1991

A Survey of the Bryophyte Flora of Six South-Central Counties of Nebraska

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1991 *Transactions of the Nebraska Academy of Sciences,* XVIII: 157–165

A SURVEY OF THE BRYOPHYTE FLORA OF SIX SOUTH-CENTRAL COUNTIES OF NEBRASKA

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During the summers of 1988 and 1989, bryophyte collections made in Buffalo, Dawson, Franklin, Harlan, Kearney, and Phelps counties of Nebraska comprised 26 species. These add 45 county reports to the known bryophyte flora.

† † †

INTRODUCTION

Bryophyte collections were made in Buffalo, Dawson, Franklin, Harlan, Kearney and Phelps counties (Figure 1) of south-central Nebraska during the summers of 1988 and 1989. Previous reports of bryophytes from the studied counties were made by Wolfe (1924), Koch (1971), Churchill (1977), Churchill and Redfearn (1977), Williams and Spessard (1979), and Spessard and Williams (1982).

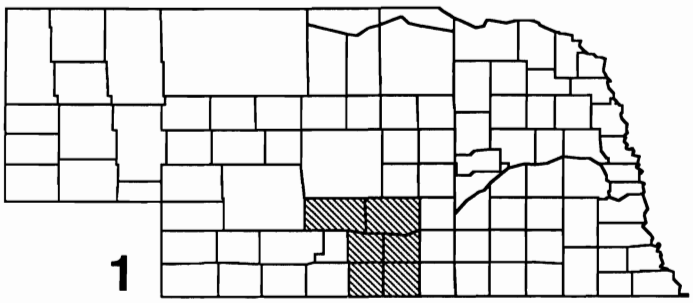
The Platte River forms the southern boundary of Buffalo County. The Wood River and the South Loup River also flow through the county. Between the Wood and South Loup rivers are loess uplands with sandhills forming an irregular band on either side of the South Loup River. Major soil associations are: Coly-Uly-Holdrege forming silty soils on the uplands; Hord-Hall-Cozad on the stream terraces; Platte-Loamy alluvial-Boel forming loamy soils of bottom lands; and Holdrege-Hall making up the nearly level silty soils.

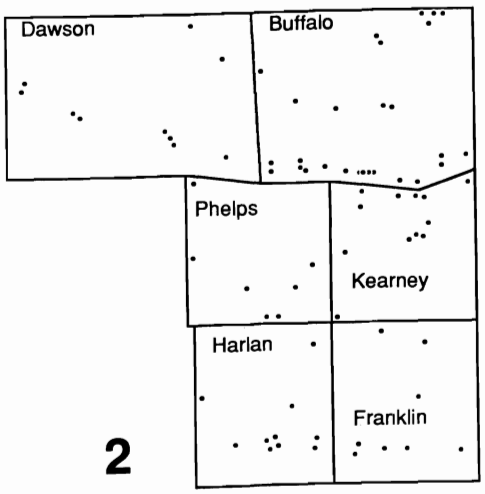
Dawson County is intersected by the Platte River with the area north of the river forming part of the loess hills of central Nebraska and the area south consisting of rolling plains and breaks. Major soil associations are: Uly-Coly forming silty soils on the uplands; Coly-Uly-Hobbs forming silty soils on uplands and in the bottoms of narrow drainageways; and Cozad-Hord forming silty soils of stream terraces.

Franklin County is bordered on the south by Kansas. The Republican River flows across the southern half of the county with a large, nearly flat upland plain making up a large part of the north-central area of the county. The area south of the river consists of divides alternating with deep drainage ways. The major soil associations are: Holdrege on the loess uplands; Nuckolls-Holdrege-Uly forming the divides and side slopes of drainageways in the loess uplands; and Nuckolls-Holdrege-Campus making up soils south of the river.

Harlan County is bordered on the south by Kansas. The Republican River flows across the county with Harlan County Reservoir covering about 13,800 acres of the county. The major soil associations are: Holdrege forming the silty soils on the uplands; Holdrege-Cozad-Uly forming silty soils on the divides and drainageways; and Hord-Cozad-Hall making up terraces of bottom lands along the Republican River and its tributaries.

The northern boundary of Kearney County is the Platte River. Eighty-nine percent of the county is made up of loess uplands with a band of sandhills occurring south of the river. The major soil associations are: Holdrege forming silty soils on the loess uplands; Kenesaw-Coly forming silty soils in loess uplands; and Valentine forming the sandhills.





Figures 1, 2: 1. South-central counties included in study area. 2. Collection Sites in each county.

