

THE IDENTIFICATION OF SOME OF THE MORE COMMON
NATIVE OKLAHOMA GRASSES BY VEGETATIVE CHARACTERS

By

WILLIAM FRANKLIN HARRIS

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Oklahoma Agricultural and Mechanical College

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APPROVED BY:

H. J. Featherly

Chairman, Thesis Committee

W. T. Waterfall

Member of the Thesis Committee

Scott C. Hansen

Head of the Department

D. C. McIntosh

Dean of the Graduate School

256577

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INTRODUCTION

The increasing interest in grassland management in Oklahoma reveals the need for some means of identifying grasses by their vegetative characters. Native grasses comprise a major component of the state's grazing resources; hence, this work concerns itself only with those species. Several keys of local scope have been prepared for various localities, but thus far none has been made specifically for Oklahoma. It is hoped that this work will prove helpful in identifying grasses when only the vegetative part is present.

Most of the economically important native grasses of Oklahoma were collected during the season of 1949. Mature plants were collected so that each specimen could be positively identified before descriptions of the vegetative characteristics of each species were prepared. The most valuable characteristics from which to identify grasses vegetatively are found near the junction of the sheath and blade. Drawings illustrating this region have been made for each species. These with an artificial key and a brief description should enable one to determine any of the species included without too much difficulty.

REVIEW OF LITERATURE

The first published attempt at a system of identifying grasses by their vegetative characters was that by Jessen, in Germany, in 1863. Other works, some of which are listed below, have appeared at intervals up to the present, but none have applied specifically to Oklahoma.

Carrier (4), in 1917, published a key to forty-eight important species of eastern United States.

Norton (12), in 1930, prepared keys to Maryland grasses in both vegetative and flowering stages. In 1932, Keim, Beadle, and Frolik (10) published a key to the important prairie hay grasses of Nebraska. A well-prepared key to vegetative characteristics of some Kansas grasses by Copple and Aldous (5) appeared the same year.

Burr and Turner (3), in 1933, presented separate keys based on gross morphological and microscopic leaf characteristics of some British grasses.

Hitchcock's (9) key to the grasses of Montana, published in 1936, is excellent for its illustrations and completeness; over 200 species were included. The same year, Nowosad and co-workers (13) published an excellent series of drawings, descriptions, and a key to the pasture grasses of eastern Canada. Pechanec (14), in 1936, studied the grasses of the upper Snake River Plains of Idaho and published descriptions and a key to eighteen grasses of this area.

Harrington and Durrell (7), in 1944, included most of the important Colorado grasses in a key and descriptions based on vegetative characters.

Blomquist (2), in 1948, appended a short key to immature grasses in his manual of the grasses of North Carolina.

ALPHABETICAL LIST OF THE SPECIES DESCRIBED IN THIS REPORT

- Agropyron smithii*, 3.
Andropogon furcatus, 45.
Andropogon hallii, 46.
Andropogon saccharoides, 49.
Andropogon scoparius, 44.
Andropogon ternarius, 48.
Andropogon virginicus, 47.
Aristida oligantha, 15.
Bouteloua curtipendula, 11.
Bouteloua gracilis, 12.
Bouteloua hirsuta, 13.
Buchloe dactyloides, 7.
Calamovilfa gigantea, 16.
Cenchrus pauciflorus, 32.
Chloris verticillata, 11.
Distichlis stricta, 20.
Elymus canadensis, 6.
Elymus virginicus, 5.
Eragrostis cilianensis, 24.
Eragrostis curtipedicellata, 26.
Eragrostis lugens, 28.
Eragrostis secundiflora, 27.
Eragrostis sessilispica, 25.
Eragrostis spectabilis, 29.
Eragrostis trichodes, 30.
Eriochloa contracta, 34.
Hilaria jamesii, 2.
Hordeum pusillum, 4.
Leptochloa filiformis, 8.
Leptoloma cognatum, 33.
Panicum capillare, 39.
Panicum dichotomiflorum, 38.
Panicum obtusum, 40.
Panicum virgatum, 41.
Paspalum floridanum, 36.
Paspalum pubiflorum var. *glabrum*, 37.
Paspalum stramineum, 35.
Rottboellia cylindrica, 43.
Schedonnardus paniculatus, 10.
Sorghastrum nutans, 50.
Spartina pectinata, 9.
Sporobolus asper, 18.
Sporobolus cryptandrus, 19.
Sporobolus vaginiflorus, 17.
Triodia albescens, 23.
Triodia flava, 21.
Triodia stricta, 22.
Tripsacum dactyloides, 42.
Uniola latifolia, 31.
Zizaniopsis miliacea, 1.

KEY FOR IDENTIFICATION

1. Vernation conduplicate -----2
 Vernation convolute -----15
2. Plants annual -----3
 Plants perennial -----4
3. Ligule 0.1-0.2 mm. long, membranous basally with ciliate margin;
 plants dichotomously branched; blades tapering to needle-like point -----15. *Aristida oligantha*
 Ligule a fringe of hairs 0.5-0.8 mm. long; plants prostrate to decumbent,
 often mat-forming; blades flaccid -----32. *Cenchrus pauciflorus*
4. Ligule with hairy margin at least half its length. (Distinguish a
 hairy margin from a lacerate or toothed one.) -----5
 Ligule membranous more than the basal half -----10
5. Plants stoloniferous and creeping -----7. *Buchloe dactyloides*
 Plants not bearing long stolons -----6
6. Blades mostly more than 5 mm. wide -----21. *Triodia flava*
 Blades less than 5 mm. wide -----7
7. Plants with scaly, creeping rhizomes, sheaths crowded, overlapping,
 usually found in alkaline soil -----20. *Distichlis stricta*
 Short rhizomes sometimes present, sheaths shorter than internodes -----8
8. Plants erect, unbranched; blades long, attenuate; ligule membranous
 basally, with ciliate margin -----18. *Sporobolus asper*
 Plants erect to decumbent; blades short (less than 15 cm. long), soft,
 flexuous; ligule a fringe of hairs -----9
9. Blade margins conspicuously papillose-hispid; ligule a fringe of hairs
 less than 0.5 mm. long -----13. *Bouteloua hirsuta*
 Blade margins sometimes sparsely papillose-hispid; ligule often membranous
 basally, with ciliate margin, less than 0.3 mm. long -----12. *Bouteloua gracilis*
10. Plants decumbent, branching from base, seldom erect; blades obtuse,
 less than 12 cm. long; rhizomes absent -----11
 Plants erect; blades longer; rhizomes often present -----12

11. Ligule less than 1 mm. long; blades conduplicate-----
-----11. *Chloris verticillata*
- Ligule 1.5-3.0 mm. long; blades flat, becoming conduplicate toward
apex-----10. *Schedonardus paniculatus*
12. Plants glabrous throughout, except sparsely scattered long hairs at
base of blade; blades very rigid, convolute; definite rhizomes present
-----13. *Rottboellia cylindrica*
- Plants hairy, especially the blades; rhizomes usually absent-----13
13. Sheaths, especially the lower, inflated and imbricated, compressed,
sharply keeled, yellowish in color; ligule less than 0.5 mm. long-----
-----17. *Andropogon virginicus*
- Plants with sheaths not as above; ligule at least 1.0 mm. long-----14
14. Ligule membranous with lacerate margins; midrib very broad and prom-
inent on both surfaces of blade; rhizomes absent-----
-----18. *Andropogon ternarius*
- Ligule membranous with ciliate margins; rhizomes sometimes present-----
-----14. *Andropogon scoparius*
15. Plants annual-----16
- Plants perennial-----22
16. Ligule membranous basally, less than 0.6 mm. long-----17
- Ligule at least 0.8 mm. long-----18
17. Plants with disagreeable odor; blade margins glandular; ligule with
ciliate margins-----24. *Eragrostis cilianensis*
- Plants often hoary, blades short (3-8 cm. long); ligule membranous,
slightly toothed on margin-----4. *Hordeum pusillum*
18. Plants densely hispid throughout; nodes hispid; blades 8-20 mm. wide-----
-----39. *Panicum capillare*
- Plants not as above-----19
19. Ligule made up entirely of hairs, or composed of hairs for more than
the terminal half-----20
- Ligule membranous, at least the basal half-----21
20. Blades less than 3 mm. wide; veins and midrib inconspicuous-----
-----17. *Sporobolus vaginiflorus*
- Blades 4-6 mm. wide; midrib prominent-----34. *Eriochloa contracta*

21. Sheaths longer than internodes; blades sometimes sparsely pilose on upper surface; collar prominent, wedge-shaped -----38. *Panicum dichotomiflorum*
 Sheaths shorter than internodes; blades papillose-pilose on upper surface toward base; collar very narrow -----8. *Leptochloa filiformis*
22. Ligule a fringe of hairs -----23
 Ligule membranous, at least the basal half -----34
23. Ligule less than 0.5 mm. long -----24
 Ligule at least 1 mm. long -----28
24. Rhizomes short, stout, scaly -----26. *Eragrostis curtipedicellata*
 Rhizomes absent -----25
25. Blades 15-90 cm. long, attenuate; midrib broad and white; nodes crowded toward base of culm, pubescent -----30. *Eragrostis trichodes*
 Blades much shorter; midribs not prominent; nodes glabrous -----26
26. Sheaths pubescent on margins -----19. *Sporobolus cryptandrus*
 Sheaths glabrous on margins -----27
27. Blades sparsely pilose on upper surface; sheaths shorter than internodes, with conspicuous midveins -----28. *Eragrostis lugens*
 Blades usually glabrous; sheaths longer or shorter than internodes -----27. *Eragrostis secundiflora*
28. Rhizomes present -----29
 Rhizomes absent -----32
29. Ligules less than 2 mm. long; plants tall and reed-like -----30
 Ligules usually more than 2 mm. long -----31
30. Blade margins very scabrous; midrib broad -----9. *Spartina pectinata*
 Blade margins glabrous; midrib inconspicuous -----16. *Calamovilfa gigantea*
31. Blades 10-60 cm. long, often glaucous or purplish; midrib broad and white -----41. *Panicum virgatum*
 Blades 15-35 cm. long; midrib inconspicuous; sheaths papillose-hirsute toward summit -----29. *Eragrostis spectabilis*

