaceae)  
*B. brevifolia* Sull. Kan. 43.  
*B. sullivantii* Aust. Kan. 15, 43, 61; Okla. 3.  
*B. texana* Aust. Neb. 8; Okla. 3.
- Bryhnia* Kaur. (Brachytheciaceae)  
*B. graminicolor* (Brid.) Grout Ia. 10; Mo. 26.  
*B. novae-angliae* (Sull. & Lesq. ex Sull.) Grout Mo. 26.

- Bryoandersonia* Robins. (Brachytheciaceae)  
*B. illecebra* (Hedw.) Robins. Mo. 26.
- Bryoerythrophyllum* Chen (Pottiaceae)  
*B. recurvirostrum* (Hedw.) Chen Alta. 6; Ia. 10; Man. 6; Minn. 30; Neb. 36; Sask. 6; S.D. 39.
- Bryum* Hedw. (Bryaceae)  
*B. algovicum* Sendtn. ex C. Muell. Ia. 10; Kan. 43, 61; Minn. 30; N.D. 31; S.D. 39.  
*B. angustirete* Kindb. ex Macoun. Sask. 6.  
*B. arcticum* (R. Br.) B.S.G. S.D. 63.  
*B. argenteum* Hedw. Colo. 68; Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; S.D. 39; Tex. 69.  
*B. bicolor* Dicks. Kan. 43, 61; Okla. 3; S.D. 39; Tex. 69.  
*B. caespitium* Hedw. Colo. 68; Ia. 10; Kan. 43, 61; Man. 6; Mo. 26; Neb. 9; N.D. 31; Okla. 3; S.D. 39.  
*B. calophyllum* R. Br. N.D. 31.  
*B. capillare* Hedw. Ia. 10; Minn. 30; Mo. 26; Neb. 70; N.D. 31; Okla. 3; S.D. 39.  
*B. creberrimum* Tayl. Alta. 6; Ia. 10; Kan. 43, 61; Man. 6; N.D. 31; Okla. 3; Sask. 6; S.D. 39.  
*B. gemmiparum* De Not. Kan. 43, 61.  
*B. knowltonii* Barnes N.D. 31.  
*B. lonchocaulon* C. Muell. Alta. 6; Man. 6; Sask. 6; S.D. 39.  
*B. marratii* Hook. & Wils. ex Wils. N.D. 27.  
*B. muehlenbeckii* B.S.G. Okla. 3.  
*B. pallens* (Brid.) Sw. ex Roehl. Neb. 70; N.D. 31.  
*B. pallescens* Schleich. ex Schwaegr. Alta. 6; Minn. 30; Sask. 6.  
*B. pseudotriquetrum* (Hedw.) Gaertn., Meyer & Scherb. Kan. 43, 61; Minn. 30; Mo. 26; Neb. 70; N.D. 31; Okla. 3; S.D. 39.  
*B. stenotrichum* C. Muell. Alta. 6; Man. 6; N.D. 31; Sask. 6.  
*B. turbinatum* (Hedw.) Turn. Sask. 6.  
*B. uliginosum* (Brid.) B.S.G. Ia. 10; N.D. 31; S.D. 63.  
*B. weigelii* Spreng. S.D. 39.
- Callicladium* Crum (Hypnaceae)  
*C. baldanianum* (Grev.) Crum Ia. 10.
- Calliergonella* Loeske (Amblystegiaceae)  
*C. cuspidata* (Hedw.) Loeske Ia. 10.
- Campylium* (Sull.) Mitt. (Amblystegiaceae)  
*C. chrysophyllum* (Brid.) J. Lange Alta. 6; Ia. 10; Kan. 43, 61; Mo. 26; Neb. 70; Okla. 3; S.D. 39.  
*C. hispidulum* (Brid.) Mitt. Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 27, 66, 70; Okla. 3; Sask. 6; S.D. 39; Wyo. 48.  
*C. polygamum* (B.S.G.) C. Jens. Alta. 6.  
*C. radicale* (P.-Beauv.) Grout Neb. 66, 70.  
*C. stellatum* (Hedw.) C. Jens. Ia. 10; Wyo. 48.
- Ceratodon* Brid. (Ditrichaceae)  
*C. purpureus* (Hedw.) Brid. Alta. 6; Colo. 57, 68; Ia. 10; Kan. 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39; Wyo. 48.
- Climacium* Web. & Mohr ex Mohr (Climaciaceae)  
*C. americanum* Brid. Kan. 43; Mo. 26; S.D. 39.  
*C. dendroides* (Hedw.) Web. & Mohr. Colo. 57; Ia. 10; Minn. 30; N.D. 31; S.D. 39.
- Cratoneuron* (Sull.) Spruce (Amblystegiaceae)  
*C. commutatum* (Hedw.) Roth N.D. 31; Okla. 3.  
*C. filicinum* (Hedw.) Spruce Kan. 43; N.D. 31; Sask. 6; S.D. 39; Wyo. 48.
- Crumia* Schof. (Pottiaceae)  
*C. latifolia* (Kindb. ex Macoun) Schof. S.D. 39.
- Cynodontium* B.S.G. ex Schimp. (Dicranaceae)  
*C. alpestre* (Wahlenb.) Milde S.D. 39.  
*C. strumiferum* (Hedw.) Lindb. S.D. 39.