Phelps County is bordered on the north by the Platte River. The county is mainly a broad loess plain which is deeply dissected in the southwestern part. The major soil associations are: Holdrege forming silty soils on the uplands; Coly-Holdrege forming silty soil on the uplands; and Kenesaw-Anselmo forming loamy soils on the uplands.

The annual precipitation for the study area averages 53.3 cm with moderate relative humidity. The summer of 1988 and the first half of the summer of 1989 experienced a severe drought in which the precipitation was far below normal, the temperature was higher than normal, and the winds blew stronger than normal.

Moss collections were made along river, stream, and lake banks; in sheltered, woody areas; city parks; sheltered rock outcrops; and other sheltered areas.

Twenty-five species of mosses and one species of liverwort were collected and represent additions to the known Nebraska bryophyte flora. All collections have been identified, catalogued, and placed in the University of Nebraska at Kearney collections. Collection numbers for voucher specimens, unless otherwise indicated, are those of the author. County records are indicated by an asterisk (*) preceding the county name. Bryophytes from earlier reports, which were not collected in this study, are also listed with the taxonomic list. Nomenclature follows Crum et al. (1973) except for *Amblystegium*, which follows Crum and Anderson (1981) for the mosses. Liverwort nomenclature follows Stotler and Crandall-Stotler (1977).

COLLECTION SITES (Fig. 2)

(Site number precedes collection site)

Buffalo County:

1) VFW Park, Ravenna; 2) Lions Park, Ravenna; 3) Ravenna State Recreation Area near Ravenna; 4) north channel of Platte River at Bassway strip; I-80 & Hwy 10 (Minden Exit); 5) Bassway Strip at Minden Exit off I-80 (I-80 & Hwy 10); 6) Gibbon Park, Gibbon; 7) Windmill Recreation Area near Gibbon (I-80 & Link 10C); 8) Shelton Park, Shelton; 9) 1412 E 30th Dr, Kearney (private residence); 10) Dryden Park, Kearney; 11) Kearney Cemetery, Kearney; 12) Harmon Park Rock Garden, Kearney; 13) Harmon Park, Kearney (area of park outside rock garden); 14) Cottonmill Lake Recreation Area W Kearney; 15) Pleasanton Park, Pleasanton; 16) Riverdale School, Riverdale; 17) Collins Park, Kearney; 18) Pioneer Park, Kearney; 19) Amherst Park, Amherst; 20) Miller Park, Miller; 21) Elm Creek Park, Elm Creek; 22) Odessa School, Odessa; 23) W bound rest stop on I-80; 4.8 km W Kearney; 24) East campus, University of Nebraska

at Kearney; 25) 622 W 25th St, Kearney (private residence); 26) West campus, University of Nebraska - Kearney; 27) Wood River, 8.1 km N Kearney on Hwy 10; 28) South Loup River at Pleasanton; 29) 1.6 km S Odessa on Spur 10; 30) Blue Hole Recreation Area S of Elm Creek at I-80 exchange and NE 183; 31) 608 W 26th St, Kearney (private residence); 77) N shore Kearney Lake, Kearney; 78) 2211 13th Ave, Kearney (private residence); 79) 2.4 km E Ravenna; 80) Bufflehead Wildlife Area near Kearney; 81) 3.6 km N Youth Development Center, Kearney; 82) 4.8 km N & 0.8 km E Youth Development Center, Kearney; 83) 12.9 km N & 1.3 km E Kearney on Hwy 10; 84) 9.7 km N & 0.5 km W Kearney on Hwy 10; 85) Union Pacific Wayside Area near Odessa at I-80 Exit #257; 86) 3314 Ave F, Kearney (private residence); 87) Turkey Creek 4.0 km S Reno Bamford Farm; 88) Kearney Floral, Kearney.

Dawson County:

32) Lexington Memorial Park, Lexington; 33) Sumner Park, Sumner; 34) Eddyville Garden Club Park, Eddyville; 35) Dawson County Historical Museum, Lexington; 36) Plum Creek Park, Lexington; 37) Ehman Park, Gothenburg; 38) Lake Helen Recreation area, Gothenburg; 39) Cozad Park, Cozad; 40) Cozad Municipal Park, Cozad; 41) Overton, street in business district.

Franklin County:

42) Hildreth Park, Hildreth; 43) Upland Park, Upland; 44) Franklin Park, Franklin; 45) Riverton School, Riverton; 46) Mason, street in business district; 47) Naponee School, Naponee; 48) Naponee Park, Naponee; 49) Bloomington Park, Bloomington.

