

THE PANICUMS OF OHIO.

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This study of the Panicums of the state and the distribution as given for each species are based on specimens in the state herbarium at the Ohio State University. All of the Panicums in the herbarium were studied and their identification revised by Hitchcock and Chase of the United States Department of Agriculture, while they were preparing their material for "The North American Species of Panicum." It was thought advisable not to include any records of plants not so identified as it is sometimes difficult to discover the exact species from the older names used a few years ago.

Panicum L.

Perennial or annual grasses; inflorescence usually a panicle, rarely a raceme; spikelet two-flowered, but the upper flower either staminate, sterile or reduced; the empty glumes unequal, the outermost one often minute; lemma and palet of the perfect flower indurated; margin of the lemma inrolled; grain freely inclosed within the flowering glumes.

Key.

1. Basal leaves like those of the stem. 2.
1. Basal leaves unlike those of the stem. 10.
2. Basal leaf-sheaths compressed, often keeled. 3. (*Agrostia*).
2. Basal leaf-sheaths round, little flattened, never keeled. 4.
3. Fruit stipitate. *Panicum stipitatum*. (2).
3. Fruit not stipitate. *Panicum agrostoides*. (1).
4. Leaf-sheaths smooth, panicle smooth; tall perennials having long root-stocks or stolons with numerous, small, broad, scale-leaves. *Panicum virgatum*. (3).
4. Leaf-sheaths pubescent, or if smooth, then the branches of the panicle pubescent; annuals. 5.
5. Leaf-sheaths smooth, panicle branches rough pubescent. *Panicum dichotomiflorum*. (4).
5. Leaf-sheaths pubescent. 6.
6. Spikelets ovate, more than $\frac{1}{8}$ inch long, spikelets close. *Panicum miliacium*.
6. Spikelets lanceolate or elliptic, less than $\frac{1}{8}$ inch long; spikelets distant. 7.
7. Panicle narrow, branches of the panicle ascending; spikelet less than $\frac{1}{8}$ inch long. *Panicum flexile*. (8).
7. Panicle spreading when mature; spikelet $\frac{1}{16}$ inch or less long. 8.
8. Panicle very large, usually $\frac{1}{2}$ the plant. *Panicum capillare*. (6).
8. Panicle not so large, usually $\frac{1}{3}$ of the plant. 9.
9. Stem delicate; leaf blade less than $\frac{1}{4}$ inch wide. *Panicum philadelphicum*. 9.
9. Stem stout; leaf-blade usually $\frac{1}{4}$ to $\frac{3}{8}$ inch wide. *Panicum gattingeri*. (7).
10. Leaf-blades $\frac{1}{2}$ way up the stem less than $\frac{1}{2}$ inch wide, attenuate to cordate at the base. 11.
10. Leaf-blades $\frac{1}{2}$ way up the stem $\frac{1}{2}$ inch or more wide, usually cordate to clasping at the base. 30.