32. Ligule 3 mm. long; blades less than 2 mm. wide -----
-----25. *Eragrostis sessilispica*
Ligule less than 2 mm. long; blades more than 2 mm. wide -----33
33. Ligule a dense fringe of hairs; collar thickened, 1.5 mm. wide -----
-----23. *Triodia albescens*
Ligule a fringe of loose hairs; collar very narrow and indistinct -----
-----22. *Triodia stricta*
34. Auricles rounded to clawlike, sometimes clasping; ligules thick, often
greenish -----35
Auricles rudimentary or absent; ligules usually thin and hyaline ---37
35. Blades often pubescent on upper surface, 2-6 mm. wide; wiry, creeping
rhizomes present -----3. *Agropyron smithii*
Blades glaucous or glabrous, usually more than 6 mm. wide; rhizomes
very short, if present -----36
36. Blades often 20 mm. wide, slightly scabrous on upper surface and mar-
gins; ligule usually at least 1 mm. long -----6. *Elymus canadensis*
Blades seldom over 12 mm. wide, very scabrous on margins and upper sur-
face; ligule less than 1 mm. long -----5. *Elymus virginicus*
37. Ligules with paired lateral spurs, with vein in each spur -----
-----50. *Sorghastrum nutans*
Ligules not veined nor with lateral spurs -----38
38. Tall, reed-like plants, often growing in shallow water; sheaths thick
and pithy; ligules often 15 mm. long -----1. *Zizaniopsis miliacea*
Plants not as above -----39
39. Ligules not exceeding 0.5 mm. in length -----40
Ligules usually at least 1 mm. long -----42
40. Blades usually less than 5 mm. wide; margins papillose -----
-----14. *Bouteloua curtipendula*
Plants robust; blades usually at least 10 mm. wide; margins glabrous,
often scabrous -----41
41. Blades dark green, narrowed toward base, soft, flaccid, and lanceolate;
rhizomes short and stout -----31. *Uniola latifolia*
Blades rigid, usually scabrous on margin and both surfaces, tapering
to long point; midrib broad and white; rhizomes thick, knotty, and
often woody -----42. *Tripsacum dactyloides*

42. Blades less than 10 cm. long -----43
 Blades more than 10 cm. long -----44
43. Ligule bearing long, pointed teeth; rhizomes tough and scaly -----
 -----2. *Hilaria jamesii*
 Ligule often oblique, margins entire; rhizomes absent -----
 -----33. *Leptoloma cognatum*
44. Plants stoloniferous -----40. *Panicum obtusum*
 Plants without long, creeping stolons -----45
45. Plants of moist habitats, decumbent to semi-erect; nodes and collars
 often purplish; blades spreading, often drooping -----46
 Plants of drier habitats, erect (*Andropogon saccharoides* is sometimes
 decumbent basally), blades ascending to erect -----48
46. Rhizomes short, stout, and scaly; sheaths papillose at summit -----
 -----36. *Paspalum floridanum*
 Rhizomes absent; sheaths glabrous to pilose, but not papillose -----47
47. Plants rooting from lower nodes; sheaths no longer than internodes ---
 -----37. *Paspalum pubiflorum* var. *glabrum*
 Plants purplish green in color; sheaths longer than internodes; short,
 white hairs immediately behind the ligule ---35. *Paspalum stramineum*
48. Plants erect or ascending from decumbent base; blades and sheaths glab-
 rous throughout; rhizomes absent -----49. *Andropogon saccharoides*
 Plants erect, often purplish or glaucous; blades often pubescent to
 pilose; rhizomes usually present -----49
49. Plants with long, stout rhizomes; blades flat to U-shaped in cross-
 section; ligule 3-5 mm. long -----46. *Andropogon hallii*
 Plants sometimes having short rhizomes; blades flat to V-shaped in
 section; ligule 1-2 mm. long -----45. *Andropogon furcatus*

DESCRIPTIONS OF SPECIES

1. Zizaniopsis miliacea (Michx.) Doell & Aschers. Water Millet. Southern Wildrice.

Perennial, 1-4 m. tall, robust, marsh-inhabiting.

Culms flattened, glabrous; nodes glabrous.

Vernation convolute.

Blades 30-150 cm. long, 1-2 cm. wide, narrowed and thickened toward base, yellowish-green basally, keeled and pithy toward base, otherwise flat, glabrous throughout except the scabrous margins; midrib stout, white, and pithy, especially toward base; veins not conspicuous.

Ligule membranous, hyaline, thin, rounded, 6-15 mm. long; margin entire in younger leaves.

Collar prominent, glabrous, relatively narrow, wedge-shaped, not divided.

Auricles absent.

Sheaths compressed toward summit, greenish-yellow, thick and pithy, usually longer than internodes, split; margins hyaline and continuous with ligule.

Rhizomes stout and creeping.

Distribution: Occurs in colonies along stream banks and in swamps primarily in the southeastern part of the state.

2. Hilaria jamesii (Torr.) Benth. Galleta.

Perennial, 30-100 cm. tall, tufted, stiff, erect or ascending from decumbent base; roots strong.

Culms glabrous; nodes villous.

Vernation convolute.

Blades 2-8 cm. long, 2-4 mm. wide, rolled to U-shaped in cross-section, rigid, becoming involute toward apex; upper surface scabrous; veins conspicuous above; antrorsely scabrous above, retrorsely scabrous below; midrib conspicuous above; margins scabrous.

Ligule 2.5 - 3.5 mm. long, membranous, truncate, bearing long, pointed teeth.

Collar of the upper leaves pilose to papillose-pilose on margins, otherwise glabrous to pubescent.

Auricles absent.

Sheaths overlapping below, retrorsely scabrous from sides of veins, shorter than internodes, somewhat loose, sometimes sparingly villous at throat, oval in cross-section; margin thick, papery; veins distinct.

Rhizomes tough, scaly, creeping, and coarse.

Distribution: Occurs in dry, thin soil in the panhandle.

3. Agropyron smithii Rydb. Western Wheatgrass.

Perennial, 30-60 cm. tall, sod-forming, rigid, often glaucous, smooth and glabrous, mostly solitary with sterile shoots from base.

Culms rigid, glaucous, pale toward the base; nodes glabrous.

Vernation convolute.

Blades 10-25 cm. long, 2-6 mm. wide, conspicuously ribbed, stiff, flat, often keeled toward apex, narrow pointed, scabrous or pubescent on upper surface; margin toothed; veins prominent.

Ligule 0.5-0.8 mm. long, collar-shaped, thick, pale green, margin very finely fringed.

Collar smooth, divided by midrib.

Auricles large, 1-2 mm. long.

Sheaths shorter than internodes, glaucous, glabrous to scaberulous, strongly striated, split, oval in cross-section; margin hyaline, slightly scabrous.

Rhizomes wiry, creeping, relatively smooth.

Distribution: Occurs throughout the state except in the southeastern part.

Often sown as a pasture crop.

4. Hordeum pusillum Nutt. Little Barley. Junegrass.

Annual, 10-35 cm. tall, decumbent to erect, hoary, and tufted.

Culms glabrous; nodes glabrous.

Vernation convolute.

Blades 3-8 cm. long, 1-4 mm. wide, flat to involute when dry, erect, often flexuous, soft, often sparsely pubescent on margins and surfaces; upper surface and margin scaberulous; margin sometimes short-ciliate; veins conspicuous above; midrib prominent on lower surface.

Ligule membranous, slightly toothed on margin, truncate, 0.3-0.6 mm. long.

Collar wedge-shaped, yellowish-green, divided by midrib, occasionally pubescent, especially on the margins.

Auricles absent.

Sheaths rigid, shorter than internodes, usually pubescent, sometimes pilose at the throat, split, round in section, pinkish-green when young; margins membranous.

Rhizomes absent.

Distribution: Occurs as a weed in overgrazed pastures and fields throughout the state.

5. Elymus virginicus L. Virginia Wildrye.

Perennial, 60-90 cm. tall, smooth, tufted, erect, simple, rigid, and robust.

Culms glabrous; nodes glabrous.

Vernation convolute.

Blades 10-30 cm. long, 4-12 mm. wide, flat, constricted basally, tapering to a short point, scabrous on upper surface, often glaucous, glabrous and green on lower surface; margins scabrous; veins distinct, ridged; midrib prominent; blade keeled on lower surface toward base.

Ligule membranous, thick, greenish, truncate, minutely ciliate on margin, 0.5-1.0 mm. long.

Collar prominent, often diagonal, glabrous, greenish-yellow.

Auricles 0.5-1.5 mm. long, sharp and clawlike to round-pointed.

Sheaths shorter or longer than the internodes, loose, glabrous to pubescent, striate, scaberulous, split, rounded; margins overlapping, the outer margin ciliate, the inner margin glabrous and hyaline.

Rhizomes absent.

Distribution: Occurs in colonies along stream banks and in wooded sections throughout the state.

6. Elymus canadensis L. Canada Wildrye. Nodding Wildrye.

Perennial, 60-150 cm. tall, dark green or glaucous, simple, erect, tufted, or forming a loose sod.

Culms glabrous, often glaucous; nodes glabrous.

Vernation convolute.

Blades 10-30 cm. long, 4-20 mm. wide, dark green, often glaucous, erect, rigid, flat, sharp pointed, narrowed toward base, slightly scabrous on upper surface and margins, glabrous on lower surface; veins raised above surface, numerous; midrib keeled toward base on lower surface.

Ligule membranous, thick, finely toothed to ciliate, truncate, 0.5-1.5 mm. long.

Collar distinct, oblique, wedge-shaped, sometimes divided by midrib, glabrous.