- Desmatodon* Brid. (Pottiaceae)  
*D. cernuus* (Hueb.) B.S.G. N.D. 27, 31.  
*D. heimii* (Hedw.) Mitt. Alta. 6; Neb. 35; Sask. 6.  
*D. obtusifolius* (Schwaegr.) Schimp. Colo. 68; Kan. 43, 61; Man. 6; Neb. 35, 70; N.D. 31; Okla. 3; S.D. 39, 71; Wyo. 48, 71.  
*D. plinthobius* Sull. & Lesq. ex Sull. Colo. 68; Kan. 43, 61; Mo. 26; Neb. 8; Okla. 3.  
*D. porteri* James ex Aust. Kan. 43.  
*D. randii* (Kenn.) Laz. Alta. 6; Ia. 10.
- Dichodontium* Schimp. (Dicranaceae)  
*D. pellucidum* (Hedw.) Schimp. Kan. 61.
- Dicranella* (C. Muell.) Schimp. (Dicranaceae)  
*D. heteromalla* (Hedw.) Schimp. Ia. 10; Kan. 43; Mo. 26; Neb. 8; Okla. 3.  
*D. bilariana* (Mont.) Mitt. Neb. 70.  
*D. rufescens* (With.) Schimp. Kan. 42; Okla. 3.  
*D. varia* (Hedw.) Schimp. Ia. 10; Kan. 43, 61; Mo. 26; Neb. 9; N.D. 31; Okla. 3.
- Dicranum* Hedw. (Dicranaceae)  
*D. bonjeanii* De Not. ex Lisa Minn. 30; S.D. 39.  
*D. flagellare* Hedw. S.D. 39.  
*D. fuscescens* Turn. Okla. 3; S.D. 39.  
*D. polysetum* Sw. S.D. 39.  
*D. sabuletorum* Ren. & Card. Kan. 43; Mo. 26.  
*D. scoparium* Hedw. Kan. 43; Mo. 26; S.D. 39.  
*D. spurium* Hedw. Mo. 26.
- Didymodon* Hedw. (Pottiaceae)  
*D. reedii* Robins. Colo. 29.  
*D. rigidulus* Hedw. Kan. 43, 61; S.D. 39.  
*D. tophaceus* (Brid.) Lisa Kan. 43, 61; Minn. 30; Neb. 35; Okla. 3.
- Diphyscium* Mohr (Buxbaumiaceae)  
*D. foliosum* (Hedw.) Mohr Kan. 44.
- Distichium* B.S.G. (Ditrichaceae)  
*D. capillaceum* (Hedw.) B.S.G. Alta. 6; N.D. 31; S.D. 39.
- Ditrichum* Hampe (Ditrichaceae)  
*D. flexicaule* (Schwaegr.) Hampe Alta. 6.  
*D. pallidum* (Hedw.) Hampe Ia. 10; Kan. 43, 61; Mo. 26; Okla. 3.  
*D. pusillum* (Hedw.) Hampe Ia. 10; Mo. 26; Okla. 3.
- Drepanocladus* (C. Muell.) Roth (Amblystegiaceae)  
*D. aduncus* (Hedw.) Warnst. Alta. 6; Colo. 68; Ia. 10; Kan. 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 70, 72; N.D. 31, 72; Sask. 6; S.D. 39, 72.  
*D. fluitans* (Hedw.) Warnst. Neb. 70.  
*D. revolvens* (Sw.) Warnst. Ia. 10.  
*D. sendtneri* (Schimp.) Warnst. Ia. 10; S.D. 39.  
*D. uncinatus* (Hedw.) Warnst. Alta. 6; S.D. 39, 72.
- Drummondia* Hook. ex Drumm. (Orthotrichaceae)  
*D. prorepens* (Hedw.) Britt. Kan. 43.
- Encalypta* Hedw. (Encalyptaceae)  
*E. ciliata* Hedw. Colo. 57; Minn. 30; Neb. 70; S.D. 39.  
*E. procera* Bruch N.D. 31; S.D. 39.  
*E. rhaptocarpa* Schwaegr. Alta. 6; Minn. 30; N.D. 31; Sask. 6; S.D. 39, 71.
- Entodon* C. Muell. (Entodontaceae)  
*E. challengerii* (Par.) Card. Ia. 10; Kan. 27, 28, 43, 61; Mo. 26; Neb. 27, 66, 70; S.D. 27.  
*E. cladorrhizans* (Hedw.) C. Muell. Ia. 10; Kan. 28, 42, 43; Minn. 30; Mo. 26; Neb. 70; N.D. 31; Okla. 3.  
*E. seductrix* (Hedw.) C. Muell. Ia. 10; Kan. 27, 28, 43, 61; Minn. 30; Mo. 26; Neb. 70; Okla. 3.
- Ephemerum* Hampe (Ephemeraceae)  
*E. cohaerens* (Hedw.) Hampe Kan. 15, 61; Neb. 9.  
*E. crassinervium* (Schwaegr.) Hampe Kan. 15, 61; Neb. 9.  
*E. spinulosum* Bruch & Schimp. ex Schimp. Kan. 61; Neb. 9.