Harlan County:

50) Ragan School, Ragan; 51) Alma Park, Alma; 52) Huntley School, Huntley; 53) Harlan County Reservoir, N shore (Hunter Cove); 54) Republican City School, Republican City; 55) George R. Mitchell Park, Oxford; 56) Fisherman's Gate Central on Republican River, W Harlan County Reservoir; 57) S shore Harlan County Reservoir, S of Alma; 58) below dam, Harlan County Reservoir on Republican River; 74) Orleans Park, Orleans.

Kearney County:

59) Platte River at Kearney County Recreation Area; 60) Kearney County Recreation Area (camping and picnic area); 61) Minden Park, Minden (by swimming pool); 62) Minden Park, Minden (by outdoor auditorium); 63) Minden Cemetery, Minden; 64) Fort Kearny Historical Park; 65) Axtell Park, Axtell; 66) Wilcox Park, Wilcox; 67) Minden Park, Minden (S edge of town); 68) Crooked Creek, 6.4 km S & 2.3 km E Hwy 10 in county rd; 89) middle of Platte River on island; 4.8 km S & 4.8 km E Kearney; 90) 2.4 km W Hwy 10 on river rd, S of Platte River; 91) 11.3 km N & 3.2 km W Axtell; 92) 6.8 km S Shelton on Platte River; 93) E of Hwy 44 & S of Platte River.

Phelps County:

69) Funk Park, Funk; 70) Holdrege Park, Holdrege (by swimming pool); 71) Atlanta Park, Atlanta; 72) Loomis, street in business district; 73) Bertrand Park, Bertrand; 75) Spring Creek at Rock Falls Recreation Area (9.7 km W Atlanta); 76) Plum Creek on rd to Canady Steam Plant, 1.6 km W.

KEY TO BRYOPHYTES OF SOUTH-CENTRAL NEBRASKA

1a. Plants ribbon-like; usually dichotomously branched and flat on substrate 2

1b. Plants with stem-like and leaf-like structures; ascending or prostrate 4

2a. Air pores visible with handlens, elliptic; gemmae cups round, fringed; thallus with thin scales along green margin beneath; aerial sporophytes ..... ***Marchantia polymorpha***

2b. Air pores not visible with handlens; form circular rosettes on very wet ground; sporophytes embedded in thallus 3

3a. Lobes of thallus short, broad (1–2 mm), touching or overlapping ..... ***Riccia frostii***

3b. Lobes of thallus slender (1 mm wide); usually widely spread apart ..... ***Riccia sullivantii***

4a. Stem erect, simple or sparsely branched; sporophytes borne terminally on branches.... 5

4b. Stems creeping or ascending; freely branched; sporophytes borne laterally on branches.....31

5a. Leaves distichous and split at base, clasping stem and next leaf above.... ***Fissidens bryoides***

5b. Leaves not distichous or split at base..... 6

6a. Leaves complanate and rounded; cells rounded..... 7

6b. Leaves not complanate or appearing to be in two rows; cells elongate or rectangular..... 8

7a. Margins serrate only in upper half; apex obovate, acute, or cuspidate acuminate..... ***Mnium cuspidatum***

7b. Margins serrate to base; apex rounded-obtuse... ***Plagiomnium medium***

8a. Leaves with lamellae on upper surface of costa. 9

8b. Leaves without lamellae on upper surface of costa.....10

9a. Leaves with 21–55 rows of lamellae on upper surface of costa; leaves linear..... .....***Polytrichum commune***

9b. Leaves with 10 or fewer rows of lamellae on upper surface of costa; leaves ovate..... .....***Pterogoneurum ovatum***

10a. Leaf cells papillose.....11

10b. Leaf cells not papillose.....16

11a. Costa excurrent as short yellow or pellucid, rounded mucro, very papillose on back; leaves oblong to lingulate from ovate base; apices usually obtuse; peristome twisted..... 12

11b. Costa not excurrent as short yellow or pellucid, rounded mucro; leaves not oblong from ovate base..... 13

12a. Leaf apices obtuse or nearly so; costa usually excurrent as a rounded pellucid mucro..... .....***Barbula unguiculata***

12b. Leaf apex acute or nearly so; costa disappearing in apex; never mucronate ....***Barbula fallax***

13a. Plants minute; ephemeral; seta shorter than capsule, lacking opercula, capsule ruptures irregularly.....***Astomum muhlenbergii***

13b. Plants not as above 14

14a. Costa excurrent into long sharply serrate awn; apices obtuse or truncate; cells of leaf base nearly always abruptly differentiated in hyaline groups; leaves strongly crisped when dry; peristome teeth twisted. ...***Tortula ruralis***

14b. Capsules immersed to barely emergent; corticolous..... 15

15a. Leaf apices acute; may have an apiculus of a single projecting cell .... ***Orthotrichum pumilum***