Auricles rounded to clawlike, narrow, sometimes clasping.

Sheaths longer than internodes, glabrous, split, round in cross-section, green or glaucous, striate; margins overlapping and hyaline, the outer margin sometimes ciliate.

Rhizomes short, if present.

Distribution: Occurs in moist habitats throughout the state.

7. Buchloe dactyloides (Nutt.) Engelm. Buffalograss.

Perennial, sod-forming, creeping, and stoloniferous, the female plants shorter than the male, which are 10-30 cm. tall, erect, and slender; the stolons from 10-30 cm. long, with internodes 4-7 cm. long, the nodes often rooting and bearing tufts of short leaves.

Culms glabrous; nodes glabrous.

Vernation conduplicate clasping.

Blades 4-10 cm. long, 1-3 mm. wide, flexuous, soft, grayish-green, flat, somewhat scabrous and sparsely pubescent on upper surface; margin scabrous, glandular; veins and midrib indistinct.

Ligule a fringe of hairs less than 1.0 mm. long.

Collar indistinct, pilose at base and on margins.

Auricles absent.

Sheaths loose, round in cross-section, striate, and glabrous.

Rhizomes absent.

Distribution: Occurs on open plains throughout the state, except the southeast part of the state.

8. Leptochloa filiformis (Lam.) Beauv. Red Sprangletop.

Annual, 30-90 cm. tall, erect, geniculate below, branched.

Culms sometimes reddish to purplish, smooth and glabrous; nodes glabrous.

Vernation convolute.

Blades 10-20 cm. long, 5-10 mm. wide, thin, flat, soft, narrowed and boat-shaped toward base, scaberulous on margins and both surfaces, sparsely papillose on upper surface toward base; veins distinct; midrib prominent below.

Ligule hyaline basally, rounded with a broad, lacerate-toothed margin, 1-2 mm. long.

Collar very narrow, indistinct, divided by midrib, pubescent basally and on margins.

Auricles absent.

Sheaths shorter than internodes, papillose-hirsute, the lower usually smooth and glabrous, somewhat loose, split, margins overlapping, round in cross-section; margin hyaline.

Rhizomes absent.

Distribution: A weed in moist cultivated fields and waste places throughout most of the state.

9. Spartina pectinata Link. Prairie Cordgrass.

Perennial, 100-200 cm. tall, erect, and unbranched.

Culms robust, glabrous; nodes lanate-pubescent.

Vernation convolute.

Blades 60-100 cm. long, 5-15 mm. wide, thick, rigid, flat, becoming involute toward apex, attenuate, tapering to a long, slender point, glabrous except occasionally scaberulous on the upper surface; margins very

scabrous; veins indistinct; midrib broad, keeled on lower surface.

Ligule a fringe of hairs 1-2 mm. long.

Collar wedge-shaped, glabrous, and thickened.

Auricles absent.

Sheaths glabrous, overlapping and crowded below, firmly supporting the stem, round in cross-section, split, and firm.

Rhizomes stout, creeping, and pointed.

Distribution: Occurs in colonies in swamps and low moist areas throughout most of the state.

10. Schedonnardus paniculatus (Nutt.) Trel. Texas Crabgrass. Tumblegrass.

Perennial, 20-50 cm. tall, leaves crowded at base, spreading to erect, tufted, branching from base.

Culms slender, green to purplish, hollow, rigid, smooth, and glabrous; nodes glabrous.

Vernation conduplicate or conduplicate clasping.

Blades 2-6 cm. long, 1-3 mm. wide, flexuous, flat, becoming conduplicate toward tips, blunt pointed; upper surface scabrous, glabrous on lower surface; margins scabrous; midrib prominent below.

Ligule acute, membranous, hyaline, 1.5-3.0 mm. long; margin lacerate.

Collar indistinct.

Auricles absent.

Sheaths loose, compressed, crowded toward the base of the plant, glabrous, scabrous on back of midvein, split, greenish-yellow in color; margins hyaline, continuous with ligule.

Rhizomes absent.

Distribution: Occurs in dry grassland throughout the state.

11. Chloris verticillata Nutt. Windmill-grass. Prairie Chloris.

Perennial, 10-40 cm. tall, tufted, decumbent to erect, often rooting at lower nodes, branching from the base; leaves crowded to the base.

Culms flattened; the branches flattened, glabrous; nodes glabrous.

Vernation conduplicate.

Blades 2-12 cm. long, 1-3 mm. wide, obtuse, soft, often pubescent on lower surface, scaberulous on upper surface, conduplicate, drooping; margin hyaline and minutely scabrous; veins distinct; midrib prominent on lower surface.

Ligule membranous, fringed on margin, almost divided into halves, less than 1 mm. long.

Collar divided by the midrib, indistinct, glabrous.

Auricles absent.

Sheaths shorter than the internodes, loose, compressed, glabrous; mid-vein prominent; margins hyaline.

Rhizomes absent.

Distribution: Occurs on open prairies throughout the state.

12. Bouteloua gracilis (H.B.K.) Lag. Blue Grama.

Perennial, 15-50 cm. tall, tufted, erect, usually branching at the base, often sod-forming.

Culms glabrous, seldom branching from upper nodes; nodes glabrous.

Vernation conduplicate clasping.

Blades 5-12 cm. long, 1-2 mm. wide, soft; margin slightly scabrous, sparsely papillose-hirsute basally; blade flat, slightly scabrous on upper surface, narrow, drooping, tapering to long point; veins indistinct; midrib indistinct.

Ligule 0.2-0.3 mm. long, collar-shaped, mostly a fringe of hairs.

Collar yellowish-green, divided by midrib, margin ciliate.

Auricles absent.

Sheaths oval to round, paler than blade, glabrous, long-ciliate at the throat, split to near base, shorter than the internodes, striate; margin membranous.

Rhizomes absent.

Distribution: This species is one of the dominant grasses of the plains and occurs throughout Oklahoma.

13. Bouteloua hirsuta Lag. Hairy Grama.

Perennial, 15-50 cm. tall, rigid, erect to decumbent, tufted, usually sod-forming, simple, variable in habit.

Culms striate, glabrous to pubescent below; nodes glabrous.

Vernation conduplicate clasping.

Blades 2-13 cm. long, 1-2 mm. wide, longer basally, numerous, flexuous, narrow-pointed, puberulent above, soft; midrib not prominent; margins sparsely papillose-hispid.

Ligule a fringe of hairs 0.5 mm. long.

Collar papillose on margin, usually divided by midrib.

Auricles absent.

Sheaths usually shorter than internodes, loose and crowded, the upper glabrous, the lower sometimes pubescent, oval to round in cross-section, split, striate; margin hyaline.

Rhizomes absent.

Distribution: Occurs on rocky hills and plains throughout the state.

14. Bouteloua curtipendula (Michx.) Torr. Sideoats Grama.

Perennial, 30-100 cm. tall, slender, erect, and tufted.

Culms glabrous; internodes much shorter toward base; nodes glabrous.

Blades 5-25 cm. long, 4-5 mm. wide in middle, flat, drooping, tapering to narrow point, scabrous on upper surface, pubescent on upper and lower surfaces; margin scabrous with glandular hairs, especially toward base; veins indistinct; midrib evident on upper surface.

Ligule collarlike, membranous, 0.5 mm. long, ciliate on the margin.

Collar usually divided, yellowish-green, long-ciliate on margin.

Auricles absent.

Sheaths usually shorter than internodes, loose, papery on the margin, striate, round in cross-section, glabrous to sparingly pilose, throat often pilose, split to near base.

Rhizomes short and scaly.

Distribution: This species is found in pure stands on dry hills and plains of the western part of the state.

15. Aristida oligantha Michx. Prairie Threeawn.

Annual, 20-60 cm. tall, erect, slender, dichotomously branched.

Culms erect, slender, tufted, branching from the nodes, scabrous; nodes glabrous.

Vernation conduplicate.

Blades 10-20 cm. long, 1-2 mm. wide, rigid, margin sparsely ciliate, flat to convolute at apex, tapering to a needle-like point, scabrous on upper surface, often pilose near base; veins indistinct, more prominent adjacent to midrib; margin sparsely ciliate; midrib not prominent.

Ligule membranous, ciliate on margins, approximating a fringe of hairs, 0.1-0.2 mm. long.

Collar yellowish-green, glabrous, indistinct.

Auricles absent.

Sheaths longer or shorter than the internodes, slightly scabrous, with membranous margins, rounded in cross-section, split to near base with margins twisted and overlapping, sometimes ciliate at the throat.

Rhizomes absent.

Distribution: Occurs throughout the state, found in old fields, sometimes forming pure stands on thin, clay soils.

16. Calamovilfa gigantea (Mutt.) Scribn. Giant Reed-grass. Big Sandgrass.

Perennial, 150-300 cm. tall, robust, usually solitary, rigid, unbranched.

Culms glabrous, often glaucous; nodes glabrous.

Vernation convolute.

Blades as much as 70 cm. long, 5-8 mm. wide, rigid, flat, becoming involute toward a long attenuate apex, glabrous throughout; veins inconspicuous; lower surface somewhat keeled basally.

Ligule a fringe of hairs 1-2 mm. long.

Collar often reddish, glabrous, sometimes ciliate on the margins.

Auricles absent.

Sheaths often glaucous, usually reddish, longer than the internodes, rigid, striate, often short-ciliate at the throat, split, round in cross-section, glabrous; margins overlapping.

Rhizomes long, woody, and creeping.

Distribution: This species is a sandbinder occurring along sandy stream banks and on sand dunes in the western part of the state.

17. Sporobolus vaginiflorus (Torr.) Wood. Poverty Dropseed.

Annual, 15-50 cm. tall, slender, erect or spreading from a geniculate base, tufted, and branching.

culms somewhat rough; nodes glabrous.

Vernation convolute.