11. Spikelets $\frac{1}{8}$ inch long or more. 12.
 11. Spikelets less than $\frac{1}{8}$ inch long, usually about $\frac{1}{16}$ inch. 22.
 12. Leaves less than $\frac{3}{16}$ inch wide and about 18 times as long as wide.
Panicum depauperatum. (10).
 12. Leaves more than $\frac{1}{4}$ inch wide, and not elongated. 13.
 13. Upper surface of the leaves glabrous. 14.
 13. Upper surface of the leaves pubescent. *Panicum leibergii.* (24).
 14. Outer empty glume $\frac{1}{3}$ as long as the spikelet, short acute.
Panicum scribnerianum. (25).
 14. Outer empty glume $\frac{1}{2}$ as long as the spikelet, long acuminate.
Panicum xanthophyllum. (26).
 15. Stem simple or with basal branches only. 16.
 15. Stem at length fasciately branched. 22.
 16. Hairs on the leaf sheath almost an $\frac{1}{8}$ inch long or longer, spreading,
 usually dense. *Panicum linearifolium.* (11).
 16. No hairs on the leaf sheath, or with hairs less than $\frac{1}{16}$ inch long,
 sometimes ciliate on the margin. 17.
 17. Leaf blade $\frac{3}{16}$ inch or less wide, usually 18 or more times as long
 as wide; spikelets usually glabrous. 18.
 17. Leaf-blade usually much more than $\frac{1}{4}$ inch wide, never more than
 8 times longer than wide; spikelets more or less pubescent. 20.
 18. Leaves much elongated; often 6 to 10 inches long, attenuate at the
 base. *Panicum wernerii.* (12).
 18. Leaves not elongated; generally less than $3\frac{1}{2}$ inches long, not at-
 tenuate at the base, spikelet less than $\frac{1}{8}$ inch.
Panicum bicknellii. (13).
 19. Spikelets roundish, not over $\frac{1}{16}$ inch long. 20.
 19. Spikelets oblong-elliptic or elliptic, usually $\frac{1}{16}$ inch or more long. 21.
 20. Nodes pubescent with appressed hairs, base of the leaves ciliate,
 panicle nearly as wide as long. *Panicum sphaerocarpon.* (14).
 20. Nodes glabrous, base of the leaves not ciliate, panicle not more than
 $\frac{1}{2}$ wide as long. *Panicum polyanthes.* (15).
 21. Stems pubescent. *Panicum tsugetorum.* (23).
 21. Stems glabrous. *Panicum boreale.* (18).
 22. Spikelets glabrous. 23.
 22. Spikelets pubescent. 24.
 23. Nodes densely bearded. *Panicum microcarpon.* (17).
 23. Nodes not bearded. *Panicum dichotomum.* (16).
 24. Ligule at the top of the leaf sheath minute or absent. 25.
 24. Ligule present. 26.
 25. Nodes of the main stem glabrous or with a few hairs.
Panicum boreale. (18).
 25. Nodes of the main stem crisp pubescent.
Panicum ashei. (27).
 26. Upper sheaths glabrous (ciliate on the margin).
Panicum lindheimeri. (19).
 26. All of the sheaths pubescent. 27.
 27. Upper surface of the leaves glabrous, except for a few long hairs
 near the base. *Panicum tsugetorum.* (23).
 27. Upper surface of the leaves pilose. 28.
 28. Outer empty glume acute; spikelet $\frac{1}{16}$ inch long pubescence on the
 sheath more than $\frac{1}{16}$ inch long. *Panicum villosissimum.* (21).
 28. Outer empty glume blunt; spikelet less than $\frac{1}{16}$ inch long; pubes-
 cence on the sheaths not so dense and less than $\frac{1}{16}$ inch long. 29.
 29. Upper surface of the leaf-blade long-pilose; plants yellowish-green.
Panicum hauchucaae. (20).
 29. Upper surface of the leaf-blade long-appressed pubescent.
Panicum implicatum. (22).

30. Spikelet $\frac{1}{8}$ inch or more long. 32.
 30. Spikelet less than $\frac{1}{8}$ inch long. 31.
 31. Spikelet less than $\frac{1}{16}$ in long. *Panicum polyanthes*. (15.)
 31. Spikelet more than $\frac{1}{16}$ inch long. *Panicum commutatum*. (28).
 32. Leaf sheaths mostly pappilose-hispid; nodes glabrous or short pubescent. *Panicum clandestinum*. (31).
 32. Leaf-sheaths glabrous or soft-pubescent. 33.
 33. Nodes glabrous. *Panicum latifolium*. (29).
 33. At least the lower nodes pubescent or bearded. 34.
 34. Lower surface of the leaf blade velvety-pubescent; leaf-sheaths hairy. *Panicum boscii molle*. (30a).
 34. Lower surface of the leaf blade not velvety-pubescent. 35.
 35. Panicle narrow, its branches appressed, rarely a little spreading; upper nodes at least, not bearded. *Panicum xanthophysum*. (26).
 35. Panicle open, its branches spreading; the nodes appressed-pubescent. *Panicum boscii*. (30).