15b. Leaf apices obtuse; some leaves sharply dentate at apex with several projecting cells ....***Orthotrichum pusillum***

16a. Plants in dark green, brown, or blackish, often hoary tufts on rock; leaves generally awned; cells often with spinulose walls; capsule immersed 17

16b. Plants not blackish or hoary; occurring on various substrates; leaves not awned; cells not with spinulose walls 18

17a. Leaf margins revolute nearly to apex; keeled, ending in short hyaline, denticulate awn ....***Grimmia apocarpa***

17b. Leaf margins not revolute (plain); keeled, ending in long, hyaline, denticulate hair-point..... ***Grimmia plagiopoda***

18a. Median cells of leaves thick-walled and quadrate 19

18b. Median cells of leaves thin-walled and not quadrate 20

19a. Plants dark-green to red-brown; seta red; capsules strongly inclined and asymmetric, dark purplish-red or red-brown, deeply furrowed when dry.....***Ceratodon purpureus***

19b. Plants dull dark-green to brownish-green; apices of leaves obtuse in lower leaves and acute in upper; upper leaf cells small, hexagonal or rounded-quadrate..... .....***Didymodon trophaceus***

20a. Margins entire, or nearly so, often with border of narrower cells; median cells rhomboidal-hexagonal (plants whitish or silvery and lacking border in *Bryum argenteum*).....21

20b. Leaves and margins not as above 27

21a. Plants whitish or silvery; leaves without differentiated margin..... ***Bryum argenteum***

21b. Plants green, sometimes colored with red and/or brown; costa percurrent to long excurrent..... 22

22a. Endostome with cilia rudimentary or lacking 23

22b. Endostome with cilia well-developed 24

23a. Leaf margins revolute; capsules rarely 4 mm long .....***Bryum algovicum***

23b. Leaf margins not or slightly revolute; longer than 4 mm ..... ***Bryum pallens***

24a. Costa not or rarely excurrent..... 25

24b. Costa regularly and distinctly excurrent..... 26

25a. Leaves noticeably decurrent; leaf margins revolute throughout; upper cells thick-walled ..... ***Bryum pseudotriquetrum***

25b. Leaves not noticeably decurrent; leaf margins ± reflexed below; upper cells thin-walled..... ..... ***Bryum capillare***

26a. Synoicous; upper cells 3-4:1..... ..... ***Bryum lisae*** var. ***cuspidatum***

26b. Dioicous; upper cells ± 7:1 .... ***Bryum caespiticium***

27a. Margins denticulate toward apex, without differentiated border; median cells linear to elongate-hexagonal..... 28

27b. Leaves not as above..... 29

28a. Plants green, leaves imbricate; somewhat three-ranked..... ***Pohlia nutans***

28b. Plants whitish-green, leaves distant..... ..... ***Pohlia wahlenbergii***

29a. Capsules erect, globose-pyriform when young, turbinate and contracted below mouth when dry and empty; peristome absent..... ..... ***Physcomitrium pyriforme***

29b. Capsules not as above..... 30

30a. Capsules horizontal to pendent, very unsymmetric, deeply grooved when dry; with double peristome..... ***Funaria hygrometrica***

30b. Leaves long, hair-like, wavy; capsules pear-shaped, nodding..... ***Leptobryum pyriforme***

31a. Leaf cells papillose..... 32

31b. Leaf cells smooth 33

32a. Leaves symmetric, slightly plicate; margins revolute..... ***Leskea gracilescens***

32b. Leaves asymmetric, not plicate; margins not revolute..... ***Leskea obscura***

33a. Plants bluish-blackish-green and shiny; with brood bodies often present at tips of branches; leaves ecostate ..... ***Platygyrium repens***

33b. Plants green, without brood bodies..... 34

34a. Leaves with costa short, double, or lacking; plants small, yellowish-green, shiny; leaves spreading at right angles (squarrose) from broad base; alar cells small and quadrate..... ..... ***Campylium hispidulum***

34b. Leaves costate and not as above..... 35

35a. Leaves strongly falcate-secund; alar cells enlarged and inflated .... ***Drepanocladus aduncus***

35b. Leaves not falcate-secund; alar cells not inflated..... 36

36a. Leaves not plicate when dry, apices acuminate 37

36b. Leaves strongly plicate when dry; alar cells quadrate..... 42

37a. Plants minute, hardly visible; often on moist rocks..... ***Platydicta confervoides***

37b. Plants more robust; substrate variable..... 38

38a. Capsules long-beaked; leaves serrulate, often with twisted apex..... ..... ***Rhynchostegium serrulatum***