Blades much longer basally, the lower 3-15 cm. long, the upper often less than 1 cm. long, less than 3 mm. wide, involute toward the tip, ascending, the upper surface scabrous, often sparsely pilose near base and on margins; margins scabrous; veins and midrib inconspicuous.

Ligule a fringe of hairs, 1.0-1.5 mm. long.

Collar distinct, wedge-shaped, divided by midrib, sometimes sparsely pilose on margins.

Auricles absent.

Sheaths shorter than the internodes, somewhat scabrous, often pilose at the throat, wider than the blades, round in section, split, loose, swollen and enclosing cleistogamous spikelets late in the season; margins hyaline.

Rhizomes absent.

Distribution: Occurs on dry soils throughout the state.

18. Sporobolus asper (Michx.) Kunth. Prairie Dropseed. Tall Dropseed.

Perennial, 50-120 cm. tall, erect, tufted, simple, often stout.

Culms often purplish, glabrous; nodes glabrous.

Vernation conduplicate clasping.

Blades 10-60 cm. long, 1-4 mm. wide, the upper short, the basal long, attenuate, flat, drooping, becoming involute toward the apex; upper surface occasionally pubescent; margin scabrous; veins prominent on upper and lower surface; midrib prominent.

Ligule very short, less than 0.5 mm. long, membranous with long-ciliate margin, the hairs equaling in length the membranous base.

Collar wedge-shaped, long-ciliate on the margins.

Auricles absent.

Sheaths shorter than the internodes, glabrous, pilose at the throat, often inflated, contracted toward the summit, round in cross-section, split; margin papery.

Rhizomes short, if present.

Distribution: This species occurs throughout the state; it is found on dry prairie soils and is abundant in some localities.

19. Sporobolus cryptandrus (Torr.) A. Gray. Sand Dropseed.

Perennial, 40-100 cm. tall, semi-erect, branching from the base, and tufted.

Culms glabrous; nodes glabrous.

Vernation convolute.

Blades 5-15 cm. long, 3-6 mm. wide, longer toward base, flat, tapering to a long involute point, soft in texture; the lower surface glabrous; the upper surface scaberulous; margins somewhat scabrous, hyaline; veins 4 each side of indistinct midrib.

Ligule a fringe of very short hairs less than 0.5 mm. long.

Collar wedge-shaped, distinct, long-pilose basally and at margins.

Auricles absent.

Sheaths longer than internodes above, the lower shorter, striate, split, rounded in cross-section, pubescent on margin, conspicuously pilose at throat.

Rhizomes absent.

Distribution: This species occurs in sandy soils throughout the state.

20. Distichlis stricta (Torr.) Rydb. Inland Saltgrass.

Perennial, 10-60 cm. tall, rigid; leaves conspicuously distichous; plant

freely branching, often glaucous.

Culms glabrous; nodes glabrous.

Vernation conduplicate clasping.

Blades 5-10 cm. long, 2-4 mm. wide, flat or U-shaped toward the acuminate tip, crowded, rigid, ascending, glabrous to pubescent on both surfaces; margin scabrous; veins raised; midrib inconspicuous.

Ligule collar-shaped, mostly a fringe of hairs less than 0.5 mm. long.

Collar wedge-shaped, conspicuous, pubescent on margins.

Auricles absent.

Sheaths crowded, overlapping, glabrous, except pubescent at throat, rounded in cross-section, split, striate, almost white in color.

Rhizomes scaly, creeping.

Distribution: Occurs on saline and alkaline soils throughout the state.

21. Triodia flava (L.) Smyth. Purpletop.

Perennial, 60-150 cm. tall, semi-erect, and tufted.

Culms simple, elliptical in cross-section toward base of plant; nodes glabrous, often purple.

Vernation conduplicate.

Blades 10-30 cm. long, upper shorter, 3-12 mm. wide, flat, boat-shaped near base, pointed toward apex, drooping; upper surface scabrous, pubescent toward base; margin scaberulous; midrib prominent below.

Ligule a fringe of short hairs 0.5 mm. long.

Collar divided by midrib, pubescent on lower surface and on ends.

Auricles absent.

Sheaths shorter than internodes, overlapping at base, loose, glabrous, except occasionally pubescent on lower sheaths, pubescent at throat, oval in cross-section, split; ribs inconspicuous; margin hyaline.

Whiskers short, stout.

Distribution: Occurs in dry meadows throughout the state.

22. Triodia stricta (Nutt.) Benth. Narrow Three-toothed Grass.

Perennial, 50-150 cm. tall, tufted, erect, usually stout, sometimes branched.

Stems glabrous, striate, sometimes purplish-green.

Vernation convolute.

Blades 10-60 cm. long, 3-7 mm. wide, elongate, flat to loosely involute, smooth, glabrous except pubescent on upper surface at base; margin glabrous; veins indistinct; midrib a broad band 1 mm. wide, not distinct.

Ligule a fringe of loose hairs 1-2 mm. long.

Collar indistinct, narrow, pubescent.

Articles absent.

Sheaths longer or shorter than internodes, loose, somewhat striate, oval in cross-section, glabrous, sometimes pubescent at throat, split.

Whiskers absent.

Distribution: Occurs in moist soil in the eastern half of the state.

23. Triodia albescens Vasey. White Triodia.

Perennial, 10-70 cm. tall, erect, loosely tufted.

Stems usually simple, glabrous; nodes glabrous.

Vernation convolute.

Blades 15-30 cm. long, 2-7 mm. wide, basal longer than upper, slender, flat, soon becoming involute, tapering to narrow point; glabrous on upper surface, except pilose at base; margin slightly scabrous; veins indistinct; midrib prominent on upper and lower surface.

Ligule a dense fringe of hairs 1.0-1.5 mm. long.

Collar thickened below, 1.5 mm. wide, pilose on margins.

Auricles absent.

Sheaths shorter than internodes, round in cross-section, flexible, pilose at throat, otherwise glabrous, split.

Rhizomes absent.

Distribution: This species occurs in moist habitats in the eastern half of the state; it is common but not abundant.

24. Eragrostis ciliensis (All.) Link. Stinkgrass.

Annual, varying from 15-50 cm. tall, with glandular depressions on the branches, densely tufted, decumbent or geniculate to erect, soft.

Culms branched, glabrous; nodes glabrous, encircled below by a ring of glands.

Vernation convolute.

Blades 6-25 cm. long, 2-7 mm. wide, flat, lower surface smooth; upper surface scabrous; veins inconspicuous; midrib prominent, especially below; margin scabrous, glandular toward base.

Ligule membranous basally; margin ciliate-lacerate; approximately 0.5 mm. long.

Collar indistinct, pilose at margins.

Auricles absent.

Sheaths shorter than internodes, loose, round in cross-section, keeled toward summit, split, striate, glabrous, sometimes pilose at throat; margin hyaline.

Rhizomes absent.

Distribution: A weed in fields and waste places; it occurs throughout the state.

25. Eragrostis sessilispica Buck. Tumble Lovegrass.

Perennial, 20-40 cm. tall, tufted, ascending to erect, slender, rigid, with one node above the basal cluster of leaves, branching from the base.

Culms glabrous; nodes glabrous.

Vernation convolute.

Blades 3-15 cm. long, less than 2 mm. wide, rigid, flat to somewhat involute, acuminate, glabrous to somewhat scabrous on upper surface, occasionally sparsely pilose basally; margins scaberulous; veins distinct, raised above the upper surface; midrib inconspicuous.

Ligule a white, uneven fringe of hairs 3 mm. long.

Collar inconspicuous, pubescent to pilose basally and on margins.

Auricles absent.

Sheaths longer than the internodes, rigid, glabrous, pilose at the throat, split, round in cross-section.

Rhizomes absent.

Distribution: Occurs on dry sandy soil throughout the state.

26. Eragrostis curtipedicellata Buckl. Short-stalked Lovegrass.

Perennial, 30-90 cm. tall, erect or decumbent from a bulbous base, tufted, sparsely branched.

Culms rigid and smooth; nodes glabrous.

Vernation convolute.

Blades 6-15 cm. long, 1-5 mm. wide, flat, usually involute toward apex, tapering to fine point, thin, narrowed and boat-shaped basally, upper surface and margins scaberulous, somewhat keeled below, often glandular-viscid below; veins raised above the surface.

Ligule a fringe of very short hairs, 0.2 mm. long.

Collar divided by midrib, distinct, 1-2 mm. wide, pilose on the margins.

Auricles absent.

Sheaths longer than internodes, somewhat loose, usually glandular-viscid, villous at the throat, rigid, round in cross-section, striate and split.

Rhizomes very short, stout, and scaly.

Distribution: Occurs in colonies in open habitats throughout the state.

27. Eragrostis secundiflora Presl. Clustered Lovegrass.

Perennial, 20-40 cm. tall, tufted, erect, and simple.

Culms glabrous; nodes glabrous.

Vernation convolute.

Blades 5-30 cm. long, 1-4 mm. wide, flat, boat-shaped at base, involute toward long, attenuate apex; lower surface glabrous; scaberulous on upper surface and margins; veins and midrib indistinct.

Ligule a fringe of short hairs, 0.2-0.4 mm. long.

Collar divided by midrib, wedge-shaped, distinct, pilose on margins.

Auricles absent.

Sheaths longer or shorter than internodes, split, rounded in cross-section, glabrous, pilose at throat.

Rhizomes absent.

Distribution: Occurs in sandy soils throughout the state.

28. Eragrostis lugens Nees. Mourning Lovegrass.

Perennial, 20-60 cm. tall, slender, tufted, geniculate at base, erect, simple or sparingly branched.

Culms wiry and glabrous; nodes glabrous.

Vernation convolute.

Blades 10-25 cm. long, 1-3 mm. wide, flat to involute at the apex, often

sparsely pilose on upper surface, glabrous on lower surface, scaberulous on margins and upper surface, narrowed toward base; veins 2-3 on each side of semi-prominent midrib.

Ligule a dense uneven fringe of hairs less than 0.5 mm. long.