- Eucladium* B.S.G. (Pottiaceae)  
*E. verticillatum* (Brid.) B.S.G. Kan. 43; Okla. 3; Tex. 69.
- Eurhynchium* B.S.G. (Brachytheciaceae)  
*E. bians* (Hedw.) Sande Lac. Ia. 10; Kan. 43, 61; Mo. 26; Okla. 3.  
*E. pulchellum* (Hedw.) Jenn. Alta. 6; Minn. 30; Mo. 26; Okla. 3; N.D. 31; Sask. 6; S.D. 27, 39.
- Fabronia* Raddi (Fabroniaceae)  
*F. ciliaris* (Brid.) Brid. Ia. 10; Kan. 15, 42, 61; Minn. 30; Mo. 26; Neb. 8; Okla. 3; S.D. 39.  
*F. wrightii* Sull. Kan. 28, 43.
- Fissidens* Hedw. (Fissidentaceae)  
*F. bryoides* Hedw. Kan. 42, 61.  
*F. bushii* (Card. & Ther.) Card. & Ther. Kan. 43.  
*F. cristatus* Wils. ex Mitt. Kan. 43; Mo. 26; Okla. 3.  
*F. exiguus* Sull. Mo. 26. See note under *F. viridulus*.  
*F. fontanus* (B.-Pyl.) Steud. Kan. 43; Minn. 30; Mo. 26; Okla. 3.  
*F. obtusifolius* Wils. Kan. 27, 43, 61; Mo. 26; Neb. 8; Okla. 3.  
*F. osmundoides* Hedw. Kan. 61; Okla. 3.  
*F. subbasilaris* Hedw. Kan. 43, 61; Mo. 26; Okla. 3.  
*F. taxifolius* Hedw. Ia. 10; Kan. 28, 43; Mo. 26; Neb. 70; Okla. 3.  
*F. viridulus* (Sw.) Wahlenb. Ia. 10; Kan. 43, 61; Mo. 26; Neb. 9, 70; Okla. 3; S.D. 30. In the future, this taxon and *F. exiguus* should be referred to *F. bryoides*, see Crum (1973) and Pursell (1976).
- Fontinalis* Hedw. (Fontinalaceae)  
*F. antipyretica* Hedw. Alta. 6; S.D. 39.  
*F. hypnoides* C. J. Hartm. Alta. 6; Minn. 30; N.D. 27; Sask. 6.  
*F. missourica* Card. Kan. 43; Mo. 26.  
*F. novae-angliae* Sull. Kan. 27; Mo. 26.
- Funaria* Hedw. (Funariaceae)  
*F. americana* Lindb. Kan. 61; Minn. 30; Okla. 3.  
*F. flavicans* Michx. Kan. 43, 61; Mo. 26; Okla. 3.  
*F. hygrometrica* Hedw. Alta. 6; Ia. 10; Kan. 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39.  
*F. microstoma* Bruch ex Schimp. Neb. 70.
- Grimmia* Hedw. (Grimmiaceae)  
*G. affinis* Hoppe & Hornsch. ex Hornsch. Colo. 57; S.D. 39.  
*G. alpicola* Hedw. Alta. 6; Kan. 43; Sask. 6; S.D. 39.  
*G. anodon* B.S.G. Alta. 6; N.D. 31; Sask. 6; S.D. 39, 71.  
*G. apocarpa* Hedw. Alta. 6; Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; N.D. 31; Okla. 3; Sask. 6; S.D. 39.  
*G. calyptrata* Hook. ex Drumm. Wyo. 71.  
*G. incurva* Schwaegr. S.D. 39.  
*G. laevigata* (Brid.) Brid. Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Okla. 3.  
*G. olneyi* Sull. Kan. 44.  
*G. pilifera* P.-Beauv. Minn. 30; Mo. 26.  
*G. plagiopodia* Hedw. Alta. 6; Colo. 57; Kan. 43, 61; N.D. 31; Sask. 6; S.D. 39; Wyo. 71.  
*G. pulvinata* (Hedw.) Sm. Kan. 61; S.D. 71.  
*G. rauii* Aust. Kan. 27, 43, 61; Okla. 3; S.D. 27, 39; Tex. 69.  
*G. teretinervis* Limpr. Kan. 44, 61.  
*G. trichophylla* Grev. Colo. 57; S.D. 39.  
*G. unicolor* Hook. ex Grev. Neb. 70.  
*G. wrightii* (Sull.) Aust. Kan. 61; Neb. 66, 70; Okla. 3; S.D. 39.
- Gymnostomum* Nees, Hornsch. & Sturm (Pottiaceae)  
*G. aeruginosum* Sm. Neb. 35.  
*G. calcareum* Nees, Hornsch. & Sturm Okla. 3.  
*G. recurvirostrum* Hedw. Kan. 43; Mo. 26; S.D. 39.
- Haplocladium* (C. Muell.) C. Muell. (Thuidiaceae)  
*H. microphyllum* (Hedw.) Broth. Colo. 57; Kan. 42, 43; Mo. 26; N.D. 31; Okla. 3.  
*H. virginianum* (Brid.) Broth. Ia. 10; Kan. 43, 61.