38b. Capsules short-beaked 39

39a. Small plants with short leaf-cells (4-5:1)..... 40

39b. Larger plants with long leaf-cells (6-10:1) ... 41

40a. Lanceolate leaves; costa ending near middle of leaf; very common .... ***Amblystegium serpens***

40b. Leaves broadly lanceolate or subtriangular; costa extending 3/4 length of blade in majority of leaves ..... ***Amblystegium varium***

41a. Leaves wide-spreading forming approximate 90° angle; margins slightly serrate .... ***Amblystegium trichopodium***

41b. Leaves erect-spreading forming 30–60° angle; margins entire ..... ***Amblystegium riparium***

42a. Alar cells small, quadrate and rather opaque, ± same width as median cells..... .....***Brachythecium oxycladon***

42b. Alar cells larger, lax and subquadrate, broader than median cells ....***Brachythecium salebrosum***

MUSCI

Amblystegium riparium (Hedw.) BSG = *Leptodictyum riparium* (Hedw.) Warnst.
BUFFALO CO: Site 12: *7993* (growing on rock substrate in flowing water); 79: *21* (Young); 80: *249* (Jensen). *HARLAN: 58: *8519* (growing at water's edge). *Amblystegium riparium* was found only in moist habitats. Previously reported from Buffalo County by Williams and Spessard (1979).

Amblystegium serpens (Hedw.) BSG
BUFFALO CO: Site 2: *7770*; 3: *7782*; 4: *7809*; 5: *7813*; 7: *7837*; 8: *7861*; 9: *7966*; 12: *7980*; 13: *8038*; 14: *8012*; 15: *8060*; 16: *8068*; 18: *8070*; 20: *8132*; 21: *8136*; 23: *8222*; 24: *8427*; 25: *8459*; 26: *8467*; 27: *8560*; 28: *8566*; 31: *"A "* (Grigg); 77: *215* (Williams); 78: *245* (Jenson). *DAWSON: 32: *8212*; 34: *8219*; 35: *8223*; 37: *8334*; 38: *8344*; 40: *8349*; 41: *8350*. *FRANKLIN: 42: *8190*; 44: *8283*; 46: *8304*; 48: *8319*. HARLAN: 51: *8250*; 52: *8274*; 54: *8308*; 55: *8353*; 56: *8493*; 58: *8538*; 74: *8360*. KEARNEY: 59: *7866*; 60: *7929*; 61: *8091*; 64: *8111*; 65: *8151*; 66: *8178*; 67: *8306*; 68: *2-88-1* (Grigg); 89: *241* (Bundy); 90: *268* (Williams & Fougeron). *PHELPS: 69: *8156*; 70: *8167*; 73: *8331*; 74: *8360*; 75: *8368*. *Amblystegium serpens* was the most commonly occurring moss in this study. It was found in xeric as well as moist habitats, on soil, tree bark, and rock surfaces. Previously reported from Buffalo and Kearney counties by Williams and Spessard (1979) and from Harlan County by Spessard and Williams (1982).

Amblystegium trichopodium (Schultz) Hartm. = *Leptodictyum trichopodium* (Schultz) Warnst.
*HARLAN CO: Site 58: *8518*. Found growing at edge of Republican River in an extremely moist habitat.

Amblystegium varium (Hedw.) Lindb.
KEARNEY CO: Site 66: *8178*. Previously reported from Kearney and Harlan counties by Spessard and Williams (1982).

Astomum muhlenbergianum (Sw.) Grout
BUFFALO CO: (Koch, 1971).

Barbula fallax Hedw.
BUFFALO CO: Site 26: *8485* (growing in crevice of concrete structure). *HARLAN: 58: *8549* (growing along shoreline.) Previously reported from Buffalo and Kearney counties by Spessard and Williams (1982).

Barbula unguiculata Hedw.
BUFFALO CO: Site 2: *7771*; 9: *7967* ; 12: *7987*; 20: *8130*; 24: *8420*; 25: *8462*; 26: *8478*; 81: *253* (Jensen); 83: *254* (Jensen); 84: *256* (Jensen). *DAWSON: 35: *8240*; 40: *8348*. *FRANKLIN: 42: *8257*; 44: *8280*; 45: *8297*. *HARLAN: 51: *8257*. KEARNEY: 59: *7868*; 60: *7905*; 64: *8112*. *Barbula unguiculata* was most often found in xeric or disturbed habitats. Previously reported from Buffalo County by Williams and Spessard (1979) and from Kearney and Phelps counties by Spessard and Williams (1982).