Collar thickened, indistinct, divided by midrib, sparsely pilose on margins.

Auricles absent.

Sheaths loose, shorter than internodes, rigid, compressed at base of plant, greenish-yellow, split, oval in cross-section, glabrous, pilose at throat; midvein prominent.

Rhizomes absent.

Distribution: Occurs in colonies in dry soils in eastern and central Oklahoma.

29. Eragrostis spectabilis (Pursh) Steud. Purple Lovegrass.

Perennial, 30-60 cm. tall, simple, tufted, erect or ascending, rigid.

culms rigid, glabrous; nodes glabrous.

Vernation convolute.

Blades 15-35 cm. long, 3-8 mm. wide, rigid, flat, becoming involute, tapering to fine point, smooth on lower surface, scabrous on upper surface, hirsute at base, pubescent at apex on upper surface; margin scaberulous; veins distinct; midrib indistinct, more prominent on lower surface.

Ligule a fringe of hairs, 2-4 mm. long.

Collar divided by midrib, pilose at base.

Auricles absent.

Sheaths longer than internodes, constricted at throat, papillose-hirsute toward summit, throat pilose, round in cross-section, split, striate,

yellowish-green; margins hyaline.

Rhizomes short, stout, and scaly.

Distribution: Occurs in dry soils throughout the state.

30. Eragrostis trichodes (Nutt.) Nash. Sand Lovegrass.

Perennial, 60-120 cm. tall, tufted, erect, simple and smooth, and slender.

Culms glabrous; nodes crowded toward base, pubescent.

Vernation convolute.

Blades 15-90 cm. long, 2-10 mm. wide, smooth on lower surface, narrowed toward the base, flat to somewhat involute, tapering to a very slender point; upper surface often pilose near base, somewhat scabrous toward apex; margins smooth to scaberulous; veins raised above surface, midrib prominent and white.

Ligule a fringe of hairs less than 0.5 mm. long.

Collar wedge-shaped, prominent, divided by midrib, pilose basally and on margins.

Auricles absent.

Sheaths crowded toward base of plant, longer than internodes, greenish-yellow, glabrous except pilose at throat, keeled toward summit, split, striate, and rigid.

Rhizomes absent.

Distribution: Occurs in sandy soils throughout the state.

31. Uniola latifolia Michx. Broadleaved Spikegrass. Broadleaved Uniola.

Perennial, 60-120 cm. tall, dark green, unbranched, erect, with broad, flat blades.

Culms glabrous; nodes glabrous, often purplish.

Vernation convolute.

Blades 10-20 cm. long, 1-2 cm. wide, dark green, soft, flaccid, narrowed toward the base, flat, lanceolate, short-pointed, glabrous except occasionally sparsely pubescent on upper surface at base; margins scaberulous; veins 5 on each side of semi-prominent midrib.

Ligule membranous with short-ciliate margin, truncate, mostly less than 0.5 mm. long.

Collar glabrous, wedge-shaped, often purplish.

Auricles absent.

Sheaths shorter than internodes, dark green in color, round in cross-section, split, striate, much narrower than blade, glabrous throughout.

Rhizomes short and stout.

Distribution: This species occurs in colonies in moist, wooded habitats throughout most of the state.

32. Cenchrus pauciflorus Benth. Sandbur.

Annual, 15-80 cm. tall, prostrate to decumbent, much branched, tufted, often forming mats, somewhat stout.

Culms flattened, sometimes scabrous, often pubescent toward summit; nodes sometimes pubescent.

Vernation conduplicate.

Blades 6-15 cm. long, 2-9 mm. wide, somewhat flaccid, flat to conduplicate, often narrowed at the base, spreading, tapering to apex, scabrous on upper surface and margins, sometimes sparingly pilose near base on upper surface; veins raised above surface; midrib prominent, keeled toward base.

Ligule a fringe of hairs 0.5-0.8 mm. long.

Collar usually divided by midrib, wedge-shaped, sparsely ciliate on the margins.

Auricles absent.

Sheaths shorter than the internodes, often loose and inflated, split, flattened in cross-section and keeled toward summit, thin, striate, glabrous except occasionally pilose at the throat, often scabrous on back of midrib; margins hyaline, occasionally ciliate.

Rhizomes absent.

Distribution: This species occurs in waste places, usually on sandy soils, throughout the state.

33. Leptoloma cognatum (Schult.) Chase. Fall Witchgrass.

Perennial, 20-70 cm. tall, slender, branched below, tufted, erect, becoming geniculate.

Culms glabrous or pubescent toward base; nodes glabrous.

Vernation convolute.

Blades mostly less than 10 cm. long, 2-5 mm. wide, flat, rigid, tapering to narrow point; upper surface scaberulous, sometimes sparsely pubescent; the lower surface sparsely pubescent; veins indistinct; midrib semi-prominent, more evident below; margins wavy, hyaline, scaberulous.

Ligule often oblique, membranous, hyaline, truncate, 1 mm. long.

Collar often paralleling an oblique blade base, glabrous, usually divided by midrib.

Auricles absent.

Sheaths shorter than internodes, the upper glabrous, the lower somewhat pubescent, loose, round in cross-section and split.

Rhizomes absent.

Distribution: Occurs on dry soils throughout the state.

34. Eriochloa contracta Hitchc. Prairie Cupgrass.

Annual, 30-70 cm. tall, densely tufted, decumbent at base, otherwise erect, freely branching above.

Culms pubescent above; pubescent to puberulent at the nodes.

Vernation convolute.

Blades 12-20 cm. long, 4-6 mm. wide, flat, boat-shaped near base, becoming convolute on drying, flaccid, tapering to long point, pubescent to puberulent on upper and lower surfaces; veins indistinct; midrib prominent; margins smooth.

Ligule mostly a fringe of soft white hairs 0.8-1.0 mm. long, base membranous.

Collar divided by midrib, indistinct and pubescent.

Auricles absent.

Sheaths longer or shorter than internodes, thin, loose, glabrous to short-pubescent, rounded in cross-section, striate, split; margin not hyaline.

Rhizomes absent.

Distribution: This species is found in moist cultivated and waste places throughout the state.

35. Paspalum stramineum Nash. Sand Paspalum.

Perennial, 40-100 cm. tall, yellowish-green, small-tufted, basally branched, erect or ascending to spreading, slender, often purplish toward the base.

Culms glabrous, compressed; nodes pubescent.

Vernation convolute.

Blades 6-20 cm. long, 6-15 mm. wide, shorter toward upper part of the plant, drooping, narrowed and boat-shaped basally, glabrous to puberulent

on both surfaces, often pilose toward base; margins scaberulous, often papillose basally.

Ligule membranous, hyaline, irregularly toothed on the margin, about 1 mm. long; short, white hairs occur immediately behind the ligule.

Collar puberulent, wedge-shaped, usually purplish.

Auricles absent.

Sheaths no longer than internodes, loose, ciliate on margins, often pilose at the throat, striate, split, somewhat flattened in cross-section, keeled toward summit, often purplish toward base of plant.

Rhizomes absent.

Distribution: Occurs on moist, sandy soils throughout the state.

36. Paspalum floridanum Michx. Florida paspalum.

Perennial, 1-2 m. tall, robust, simple, solitary to small-tufted.

Culms compressed, glabrous; nodes glabrous.

Vernation convolute.

Blades 15-35 cm. long, 4-15 mm. wide, the upper narrowed and boat-shaped basally, stiff, mostly spreading and ascending at the summit, flat to folded, papillose-pilose on the upper surface, occasionally so on the lower surface, scaberulous on upper surface and margins; margins hyaline; veins distinct, raised on upper surface; midrib broad, white and prominent below.

Ligule membranous, truncate, lacerate-toothed on margin, 2-3 mm. long.

Collar divided by midrib, indistinct, narrow, pubescent, pilose on margins.

Auricles absent.

Sheaths longer than internodes, overlapping toward base of culm, the upper sometimes shorter than internodes, keeled, striate, glabrous to

papillose-hirsute, throat papillose, split, flattened in cross-section; margin papery.

Rhizomes short, stout, and scaly.

Distribution: Occurs throughout the state in low, moist places.

37. Paspalum pubiflorum var. glabrum Vasey.

Perennial, 50-100 cm. tall, decumbent to ascending.

Culms geniculate to decumbent at base, glabrous; nodes dark purple; lower nodes pubescent.

Vernation convolute.

Blades 10-30 cm. long, 6-12 mm. wide at base, flat, thin, tapering to long point, somewhat scabrous on upper surface, often papillose basally, otherwise glabrous; margin sparsely ciliate and minutely scabrous; veins numerous, indistinct; midrib prominent on lower surface.

Ligule membranous, glabrous, thin, transparent, rounded with lacerate margins, 1.0-2.0 mm. long.

Collar sometimes greenish-purple, glabrous; ciliate on margin, not divided by midrib.

Auricles absent.

Sheaths longer than internodes, loose, slightly paler than blade, rounded in cross-section, split to near base with margins overlapping; margin long-ciliate toward apex.

Rhizomes absent.

Distribution: This species is found in moist soils throughout the state, except the extreme western part.

38. Panicum dichotomiflorum Michx. Fall Panicum.

Annual, 50-200 cm. tall, tufted, robust, purplish, ascending from geniculate to prostrate base, branched.

Culms succulent, flattened, thick, usually glabrous, rarely pubescent; nodes swollen.

Vernation convolute.

Blades 10-50 cm. long, 3-20 mm. wide, thin, boat-shaped toward base, flat to conduplicate, tapering to narrow apex, upper surface and margin scaberulous, sometimes sparsely pilose on upper surface; veins distinct; midrib broad and white.

Ligule membranous basally, the upper half a ciliate fringe 1-2 mm. long.

Collar prominent, wedge-shaped, swollen, divided by midrib, occasionally pilose on margins, bisected by distinct veins continuous from blade to sheath.

Auricles absent.