*Hedwigia* P.-Beauv. (Hedwigiaceae)  
*H. ciliata* (Hedw.) P.-Beauv. Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; N.D. 31; Okla. 3; S.D. 39.

*Helodium* (Sull.) Warnst. (Thuidiaceae)  
*H. blandowii* (Web. & Mohr) Warnst. N.D. 31.

*Herzogiella* Broth. (Hypnaceae)  
*H. turfacea* (Lindb.) Iwats. S.D. 34, 39.

*Homalothecium* B.S.G. (Brachytheciaceae)  
*H. aeneum* (Mitt.) Lawt. S.D. 39; Wyo. 48.

*Homomallium* (Schimp.) Loeske (Hypnaceae)  
*H. adnatum* (Hedw.) Broth. Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; N.D. 31; Okla. 3.  
*H. mexicanum* Card. Kan. 61.

*Husnotiella* Card. (Pottiaceae)  
*H. revoluta* Card. Okla. 3.

*Hygroamblystegium* Loeske (Amblystegiaceae)  
*H. fluviale* (Hedw.) Loeske Mo. 26; Neb. 70; Okla. 3.  
*H. noterophilum* (Sull. & Lesq. ex Sull.) Warnst. Okla. 3; S.D. 39.  
*H. tenax* (Hedw.) Jenn. Alta. 6; Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39.

*Hygrohypnum* Lindb. (Amblystegiaceae)  
*H. bestii* (Ren. & Bryhn ex Ren.) Holz. ex Broth. S.D. 39.  
*H. luridum* (Hedw.) Jenn. Sask. 6; S.D. 39.

*Hylocomium* B.S.G. (Hylocomiaceae)  
*H. splendens* (Hedw.) B.S.G. Alta. 6; S.D. 27, 39.

*Hyophila* Brid. (Pottiaceae)  
*H. involuta* (Hook.) Jaeg. & Sauerb. Kan. 15.

*Hypnum* Hedw. (Hypnaceae)  
*H. cupressiforme* Hedw. Alta. 6; Colo. 57; Kan. 61; Neb. 9; N.D. 31; Sask. 6; S.D. 39, 63.  
*H. curvifolium* Hedw. Kan. 43; Okla. 3.  
*H. imponens* Hedw. Mo. 26; Okla. 3.  
*H. lindbergii* Mitt. Alta. 6; Kan. 43; Mo. 26; N.D. 31.  
*H. pallescens* (Hedw.) P.-Beauv. S.D. 39; Wyo. 71.  
*H. revolutum* (Mitt.) Lindb. Alta. 6; Colo. 57; N.D. 31; Sask. 6; S.D. 27, 39.  
*H. vaucheri* Lesq. Alta. 6; Neb. 27; N.D. 31; Sask. 6.

*Isopterygium* Mitt. (Hypnaceae)  
*I. elegans* (Brid.) Lindb. Okla. 3.  
*I. pulchellum* (Hedw.) Jaeg. & Sauerb. S.D. 34.