SPECIES DESCRIPTIONS.

1. ***Panicum agrostoides*** Spreng. Agrostis-like Panic-grass. An erect, rather stout, glabrous, perennial, $1\frac{1}{4}$ - $3\frac{1}{2}$ feet high; sheathes loose; blades flat, $\frac{3}{4}$ - $1\frac{1}{4}$ inches long, $\frac{1}{4}$ - $\frac{1}{2}$ inch wide; inflorescence a panicle, purplish, oblong-ovate, 6-12 inches long, stiffly ascending, parts of the panicle densely flowered; spikelets crowded, a few hairs on the short pedicel; second empty glume and lemma of the staminate flower sub-equal. Along shores. Erie county.

2. ***Panicum stipitatum*** Nash. Long Panic-grass. A branched perennial 3-5 feet high; leaf-blade 1 foot long, often purplish, acuminate, and scabrous; inflorescence a pyramidal, purplish panicle, 4-12 inches long, more open than in the proceeding species; spikelets secund, acuminate, crowded, second empty glume and lemma of the staminate flower equal; the outer empty glume about $\frac{1}{3}$ as long as the second; no hairs at the base of the spikelet. North-eastern Ohio to Lorain, Fairfield and Columbiana.

3. ***Panicum virgatum*** L. Tall Smooth Panic-grass. A tall tufted perennial from a creeping rootstock; 1- $2\frac{1}{2}$ feet tall, glabrous. Leaves long-acuminate, flat, 1 foot long, $\frac{1}{4}$ - $\frac{1}{2}$ inches wide, narrowed toward the base, rough on the margin; panicle erect or spreading, 6-20 inches high and about as wide; spikelets ovate, acuminate; outer empty glume acuminate, half as long as the spikelet, 3-5 nerved; second empty glume longer than the other glumes, 5-7 nerved, and exceeding the fruit. Low ground, salt marshes or prairies. Variable. General.

4. ***Panicum dichotomiflorum*** Mx. Spreading Panic-grass. A glabrous, branching annual, becoming decumbent and geniculate. Sheathes loose, glabrous and somewhat flattened; leaves 6-20 inches long, $\frac{1}{4}$ - $\frac{3}{4}$ inch wide, scabrous above or on the margin; panicle diffuse 4-16 inches long, spikelet crowded 1-8 inch long; lanceolate, acute, glabrous, sometimes purplish; outer empty glume $\frac{1}{4}$ as long as the spikelet. General.

5. **Panicum miliaceum** L. Millet Panic-grass. An erect or decumbent annual 8-20 inches high, hispid or sometimes glabrous. Sheathes papillose-hirsute; leaves 5-10 inches long, 3-8-1 inch wide, generally pubescent; panicle dense, erect or spreading and drooping at maturity; spikelets ovoid-acuminate; outer empty glume $\frac{2}{3}$ as long as the spikelet, 5-7 nerved; second empty glume 13 nerved, slightly longer than the other glumes. In waste places. Lawrence, Erie, Richland introduced.

6. **Panicum capillare** L. Tumble Panic-grass. A stout sparingly branched, erect or decumbent annual, very sparingly branched; sheaths papillose-hirsute; leaves pubescent, 6-12 inches long; $\frac{3}{16}$ to $\frac{5}{8}$ inches wide; panicle very large and diffuse, included until maturity; spikelets about $\frac{1}{16}$ inch long; outer empty glume $\frac{1}{4}$ - $\frac{1}{2}$ as long as the spikelet; second empty glume exceeding the fruit. In dry soil as a bad weed. General and abundant.

7. **Panicum gattingeri** Nash. Gattinger's Panic-grass. Similar to *P. capillare* but branching from all the nodes. Panicles more numerous but not so spreading or diffuse, leaves less hirsute. Moist open ground. Rather general.