Sheaths longer than internodes, compressed toward the summit, loose, glabrous, sparsely pilose at the throat, striate, split; margins hyaline.

Rhizomes absent.

Distribution: This species occurs as a weed in moist cultivated fields and waste places throughout Oklahoma.

39. Panicum capillare L. Common Witchgrass. Ticklegrass.

Annual, 20-80 cm. tall, hairy, erect to spreading at base, tufted, simple to sparingly branched basally.

Culms papillose-hispid to almost glabrous; densely hispid at the nodes.

Vernation convolute.

Blades 10-25 cm. long, 8-20 mm. wide, the larger ones slightly constricted at the base, somewhat short-pointed, hispid on both surfaces; veins indistinct; midrib broad, white, prominent; margins papillose-hispid.

Ligule a fringe of hairs 0.8-1.5 mm. long, with membranous base.

Collar narrow, indistinct and hispid.

Auricles absent.

Sheaths longer than internodes, densely papillose-hispid, loose, round in cross-section, split.

Rhizomes absent.

Distribution: This species occurs in fields and waste places throughout the state.

40. Panicum obtusum H.B.K. Vine Mesquite.

Perennial, 20-80 cm. tall, stoloniferous with stolons sometimes 15-18 feet long, stiff, erect to decumbent at base, tufted from a knotted crown, simple or branching at the base.

Culms compressed, glabrous; nodes glabrous. Nodes of stolons swollen and lanate, the internodes long.

Vernation convolute.

Blades 5-20 cm. long, 2-7 mm. wide, flat to keeled or involute toward long narrow apex, firm, erect; upper surface glabrous to scabrous, with sparse hairs toward base; veins raised; midrib prominent above; margins scabrous.

Ligule membranous, hyaline, lacerate; margin rounded; 1-1.5 mm. long.

Collar indistinct, pilose on margins.

Auricles absent.

Sheaths shorter than internodes, loose, the lower sometimes pubescent, otherwise glabrous, round in cross-section, split; midvein prominent on inner surface.

Rhizomes short and knotty.

Distribution: Occurs along sandy or gravelly stream banks and ditches throughout the state.

41. Panicum virgatum L. Switchgrass.

Perennial, 75-200 cm. tall, robust, tufted to sod-forming, often glaucous, unbranched, erect.

Culms glabrous, often glaucous; nodes glabrous.

Vernation convolute.

Blades 10-60 cm. long, 3-15 mm. wide, often glaucous or purplish, flat, erect, tapering to a long point, upper surface usually pilose near base, becoming pubescent to glabrous toward apex; lower surface smooth; margins scabrous; veins indistinct; midrib broad and white.

Ligule a fringe of hairs 3-5 mm. long, sometimes membranous basally.

Collar glabrous to pubescent, indistinct.

Auricles absent.

Sheaths longer than internodes, pubescent on margins, round in cross-section, split, striate, firm, often purplish.

Rhizomes numerous, stout, scaly, and creeping.

Distribution: Occurs abundantly in open habitats throughout the state.

42. Tripsacum dactyloides (L.) L. Gamagrass. Bull Grass.

Perennial, 100-200 cm. tall, robust, occurring in large tufts, branched, with many sterile shoots arising from the base.

Culms flattened, glabrous; nodes glabrous.

Vernation convolute.

Blades 30-60 cm. long, 10-30 mm. wide, variable, those of the basal sterile shoots much longer than those of the flowering culms, flat, tapering to a fine point, truncate at the base, usually scabrous on the margin and on both surfaces, glabrous except sometimes sparsely hispid on the upper surface; veins raised above the surface; midrib broad and white.

Ligule collar-like, bearing a fringe of minute hairs less than 0.4 mm. long.

Collar narrow, distinct, glabrous.

Auricles absent.

Sheaths shorter than internodes, those of the sterile shoots much shorter than the blades, often wider than the blades, glabrous, yellowish-green, strongly flattened, with a prominent midrib, striate, constricted at the collar.

Rhizomes thick, knotty, and often woody.

Distribution: Occurs in wet habitats throughout the state.

43. Rottboellia cylindrica Torr. Rat-tail-grass.

Perennial, 30-90 cm. tall, erect, tufted, slender, branching toward the summit.

Culms round, glabrous; nodes glabrous.

Vernation conduplicate.

Blades 15-40 cm. long, 2-3 mm. wide, longer basally, flat, becoming involute, stiff, tapering to a long point, scabrous on upper surface, scaberulous on lower surface, occasional long hairs on upper surface basally; margin slightly scabrous; veins distinct; midrib prominent.

Ligule membranous, truncate, lacerate on margins, 0.5 mm. long.

Collar indistinct, narrow, divided by the midrib.

Auricles absent.

Sheaths longer than internodes, striate, rounded in cross-section, glabrous to scaberulous, rather loose and split.

Rhizomes short.

Distribution: This species occurs in sandy soil in the eastern half of the state.

44. Andropogon scoparius Michx. Little Bluestem.

Perennial, 40-150 cm. tall, tufted, erect, slender, much branched, often glaucous, green to reddish purple in color.

Culms glabrous; nodes glabrous.

Vernation conduplicate.

Blades 5-25 cm. long, 3-7 mm. wide, flat to conduplicate in cross-section, tapering to a narrow point, occasionally glabrous, but usually scabrous and pubescent on upper surface, hirsute toward the base; lower surface glabrous to sparingly pubescent; margins scabrous; veins raised above surface; midrib conspicuous, especially on lower surface.

Ligule membranous with ciliate margins, truncate, 1.0-1.5 mm. long.

Collar somewhat thickened, rarely pubescent.

Auricles absent.

Sheaths shorter than internodes, flattened, pubescent at the throat, glabrous to pubescent, split; margins papery, often ciliate.

Rhizomes short, if present.

Distribution: This species is the dominant grass over large areas of Oklahoma.

45. Andropogon furcatus Muhl. Big Bluestem.

Perennial, 1-2 m. tall, robust, tufted, erect, sparingly branched above, often glaucous to purplish.

Culms solid, terete, striate; nodes glabrous.

Vernation convolute.

Blades 10-45 cm. long, 5-10 mm. wide, basal leaves pointed, flat to V-shaped in section, firm; upper surface scabrous, papillose at base; veins distinct, raised above surface; midrib broad and prominent; margins scabrous.

Ligule membranous, 1-2 mm. long, truncate, ciliate to lacerate on margin.

Collar divided by midrib, hirsute on margins.

Auricles absent.

Sheaths shorter than internodes, glaucous, glabrous, the lower sometimes villous toward base, striate, rounded in section, split, with a hyaline margin continuous with the ligule.

Rhizomes short and thick, usually present.

Distribution: This species occurs abundantly on prairies, especially in more fertile soil throughout the state.

46. Andropogon hallii Hack. Sandhill Bluestem.

Perennial, 100-200 cm. tall, erect, robust, glaucous, simple at the base, branched above, often tufted.

Culms glabrous, solid, glaucous, round in section; nodes glabrous.

Vernation convolute.

Blades 5-15 cm. long, 5-12 mm. wide, glaucous, somewhat rigid, erect, flat to U-shaped in cross-section, glabrous to scaberulous on upper surface; lower surface keeled, glaucous; margins scabrous; veins raised above the surface; midrib broad and white.

Ligule membranous, continuous with hyaline margins of the sheaths, often reddish, lacerate-toothed on margin, rounded, 3-5 mm. long.

Collar conspicuous and glabrous.

Auricles absent.

Sheaths glaucous, shorter than internodes, glabrous, rigid, split, round in cross-section, striate.

Rhizomes long, stout and creeping.

Distribution: Occurs in sandy soils from the central to the western part

of the state.

47. Andropogon virginicus L. Broomsedge.

Perennial, 50-100 cm. tall, tufted, erect, much branched above.

Culms usually flattened, solid, sometimes glaucous; nodes sometimes villous.

Vernation conduplicate.

Blades 15-35 cm. long, 2-5 mm. wide, flat, becoming conduplicate toward the long, tapering apex, hirsute toward base on upper surface; margins slightly scabrous, hirsute toward base of blade; veins indistinct; midrib prominent on lower surface.

Ligule 0.5 mm. long, membranous, rounded and ciliate.

Auricles absent.

Collar obscure.

Sheaths shorter than internodes, loose; the lower inflated and imbricated, compressed, keeled, greenish-yellow, glabrous, except often pillose to papillose on margins, split.

Rhizomes absent.

Distribution: This species is often abundant on open, thin, soils of the eastern half of the state.

48. Andropogon ternarius Michx. Silvery Beardgrass.

Perennial, 80-100 cm. tall, tufted, erect, simple below, branched above, the branches long, slender, and erect.

Culms smooth and glabrous toward base; the upper nodes sometimes pubescent.

Vernation conduplicate.

Blades 10-60 cm. long, 2-3 mm. wide, those below the racemes very short, the basal blades often purplish-glaucous, glabrous except sometimes

sparsely papillose at base, the basal blades long, attenuate, conduplicate, becoming revolute toward the apex, sometimes slightly scabrous above, flat in section, becoming revolute; margin minutely scabrous, sometimes sparsely hirsute at base; veins distinct; midrib very wide and prominent above and below.

Ligule membranous, opaque, truncate, lacerate on margins, sometimes apparently divided by midrib, 1-2 mm. long.

Collar obscure.

Auricles absent.

Sheaths mostly shorter than internodes, usually somewhat scabrous, sometimes sparsely hirsute or papillose, flattened in cross-section, keeled toward the apex, split to near base.

Rhizomes absent.

Distribution: This species appears on dry, sandy soil throughout most of the state; it seldom forms pure stands.

49. Andropogon saccharoides Swartz. Silver Beardgrass.

Perennial, 40-120 cm. tall, tufted, slender, simple to branched, erect or ascending from decumbent base, often geniculate at the base.

Culms glabrous; nodes glabrous to appressed-pubescent.