*Leptobryum* (B.S.G.) Wils. (Bryaceae)  
*L. pyriforme* (Hedw.) Wils. Alta. 6; Ia. 10; Kan. 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39.

*Leptodictyum* (Schimp.) Warnst. (Amblystegiaceae)  
*L. brevipes* (Card. & Thér. ex Holz.) Broth. Minn. 30; Mo. 26; Neb. 27.  
*L. laxirete* (Card. & Thér.) Broth. Kan. 44.  
*L. riparium* (Hedw.) Warnst. Alta. 6; Ia. 10; Kan. 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39, 63; Tex. 69.  
*L. trichopodium* (Schultz) Warnst. Alta. 6; Ia. 10; Kan. 28, 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39; Wyo. 48.

*Leskea* Hedw. (Leskeaceae)  
*L. australis* Sharp Okla. 3.  
*L. gracilescens* Hedw. Ia. 10; Kan. 28, 43, 61; Mo. 26; Neb. 9; Okla. 3.  
*L. obscura* Hedw. Ia. 10; Kan. 43, 61; Man. 6; Minn. 30; Mo. 26; Neb. 70; Okla. 3; Sask. 6.  
*L. polycarpa* Hedw. Ia. 10; Minn. 30; Neb. 66, 70; N.D. 27, 31; Okla. 3.

*Leskeella* (Limpr.) Loeske (Leskeaceae)  
*L. nervosa* (Brid.) Loeske N.D. 31.

*Leucobryum* Hampe (Leucobryaceae)  
*L. albidum* (Brid. ex P.-Beauv.) Lindb. Kan. 43; Mo. 26.  
*L. glaucum* (Hedw.) Angstr. ex Fr. Kan. 43; Mo. 26; Okla. 3.

*Leucodon* Swaegr. (Leucodontaceae)  
*L. brachypus* Brid. Kan. 27, 43; Okla. 3.  
*L. julaceus* (Hedw.) Sull. Kan. 43; Okla. 3.  
*Lindbergia* Kindb. (Leskeaceae)  
*L. brachyptera* (Mitt.) Kindb. Ia. 10, 17; Kan. 15, 17, 27, 42; Minn. 17, 30; Mo. 17, 26; Neb. 8, 17; Okla. 3.  
*Metaneckera* Steere (Neckeraceae)  
*M. menziesii* (Hook. ex Drumm.) Steere S.D. 39.  
*Mnium* Hedw. (Mniaceae)  
*M. affine* Bland ex Funck *sensu lato*, *sensu* Crum (1973). Alta. 6; Ia. 10; Kan. 42, 43; Neb. 8; Mo. 26; Okla. 3; Sask. 6.  
*M. arizonicum* Amann Alta. 6.  
*M. cuspidatum* Hedw. Alta. 6; Ia. 10; Kan. 28, 43, 61; Minn. 30; Mo. 26; Neb. 36, 66, 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39, 63.  
*M. marginatum* (With.) Brid. ex P.-Beauv. Ia. 10; S.D. 39.  
*M. medium* B.S.G. Okla. 3.  
*M. orthorrhynchum* Brid. Alta. 6; Ia. 10; Neb. 36; N.D. 31.  
*M. punctatum* Hedw. Mo. 26; Neb. 36; Okla. 3.  
*M. rostratum* Schrad. N.D. 31; Okla. 3.  
*M. spinulosum* B.S.G. Alta. 6; S.D. 39.  
*M. stellare* Hedw. Ia. 10.  
*Myurella* B.S.G. (Theliaceae)  
*M. julacea* (Swaegr.) B.S.G. N.D. 31.  
*Neckera* Hedw. (Neckeraceae)  
*N. pennata* Hedw. Neb. 66, 70.  
*Oncophorus* (Brid.) Brid. (Dicranaceae)  
*O. wahlenbergii* Brid. Alta. 6; S.D. 39.  
*Orthotrichum* Hedw. (Orthotrichaceae)  
*O. anomalum* Hedw. Ia. 10, 64; Minn. 30, 64; Mo. 26; N.D. 31, 64; Sask. 6, 64; S.D. 39, 64; Wyo. 64.  
*O. diaphanum* Brid. Kan. 43, 61, 64; Neb. 9, 64; Okla. 3, 64.  
*O. hallii* Sull. & Lesq. ex Sull. S.D. 39.  
*O. jamesianum* Sull. ex James S.D. 39.  
*O. laevigatum* Zett. N.D. 31; S.D. 64.  
*O. obtusifolium* Brid. Man. 64; Neb. 9, 64; Sask. 6, 64; S.D. 64.  
*O. ohioense* Sull. & Lesq. ex Aust. N.D. 31.  
*O. pumilum* Sw. Alta. 64; Ia. 10, 64; Kan. 28, 43, 61, 64; Man. 64; Minn. 30; Mo. 26, 64; Neb. 9, 64; Okla. 3, 64; Sask. 6, 64; S.D. 64.  
*O. pusillum* Mitt. Kan. 28, 43, 61, 64; Mo. 64; Okla. 3, 64.  
*O. rupestre* Schleich. ex Swaegr. S.D. 39, 63, 64.  
*O. sordidum* Sull. & Lesq. ex Aust. Kan. 43.  
*O. speciosum* Nees ex Sturm Alta. 6, 64; N.D. 31; Sask. 64.  
*O. stellatum* Brid. Neb. 9.  
*O. strangulatum* P.-Beauv. Ia. 10; Kan. 43, 61, 64; Man. 64; Minn. 30; Mo. 26, 64; Neb. 66, 70; S.D. 64.  
*Paraleucobryum* (Lindb.) Loeske (Dicranaceae)  
*P. longifolium* (Hedw.) Loeske S.D. 39.  
*P. sauteri* (B.S.G.) Loeske S.D. 39.  
*Phascum* Hedw. (Pottiaceae)  
*P. cuspidatum* Hedw. Alta. 6; Colo. 68; Ia. 10; Kan. 15, 43, 61; Mo. 26; Neb. 35; Okla. 3; Sask. 6.  
*Philonotis* Brid. (Bartramiaceae)  
*P. capillaris* Lindb. ex C. J. Hartm. Neb. 70.  
*P. fontana* (Hedw.) Brid. Minn. 30; Okla. 3; S.D. 63.  
*P. glaucescens* (Hornsch.) Broth. Kan. 27.  
*P. gracillima* Angstr. Kan. 27.  
*P. longiseta* (Michx.) Britt. Kan. 61; Mo. 26; Okla. 3.  
*P. marchica* (Hedw.) Brid. Kan. 43; Okla. 3.