Brachythecium salebrosum (Web. & Mohr) BSG
BUFFALO CO: Site 14: *8017*; 24: *8423*; 26: *8464*; 82: *258* (Jensen). *FRANKLIN: 44: *8287*; 45: *8293*. *HARLAN: 50: *8245*. KEARNEY: 64: *8128*. PHELPS: 75: *8400*. *Brachythecium salebrosum* was found most often growing on soil on the north sides of buildings, especially in those areas receiving frequent irrigation. Previously reported from Buffalo, Kearney, and Phelps counties by Spessard and Williams (1982).

Brachythecium oxycladon (Brid.) Jaeg. & Sauerb.
BUFFALO CO: (Williams and Spessard, 1979).

Bryum algovicum Sendtn. ex C. Muell.
BUFFALO, DAWSON, HARLAN, and KEARNEY CO: (Spessard and Williams, 1982).

Bryum argenteum Hedw.
BUFFALO CO: Site 2: *7771*; 7: *7839*; 9: *7965*; 11: *7978*; 14: *8026*; 15: *8056*; 21: *8141*; 22: *8150*; 24: *8440*; 26: *8477*; 28: *8564*; 31: *"C "* (Grigg); 86: *301* (Williams); 87: *251* (Jensen). *DAWSON: 32: *8209*; 33: *8214*; 35: *8232*; 36: *8243*. FRANKLIN: 42: *8198*; 43: *8204*; 47: *8318*. HARLAN: 51: *8248*; 52: *8275*; 53: *8307*; 58: *8546*. KEARNEY: 59: *7856*; 60: *7906*; 61: *8096*; 64: *8104*; 66: *8180*. *PHELPS: 70: *8177*. *Bryum argenteum* was usually found in xeric disturbed habitats. Previously reported from Buffalo and Kearney counties by Williams and Spessard (1979) and from Harlan County by Spessard and Williams (1982). Wolfe (1924) reported *B. argenteum* from an unknown locality in Franklin County.

Bryum caespiticium Hedw.
BUFFALO CO: Site 3: *7775*; 7: *7835*; 14: *8025*; 20: *8133*; 26: *8489*; 29: *58-82-2* (Grigg); 30: *"A "* (Grigg). *DAWSON: 33: *8215*; 34: *8220*; 35: *8236*; 36: *8242*; 38: *8337*. *FRANKLIN: 44: *8281*; 46: *8301*. *HARLAN: 51: *8256*; 52: *8273*. *KEARNEY: 59: *7897*; 60: *7909*; 64: *8105*. *PHELPS: 71: *8326*. All collections of *B. caespiticium* were sterile making an accurate distinction between this taxon and *B. lisae* var. *cuspidatum* (BSG) Marg. difficult. Key characters are mainly based on fruiting characteristics: *B. caespiticium* is dioicous while *B. lisae* var. *cuspida-*

tum is synoicous. Crum (1973) indicated that he recognized *B. caespiticium* by its having narrower leaf points with long cells and a silkier overall appearance. He also added that he was unable to recognize it (*B. caespiticium*) with certainty by those characters alone. Crum's comments are valid in light of the extreme variations that both *B. caespiticium* and *B. lisae* var. *cuspidatum* can have (most likely dependent upon environmental conditions). Previously reported from Buffalo and Kearney counties by Williams and Spessard (1979).

Bryum capillare Hedw.
*BUFFALO CO: Site 26: *8471*. *HARLAN: 56: *8501*; 58: *8520*. Collections were made from moist habitats.

Bryum lisae De Not. var. ***cuspidatum*** (BSG) Marg.
*BUFFALO CO: Site 1: *7767*; 2: *7771*; 3: *7783*; 5: *7819*; 7: *7842*; 13: *8046*; 21: *8141*; 30: *3* (Grigg); 31: *"B "* (Grigg). *DAWSON: 32: *8210*; 35: *8224*. *HARLAN: 51: *8251*; 54: *8310*; 58: *8514*. *KEARNEY: 59: *7871*; 60: *7935*; 64: *8106*. *PHELPS: 76: *s. n.* (Grigg). See *B. caespiticium* for a discussion of the problems concerning identification of this taxon and *B. caespiticium*. Most specimens of *B. lisae* var. *cuspidatum* were sterile and collected from arid or disturbed habitats.

Bryum pallens (Brid.) Sw. *ex* Roehl.
FRANKLIN CO: (Wolfe, 1924).

Bryum pseudotriquetrum (Hedw.) Gaertn., Meyer, & Scherb.
BUFFALO and KEARNEY CO: (Williams and Spessard, 1979)

Campylium hispidulum (Brid.) Mitt.
BUFFALO CO: (Spessard and Williams, 1982).