Vernation convolute.

Blades 8-20 cm. long, 3-9 mm. wide, glabrous throughout, tapered on both ends, sometimes slightly scabrous on upper surface and margins; veins inconspicuous; midrib broad, keeled below.

Ligule membranous, hyaline, the margin finely notched, 1.5-3.0 mm. long.

Collar inconspicuous, glabrous to sparsely pilose on margin.

Auricles absent.

Sheaths shorter than the internodes, rounded in cross-section, but keeled

toward the summit, glabrous, split; margins hyaline.

Rhizomes absent.

Distribution: This species is abundant on upland soils throughout the state.

50. Sorghastrum nutans (L.) Nash. Indiangrass.

Perennial, 50-250 cm. tall, tufted to sod-forming, unbranched, erect, and robust.

Culms glabrous; nodes pubescent.

Vernation convolute.

Blades 10-30 cm. long, 5-10 mm. wide, often glaucous, thickened and narrowed toward base, U-shaped toward base, becoming flat toward long tapering apex, very scabrous on both surfaces and margin, rigid, somewhat keeled on lower surface toward base; margins often hispid; veins conspicuous; midrib broad and white.

Ligule continuous with margins of sheath, bearing on each side a one-nerved spur, rounded in center, margin notched to entire, 2-4 mm. long, pinkish-brown when young.

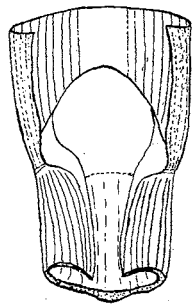
Collar broad, pinkish, glabrous with occasional hairs on margins.

Auricles absent.

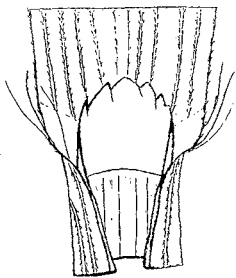
Sheaths longer than internodes below, shorter above, glabrous to pubescent, broader than the blades, often brownish-purple, split, rounded, striate, rigid, often keeled toward summit; margins membranous.

Rhizomes creeping, scaly.

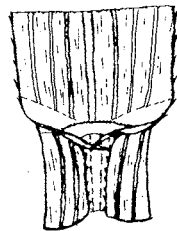
Distribution: This species is found in open woods and prairies, especially in moist habitats throughout the state.



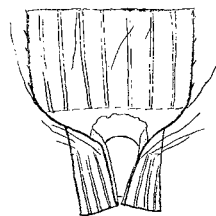
1. *Zizaniopsis
miliacea*



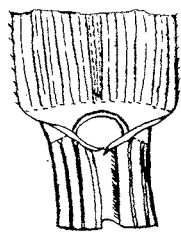
2. *Hilaria jamesii*



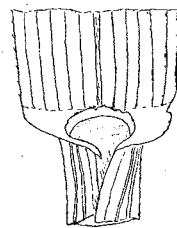
3. *Agropyron smithii*



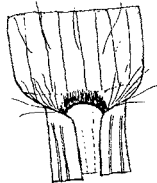
4. *Hordeum pusillum*



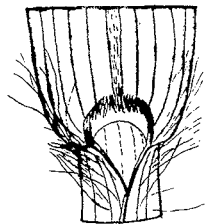
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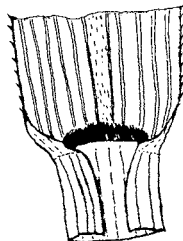
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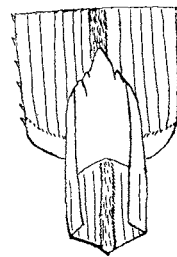
7. *Buchloe dactyloides*



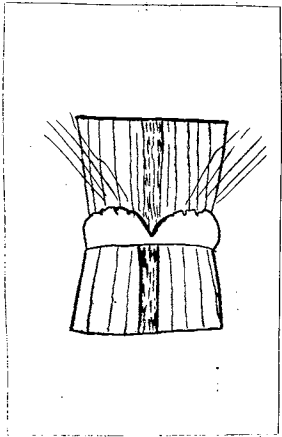
8. *Leptochloa
filiformis*



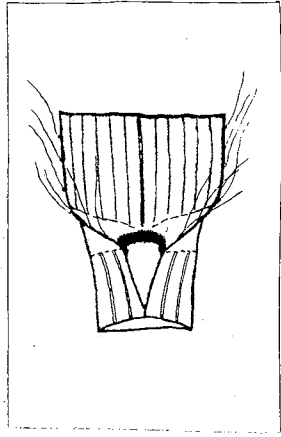
9. *Spartina
pectinata*



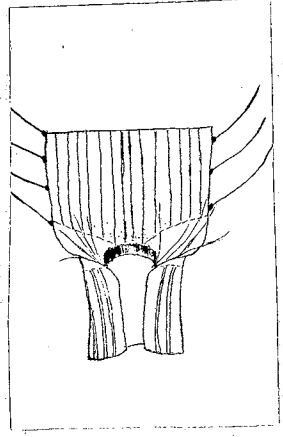
10. *Schedonnardus
paniculatus*



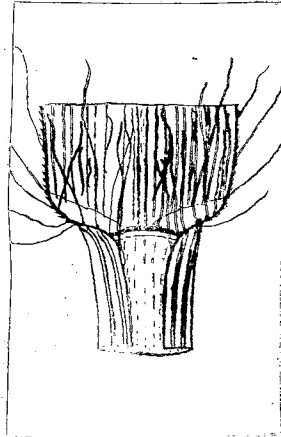
11. *Chloris verticillata*



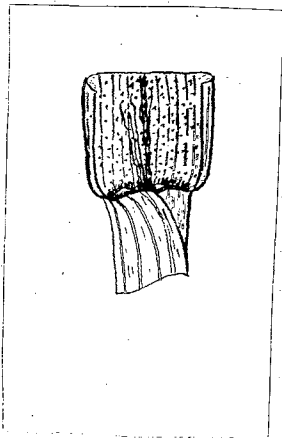
12. *Bouteloua gracilis*



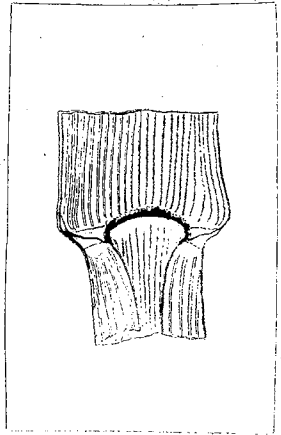
13. *Bouteloua hirsuta*



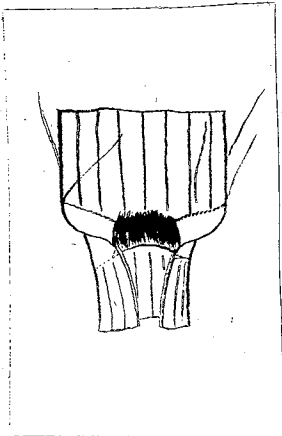
14. *Bouteloua curtipendula*



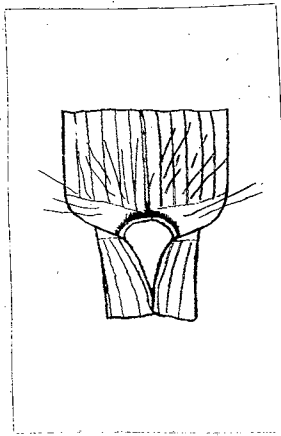
15. *Aristida oligantha*



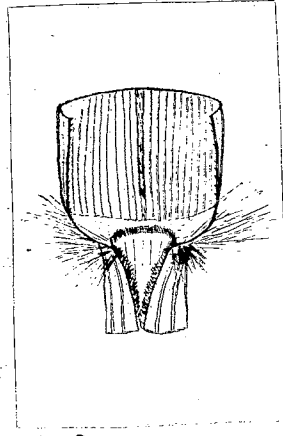
16. *Calamovilfa gigantea*



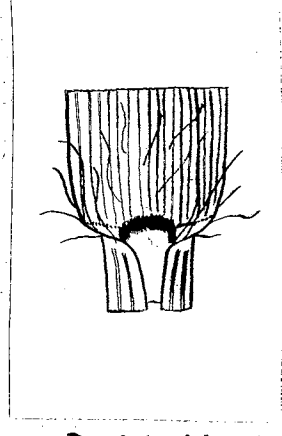
17. *Sporobolus vaginiflorus*



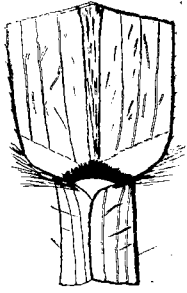
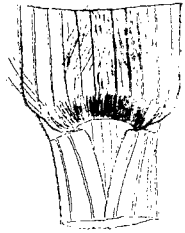
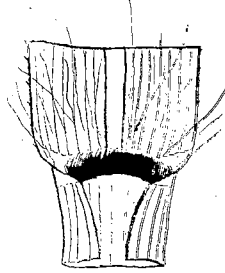
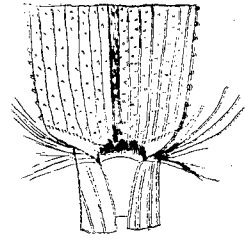
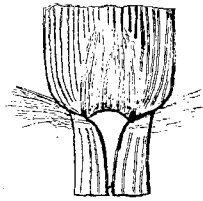
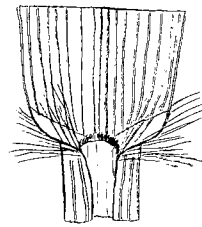
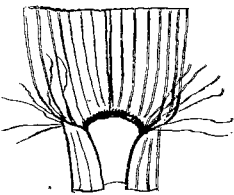
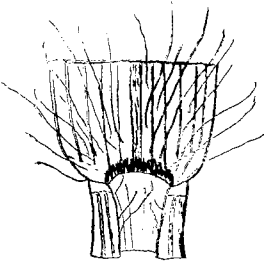
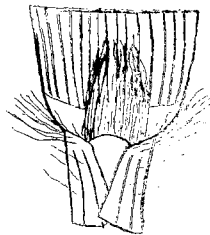
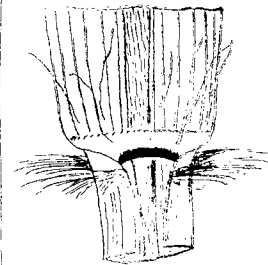
18. *Sporobolus asper*