*Physcomitrella* B.S.G. (Funariaceae)  
*P. patens* (Hedw.) B.S.G. Mo. 26.

*Physcomitrium* (Brid.) Fuernr. (Funariaceae)  
*P. collenchymatum* Gier Kan. 15.  
*P. hookeri* Hampe Ia. 10; Kan. 27, 43, 61; Minn. 30; Mo. 26; Neb. 70; N.D. 31.  
*P. immersum* Sull. Neb. 70.  
*P. pyriforme* (Hedw.) Hampe Ia. 10; Kan. 27, 28, 43, 61; Minn. 30; Mo. 26; Neb. 27, 66, 70; N.D. 27, 31; Okla. 3; Sask. 6; Tex. 69.

*Plagiothecium* B.S.G. (Plagiotheciaceae)  
*P. cavifolium* (Brid.) Iwats. Minn. 30, 34.

*Platydictya* Berk. (Amblystegiaceae)  
*P. confervoides* (Brid.) Crum Kan. 28, 43; Mo. 26.  
*P. jungermannioides* (Brid.) Crum S.D. 39.  
*P. subtile* (Hedw.) Crum Colo. 57; Kan. 61; Okla. 3.

*Platygyrium* B.S.G. (Hypnaceae)  
*P. repens* (Brid.) B.S.G. Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 70; N.D. 31; Okla. 3; Sask. 6; S.D. 39.

*Pleuridium* Brid. (Ditrichaceae)  
*P. subulatum* (Hedw.) Rabenh. Kan. 43, 61; Minn. 30; Mo. 26; N.D. 31; Okla. 3.  
*P. sullivantii* Aust. Kan. 43.

*Pleurochaete* Lindb. (Pottiaceae)  
*P. squarrosa* (Brid.) Lindb. Okla. 3.

*Pleurozium* Mitt. (Entodontaceae)  
*P. schreberi* (Brid.) Mitt. Alta. 6; S.D. 39.

*Pogonatum* P.-Beauv. (Polytrichaceae)  
*P. alpinum* (Hedw.) Roehl. S.D. 39.  
*P. brachyphyllum* (Michx.) P.-Beauv. Kan. 43; Okla. 3.  
*P. pensilvanicum* (Hedw.) P.-Beauv. Kan. 44; Okla. 3.