8. **Panicum flexible** (Gatt.) Scrib. Wiry Panic grass. A slender erect annual $\frac{1}{2}$ to 2 feet high with a few erect branches. Bearded at the nodes; sheaths papillose-hirsute; leaves 4-10 inches long; $\frac{1}{16}$ to $\frac{3}{8}$ inches wide or wider; more or less pubescent; panicle narrow, 4-9 inches long, about half the entire length of the plant; spikelets less than $\frac{1}{8}$ inch long, solitary at the ends of the branchlets; outer empty glume $\frac{1}{4}$ as long as the spikelet; second empty glume long acuminate. Adams, Champaign, Madison, Franklin, Erie, Cuyahoga.

9. **Panicum philadelphicum** Beruh. Philadelphia Panic-grass. A slender erect, freely-branching annual, decumbent at the base, 6-16 inches high. Leaves less than 4 inches long, $\frac{1}{16}$ to $\frac{1}{8}$ inch wide; panicle $\frac{1}{3}$ the entire length of the plant, few flowered, spikelet $\frac{1}{16}$ inch long, solitary or in 2's at the end of the divergent branchlets, elliptic, acute, smooth; outer empty glume $\frac{1}{3}$ the length of the spikelet; inner empty glume and lemma of the sterile flower equal and barely longer than the fruit. In dry woods or sandy shores. Ottawa county.

10. **Panicum depauperatum** Muhl. Starved Panic-grass. An erect or ascending dichotomous perennial, 8-16 inches high. Nodes ascending pubescent; upper sheaths shorter than the internodes, glabrous or pilose; leaves erect, elongated, $\frac{1}{16}$ to $\frac{1}{8}$ inch wide; primary panicle much exerted, lower panicle often hidden in the leaves; spikelets $\frac{1}{8}$ inch long, glabrous, acute; the second empty glume extending beyond the fruit. In dry soil. Cuyahoga county.

11. **Panicum linearifolium** Scrib. Linear-leaf Panic-grass. A densely tufted perennial, 8-22 inches high; culms glabrous, erect,

very slender, spreading or drooping; sheaths as long or longer than the internodes; leaves glabrous or pilose, especially on the lower surface; 4-10 inches long, $\frac{1}{16}$ to $\frac{1}{8}$ inch wide; primary panicle loose and open; spikelets obtuse or acutish, pubescent with spreading hairs; outer empty glume $\frac{1}{4}$ to $\frac{1}{3}$ as long as the spikelet. In woods. Rather general.

12. **Panicum wernerii** Scrib. Werner's Panic-grass. A smooth, light colored, tufted, sparingly branched or simple perennial 6-18 inches tall. Leaves erect, linear, acuminate 2-4 inches long, $\frac{1}{8}$ to $\frac{3}{16}$ inch wide; panicle loose and open and usually included within the leaves; spikelets $\frac{1}{16}$ inch long, somewhat pubescent; outer empty glume $\frac{1}{4}$ as long as the spikelet, 1 nerved; the second empty glume 7 nerved. In the dryer parts of swamps. Lake, Cuyahoga, Franklin, Athens.

13. **Panicum bicknellii** Nash. Bricknell's Panic-grass. A slender, erect or decumbent perennial 8-16 inches tall. Lower internodes puberulent; sheaths ciliate on the margins, the lower ones pubescent; leaves ciliate and narrow at the base, erect, linear-lanceolate, primary leaves 3-7 inches long, $\frac{1}{8}$ to $\frac{1}{16}$ inch wide; panicle 3-4 inches or less long, the primary ones longer than the secondary ones; spikelet oval, or ovate, pubescent, hairs ascending; outer empty glume 1-nerved; the second empty glume 9-nerved. Dry woods. Gallia county.