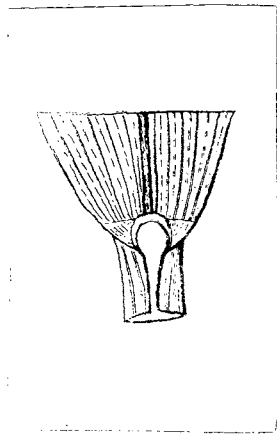


19. *Sporobolus cryptandrus*

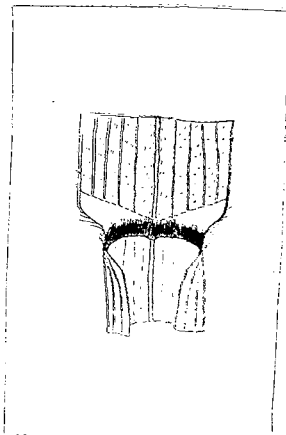


20. *Distichlis stricta*

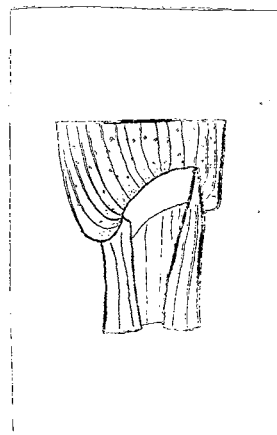
21. *Triodia flava*22. *Triodia stricta*23. *Triodia albescens*24. *Eragrostis cilianensis*25. *Eragrostis sessilispica*26. *Eragrostis curtipedicellata*27. *Eragrostis secundiflora*28. *Eragrostis lugens*29. *Eragrostis spectabilis*30. *Eragrostis trichodes*



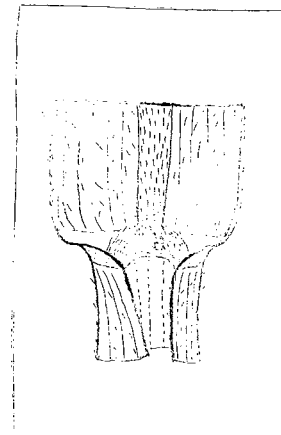
31. *Uniola latifolia*



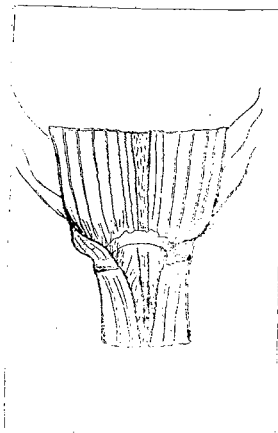
32. *Cenchrus pauciflorus*



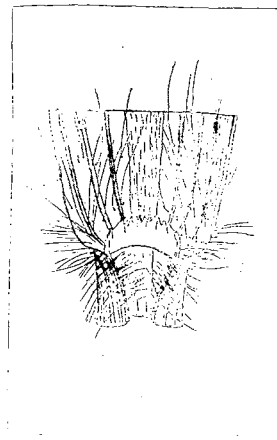
33. *Leptoloma cognatum*



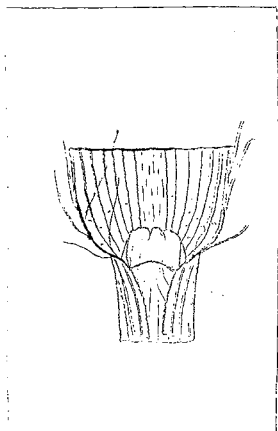
34. *Eriochloa contracta*



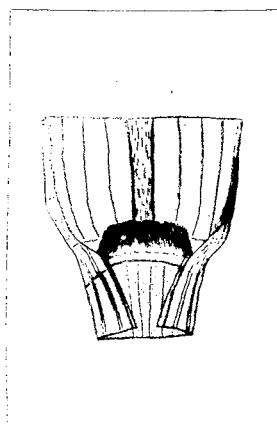
35. *Paspalum stramineum*



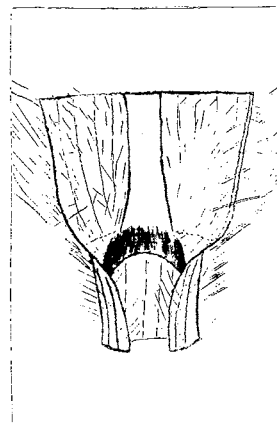
36. *Paspalum floridanum*



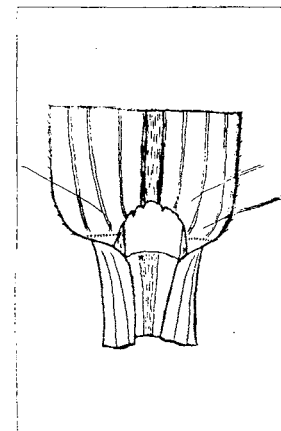
37. *Paspalum pubiflorum*
var. *glabrum*



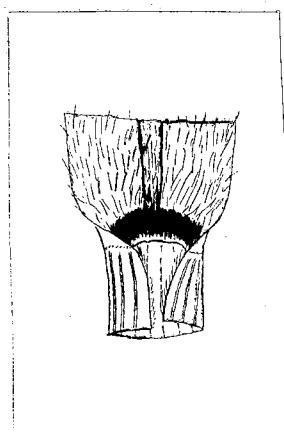
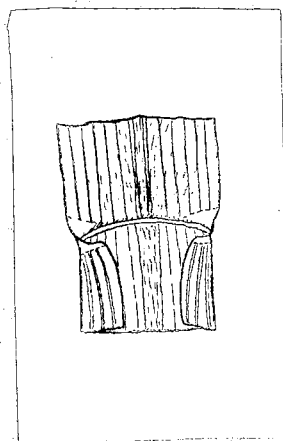
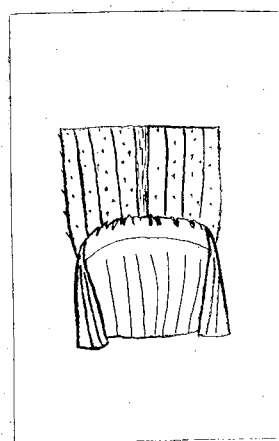
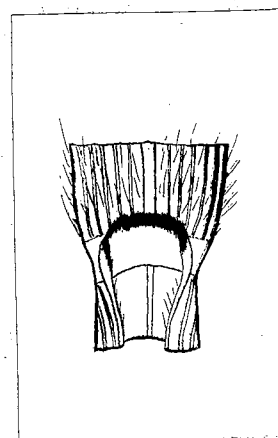
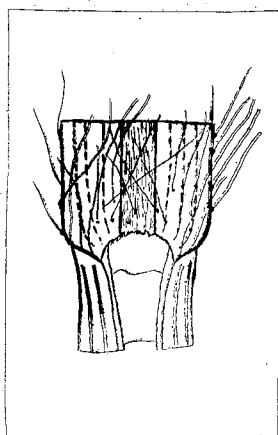
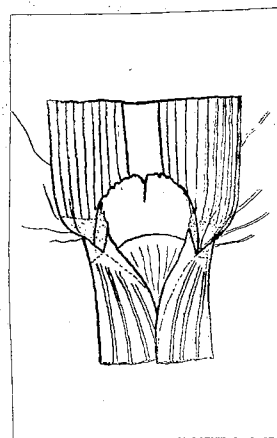
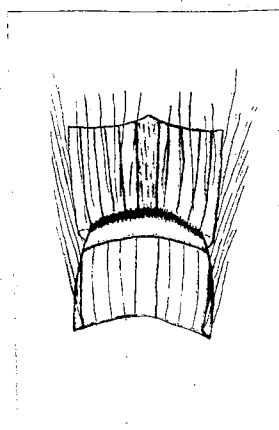
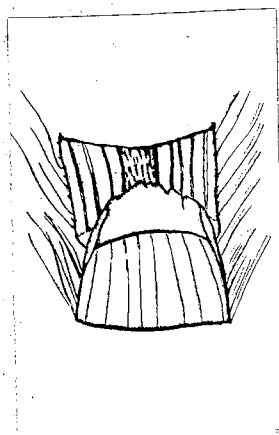
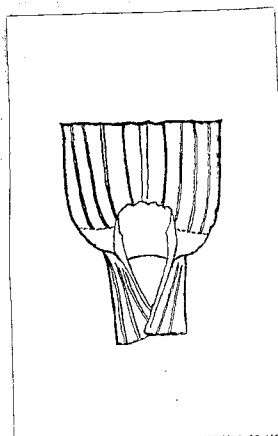
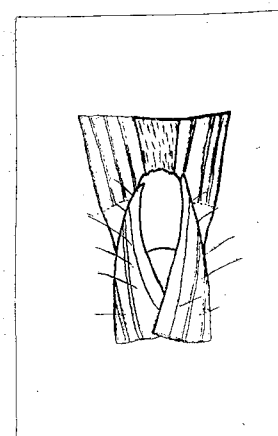
38. *Panicum dichotomiflorum*



39. *Panicum capillare*



40. *Panicum obtusum*

41. *Panicum virgatum*42. *Tripsacum dactyloides*43. *Rottboellia cylindrica*44. *Andropogon scoparius*45. *Andropogon furcatus*46. *Andropogon hallii*47. *Andropogon virginicus*48. *Andropogon ternarius*49. *Andropogon saccharoides*50. *Sorghastrum nutans*

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Typist: (Mrs.) Ethel H. Davis