*Poblia* Hedw. (Bryaceae)  
*P. atropurpurea* (Wahlenb.) H. Lindb. Ia. 10; Neb. 27, 70.  
*P. cruda* (Hedw.) Lindb. Minn. 30; Neb. 27; S.D. 39.  
*P. elongata* Hedw. Neb. 66, 70.  
*P. nutans* (Hedw.) Lindb. Alta. 6; Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 66, 70; Okla. 3; S.D. 39; Wyo. 48.  
*P. wahlenbergii* (Web. & Mohr) Andr. Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 70; N.D. 31; S.D. 39.

*Polytrichum* Hedw. (Polytrichaceae)  
*P. commune* Hedw. Ia. 10; Kan. 43; Minn. 30; Neb. 8, 70; Okla. 3; S.D. 39.  
*P. juniperinum* Hedw. Colo. 57; Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 8, 36, 70; Sask. 6; S.D. 39; Wyo. 48.  
*P. ohioense* Ren. & Card. Kan. 43.  
*P. piliferum* Hedw. Ia. 10; Kan. 44, 61; Minn. 30; N.D. 31; S.D. 63.

*Pottia* (Reich.) Fuernr. (Pottiaceae)  
*P. arizonica* Wareh. Kan. 61.  
*P. davalliana* (Sm. ex Drake) C. Jens. Neb. 35; N.D. 31.  
*P. truncata* (Hedw.) Fuernr. ex B.S.G. Okla. 3.

*Pseudoleskea* B.S.G. (Leskeaceae)  
*P. patens* (Lindb.) Kindb. N.D. 31.

*Pseudoleskeella* Kindb. (Leskeaceae)  
*P. tectorum* (Funck ex Brid.) Kindb. ex Broth. Alta. 6; N.D. 31; Sask. 6; S.D. 39, 63.

*Pterigynandrum* Hedw. (Leskeaceae)  
*P. filiforme* Hedw. S.D. 39.

*Pterygoneurum* Jur. (Pottiaceae)  
*P. ovatum* (Hedw.) Dix. Colo. 68; Kan. 61; Neb. 35; N.D. 27.  
*P. subsessile* (Brid.) Jur. Colo. 68; Kan. 27, 43, 61; Minn. 30; Neb. 27, 35; N.D. 31; Okla. 3.

*Ptilium* De Not. (Hypnaceae)  
*P. crista-castrensis* (Hedw.) De Not. Alta. 6; S.D. 39.

*Ptychomitrium* Fuernr. (Ptychomitriaceae)