Ceratodon purpureus (Hedw.) Brid.
FRANKLIN CO: (Wolfe, 1924). HARLAN: (Spessard and Williams, 1982). KEARNEY: (Williams and Spessard, 1979).

Didymodon trophaceus (Brid.) Lisa
*PHELPS CO: Site 75: *8374*. *Didymodon trophaceus* was collected from rocks at the edge of a heavily shaded stream. This collection site (along Spring Creek) provided a unique habitat where several rare species (for Nebraska) were found. Although this species was not fruiting, identification was still possible because of the strongly decurrent leaf bases (Crum and Anderson, 1981).

Drepanocladus aduncus (Hedw.) Warnst.
*KEARNEY CO: Site 60: *7942*. The plicate, strongly falcate-secund leaves with single costa and inflated basal cells make this taxon easy to identify. Collected on very moist and heavily shaded soil at edge of a pond where periodic inundations occur. Previously reported from Buffalo County by Williams and Spessard (1979) and from Harlan County by Spessard and Williams (1982).

Fissidens bryoides Hedw.
*PHELPS CO: Site 75: *8380*. This taxon was collected from rocks at the edge of a heavily shaded stream.

Funaria hygrometrica Hedw.
BUFFALO CO: Site 24: *8422, s.n.* (Williams). *FRANKLIN: 43: *8201*; 46: *8300*. KEARNEY: 59: *7902*; 64: *8103*; 91: *211* (Williams). Previously reported from Buffalo and Kearney counties by Williams and Spessard (1979).

Grimmia apocarpa Hedw.
BUFFALO CO: Site 26: *8482*. Since this specimen was not fruiting, identification was made primarily on the length of the colorless awns on the leaf. The awns of this specimen were consistently less than one half the leaf length. Previously reported from Buffalo County by Williams and Spessard (1979).

Grimmia plagiopoda Hedw.
*BUFFALO CO: Site 21: *8142*; 26: *8480*. *PHELPS: 70: *8176*. These collections were made on concrete structures in full sun. Since the collections were not fruiting, identifications were made based on vegetative characteristics; the colorless awn of the leaves wes consistently as long or longer than the leaf. Crum and Anderson (1981) indicated that *G. plagiopoda* occurred more commonly in western locations.

Leptobryum pyriforme (Hedw.) Wils.
BUFFALO CO: Site 4: *7808*. *HARLAN: 58: *8549*. *KEARNEY: 59: *7872*. These collections were found in very moist habitats. Previously reported from Buffalo County by Williams and Spessard (1979) and from Phelps County by Spessard and Williams (1982).

Leskea gracilescens Hedw.
BUFFALO CO: Site 2: *7769*; 3: *7774*; 5: *7820*; 6: *7821*; 8: *7860*; 10: *7968*; 12: *8001*; 13: *8029*; 18: *8076*; 24: *8428*; 27: *8558*; 28: *8570*. *DAWSON: 34: *8216*; 38: *8343*. *FRANKLIN: 42: *8188*; 48: *8320*. *HARLAN: 51: *8262*; 55: *8352*; 56: *8508*; 57: *8513*. KEARNEY: 60: *7914*; 62: *8099*. *PHELPS: 70: *8158*; 72: *8329*; 75: *8389*. Collections were primarily made from tree bark or fallen limbs. Collections were made in moist and arid habitats. Previous reports were made from Buffalo and Kearney counties by Williams and Spessard (1979).

Leskea obscura Hedw.
FRANKLIN CO: (Wolfe, 1924).

Mnium cuspidatum Hedw.
BUFFALO CO: Site 3: *7784*; 15: *8059*; 24: *8437*; 26: *8470*. FRANKLIN: 46: *8324*. KEARNEY: 67: *8306*. *Mnium cuspidatum* was collected from moist soil

(irrigated) habitats on the north sides of buildings. Previously reported from Buffalo and Kearney counties by Williams and Spessard (1979). Wolfe (1924) reported *M. cuspidatum* from an unknown locality in Franklin County.