*P. drummondii* (Wils.) Sull. Okla. 3.  
*P. incurvum* (Schwaegr.) Spruce Kan. 43, 61.  
*Pylaisiella* Kindb. (Hypnaceae)  
*P. intricata* (Hedw.) Grout Neb. 66; N.D. 31; S.D. 39.  
*P. polyantha* (Hedw.) Grout Alta. 6; Ia. 10; Neb. 27; N.D. 31; Sask. 6; S.D. 27, 39.  
*P. selwynii* (Kindb.) Crum, Steere & Anderson Ia. 10; Kan. 28, 43, 61; Mo. 26; Neb. 8, 70; N.D. 31; Okla. 3.  
*Pyramidula* Brid. (Funariaceae)  
*P. tetragona* (Brid.) Brid. Colo. 68; Ia. 10; Kan. 15, 43, 61; Minn. 30; Neb. 36, 70; Okla. 3.  
*Rhacomitrium* Brid. (Grimmiaceae)  
*R. canescens* (Hedw.) Brid. Wyo. 48.  
*Rhodobryum* (Schimp.) Hampe (Bryaceae)  
*R. roseum* (Hedw.) Limpr. Ia. 10; Kan. 43; Minn. 30; Mo. 26; Neb. 9, 66, 70.  
*Rhynchostegiella* (B.S.G.) Limpr. (Brachytheciaceae)  
*R. compacta* (C. Muell.) Loeske Ia. 10; Kan. 43, 61; Minn. 30; Neb. 70; N.D. 31; S.D. 63.  
*Rhynchostegium* B.S.G. (Brachytheciaceae)  
*R. serrulatum* (Hedw.) Jaeg. & Sauerb. Ia. 10; Kan. 27, 28, 43, 61; Mo. 26; Neb. 70; Okla. 3.  
*Rhytidium* (Sull.) Kindb. (Rhytidiaceae)  
*R. rugosum* (Hedw.) Kindb. S.D. 39, 71.  
*Saelania* Lindb. (Ditrichaceae)  
*S. glaucescens* (Hedw.) Bomanss. & Broth. Minn. 30.  
*Sematophyllum* Mitt. (Sematophyllaceae)  
*S. demissum* (Wils.) Mitt. Kan. 43; Okla. 3.  
*Sphagnum* L. (Sphagnaceae)  
*S. capillaceum* (Weiss) Schrank Kan. 42, 43.  
*S. cuspidatum* Ehrh. ex Hoffm. Kan. 65; Mo. 65.  
*S. recurvum* P. Beauv. Neb. 1; N.D. 23.  
*S. teres* (Schimp.) Angstr. ex C. Hartm. N.D. 23.  
*Taxiphyllum* Fleisch. (Hypnaceae)  
*T. deplanatum* (Bruch & Schimp. ex Sull.) Fleisch. Ia. 10; Kan. 43; Minn. 34; Mo. 26, 34; Neb. 8, 34; Okla. 3.  
*T. taxirameum* (Mitt.) Fleisch. Kan. 34, 43, 61; Mo. 26, 34; Okla. 3, 34.  
*Tetraphis* Hedw. (Tetraphidaceae)  
*T. pellucida* Hedw. Mo. 26; S.D. 39.  
*Tbelia* Sull. (Theliaceae)  
*T. asprella* Sull. Ia. 10; Kan. 28, 43; Mo. 26; Okla. 3.  
*T. hirtella* (Hedw.) Sull. Kan. 43; Mo. 26; Neb. 27; Okla. 3.  
*T. lescurii* Sull. Kan. 43; Neb. 9.  
*Thuidium* B.S.G. (Thuidiaceae)  
*T. abietinum* (Hedw.) B.S.G. Alta. 6; Colo. 57; Ia. 10; Minn. 30; N.D. 31; Sask. 6; S.D. 39, 63.  
*T. delicatulum* (Hedw.) B.S.G. Kan. 43; Minn. 30; Mo. 26; Okla. 3.  
*T. recognitum* (Hedw.) Lindb. Kan. 43; Mo. 26; N.D. 31; Okla. 3.  
*Timmia* Hedw. (Timmiaceae)  
*T. austriaca* Hedw. Neb. 27, 66, 70; S.D. 39, 71.  
*T. megapolitana* Hedw. Ia. 10; Kan. 43, 61; Minn. 30; Mo. 26; Neb. 66, 70; N.D. 31; S.D. 39; Wyo. 48.  
*Tomenthypnum* Loeske (Brachytheciaceae)  
*T. nitens* (Hedw.) Loeske Colo. 57; N.D. 31.  
*Tortella* (Lindb.) Limpr. (Pottiaceae)  
*T. fragilis* (Drumm.) Limpr. Mo. 26; N.D. 31.  
*T. humilis* (Hedw.) Jenn. Kan. 43, 61; Mo. 26; Okla. 3.  
*T. tortuosa* (Hedw.) Limpr. Neb. 9.  
*Tortula* Hedw. (Pottiaceae)  
*T. bistratosa* Flow. Alta. 6.  
*T. brevipes* (Lesq.) Broth. Okla. 3.

- T. inermis* (Brid.) Mont. Colo. 67.  
*T. mucronifolia* Schwaegr. Alta. 6; Ia. 10; Minn. 30; Neb. 35, 70; N.D. 31; Sask. 6; S.D. 39.  
*T. muralis* Hedw. Ia. 10; Neb. 36; N.D. 31.  
*T. pagorum* (Milde) De Not. Kan. 43, 61; Mo. 26; Okla. 3; S.D. 39.  
*T. ruraliformis* (Besch.) Dix. Alta. 6.  
*T. ruralis* (Hedw.) Gaertn., Meyer & Scherb. Alta. 6; Ia. 10; Kan. 61; Minn. 30; Neb. 9, 35; N.D. 31; Okla. 3; Sask. 6; S.D. 39, 63.  
*Trichodon* Schimp. (Ditrichaceae)  
*T. cylindricus* (Hedw.) Schimp. Neb. 66, 70.  
*Trichostomum* Bruch (Pottiaceae)  
*T. tenuirostre* (Hook. & Tayl.) Lindb. Neb. 35.  
*Ulota* Mohr ex Web. (Orthotrichaceae)  
*U. butchinsiae* (Sm.) Hamm. S.D. 39.  
*Venturiella* C. Muell. (Erpodiaceae)  
*V. sinensis* (Vent. ex Rabenh.) C. Muell. Okla. 3.  
*Weissia* Hedw. (Pottiaceae)  
*W. andrewsii* Bartr. Okla. 3.  
*W. controversa* Hedw. Colo. 57; Ia. 10; Kan. 43, 61; Mo. 26; Neb. 35; N.D. 31; Okla. 3; S.D. 39; Tex. 69.  
*W. glauca* Bartr. Kan. 61.  
*W. microstoma* (Hedw.) C. Muell. Kan. 61.

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