Orthotrichum pumilum Sw.
BUFFALO CO: Site 2: *7768*; 3: 7779; 5: *7814*; 6: *7823*; 8: *7857*; 10: *7969*; 11: *7975*; 12: *8002*; 14: *8006*; 13: *8028*; 15: *8067*; 17: *8069*; 18: *8071*; 19: *8129*; 24: *8341*. *DAWSON: 34: *8217*; 37: *8333*; 39: *8346*; 40: *8347*. *FRANKLIN: 42: *8186*; 43: *8208*; 44: *8276*; 48: *8322*; 49: *8323*. *HARLAN: 51: *8261*; 55: *8351*; 56: *8510*; 74: *8359*. *KEARNEY: 60: *7916*; 61: *8090*; 62: *8098*; 63: *8100*; 64: *8115*; 65: *8152*. *PHELPS: 69: *8153*; 70: *8162*; 71: *8325*; 72: *8328*; 73: *8330*; 75: *8388*. Most of the collections were fruiting which was rather surprising considering the drought conditions that occurred during all of the summer of 1988 and most of the summer of 1989. All collections were taken from tree bark of various species: *Acer saccharinum* L., *Catalpa speciosa* Warder, *Celtis occidentalis* L., *Fraxinus pennsylvanica* Marsh., *Gleditsia triacanthos* L., *Populus alba* L., *Populus deltoides* Marsh. ssp. *monilifera* (Ait.) Eckenw., *Quercus macrocarpa* Michx., *Robinia pseudoacacia* L., *Tilia americana* L., *Ulmus americana* L., *Ulmus pumila* L. Previously reported from Buffalo County by Churchill, 1977.

Orthotrichum pusillum Mitt.
BUFFALO CO: (Williams and Spessard, 1979).

Physcomitrium pyriforme (Hedw.) Hampe
BUFFALO CO: Site 24: *236* (Young); 85: *260* (collector unknown). KEARNEY: 59: *7876*; 91: *211* (Williams); 92: *216* (Williams); 93: *244* (Jensen). *PHELPS: 75: *8369*. Previously reported from Buffalo and Kearney counties by Williams and Spessard (1979) and from Harlan County by Spessard and Williams (1982).

Plagiomnium medium (BSG) Kop.
FRANKLIN CO: (Churchill, 1979).

Platydictya confervoides (Brid.) Crum
BUFFALO CO: (Williams and Spessard, 1979).

Platygyrium repens (Brid.) BSG
*PHELPS CO: Site 70: *8171*. *Platygyrium repens* was found growing on tree bark in a moist location. It can be identified by the ecostate leaf with distinctive alar region. Previously reported from Buffalo County by Williams and Spessard (1979).

Pohlia nutans (Hedw.) Lindb.
BUFFALO CO: Site 4: *7808*; 24: *163* (Jensen). *PHELPS: 75: *8366*. Collections were made from moist habitats adjacent to ponds or streams. Previously reported from Buffalo County by Williams and Spessard (1979).

Pohlia wahlenbergii (Web. & Mohr) Andr.
*BUFFALO CO: Site 88: *s.n.* (Bliese). This specimen was collected in one of the more unusual habitats;—on soil in flower pots from a shipment to a local florist shop.

Polytrichum commune Hedw.
FRANKLIN CO: (Wolfe, 1924).

Pterogoneurum subsessile (Brid.) Jur.
FRANKLIN and HARLAN CO: (Koch, 1971).

Rhynchostegium serrulatum (Hedw.) Jaeg. & Sauerb.
BUFFALO CO: (Willams & Spessard, 1979).

Tortula ruralis (Hedw.) Gaertn., Meyer, & Scherb.
BUFFALO and KEARNEY CO: (Williams and Spessard, 1979). FRANKLIN: (Churchill, 1977).

HEPATICAE

Marchantia polymorpha L.
PHELPS CO: Site 75: *8375* . Collected on soil and rocks adjacent to a heavily shaded stream in a unique habitat. The collection contained gemmae cups on the surface of the thallus. Previously reported from the same location in Phelps County by Spessard and Williams (1982).

Riccia frostii Aust.
BUFFALO, DAWSON, and FRANKLIN CO: (Churchill and Redfearn, 1977).

Riccia sullivantii Aust.
PHELPS CO: (Churchill and Redfearn, 1977).

SUMMARY

River, stream, and lake banks; wooded areas; city parks; and sheltered rock outcrops were collected in six counties of south-central Nebraska. Many of the mosses collected were cosmopolitan taxa and may have been a reflection of the drought conditions which prevailed. *Amblystegium serpens* was found most frequently in most collection sites which may reflect the ability of the moss to adapt to most environmental conditions. *Bryum argenteum*, *B. caespiticium*, *B. lisae* var. *cuspidatum* and *Barbula unguiculata* were collected most often in drier habitats. *Amblystegium riparium*, *A. trichopodium*, *Pohlia nutans*, *Fissidens bryoides*, and *Marchantia polymorpha* were found only in very moist habitats. *Grimmia plagiopoda* and *G. apocarpa* were found on concrete substrates. *Orthotrichum pumilum* was the most commonly collected corticolous taxon with *Leskea gracilescens*

occurring less frequently and *Platygyrium repens* occurring only once.

ACKNOWLEDGMENTS

This work was partially funded by a grant from the Research Services Council of Kearney State College.

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