14. **Panicum sphaerocarpon** Ell. Round-fruited Panic-grass. An almost simple, usually erect perennial with somewhat pubescent nodes. Sheaths shorter than the internodes, ciliate on the margin, glabrous; leaves 1-4 inches long, $\frac{1}{8}$ to $\frac{1}{2}$ inch wide, acuminate, ciliate toward the base; panicle ovoid, long-exserted, 1-3½ inches long, loosely flowered; spikelets greenish to purplish, $\frac{1}{16}$ inch or less long. Dry or sandy soil. Cuyahoga, Summit, Trumbull, Hocking, Scioto.

15. **Panicum polyanthes** Schultes. Many-flowered Panic-grass. An erect, smooth, light-green perennial 1 to 3 feet tall. Sheaths usually longer than the internodes; leaves ciliate toward the base, long-acuminate, all of about the same size, 5 to 8 inches long; $\frac{1}{2}$ to 1 inch wide; panicle 3 to 9 inches, longer than wide, branches slender; spikelets $\frac{1}{16}$ inch long, numerous, ovoid to spherical; outer empty glume minute; second empty glume 7 nerved. Woods. Fairfield, Hocking, Jackson.

16. **Panicum dichotomum** L. Forked Panic-grass. A smooth perennial or having the lower nodes barked, erect, purplish from a rootstock. Sheaths about $\frac{1}{2}$ the length of the internodes; leaves light green to purplish, spreading, 2 to 4 inches long, $\frac{1}{8}$ to $\frac{1}{4}$ inch wide; panicle 1½ to 3½ inches long, primary panicle much exserted, secondary panicle included; few spikelets borne at the ends of the long, flexuous branches of the panicle; spikelets $\frac{1}{16}$ inch long, glabrous, or rarely pubescent; outer empty glume

minute, second empty glume shorter than the fruit, faintly nerved. Woods. Rather general. No specimens from the northwestern counties.

17. **Panicum microcarpon** Muhl. Small fruited. Panic-grass. A perennial, simple at first, later densely branched, prostrate or leaning, reflexed barbs at the nodes. The primary leaves 3 to $4\frac{1}{2}$ inches long, $\frac{1}{2}$ inch wide, secondary leaves 1 to 2 inches long, $\frac{1}{16}$ to $\frac{1}{8}$ inch wide, smooth; primary panicle long exserted, rigid, 3 to $4\frac{1}{2}$ inches long; secondary panicle smaller, lax and included; spikelets about $\frac{1}{16}$ inch long, purplish, glabrous; outer empty glume $\frac{1}{3}$ as long as the spikelet; second empty glume slightly longer than the spikelet. Moist soil. Cuyahoga, Lorain, Erie, Fairfield, Hocking, Jackson, Adams.

18. **Panicum boreale** Nash. Northern Panic-grass. An erect, simple, perennial 1-2 feet tall, later becoming somewhat branched and decumbent. Leaves erect, glabrous or rarely puberulent beneath, sparingly ciliate toward the base; Panicle 2 to 4 inches long; narrow, ascending and spreading loosely flowered; spikelets $\frac{1}{16}$ inch or slightly longer, outer empty glume $\frac{1}{2}$ as long as the second empty glume; second empty glume as long as the fruit. Moist open ground or woods. Fulton county.

19. **Panicum lindheimeri** Nash. Lindheimer's Panic-grass. An erect or spreading dichotomous perennial, glabrous, or pubescent below. Nodes swollen, internodes longer than the sheaths ligule of hairs at the top of leaf sheath $\frac{1}{16}$ to $\frac{3}{32}$ inches long; leaves 2 to $3\frac{1}{4}$ inches long, $\frac{1}{4}$ to $\frac{1}{16}$ inches wide; ascending when young with a few hairs on the margin of the base, glabrous above and glabrous or puberulent below; primary panicle long-exserted 1 to $2\frac{1}{2}$ inches long, about as broad as long, loosely flowered, ascending or spreading; spikelet somewhat pubescent, purplish, less than $\frac{1}{16}$ inch long; outer empty glume minute; second empty glume shorter than the fruit. Sandy woods and open grounds. Ashtabula, Hocking.

20. **Panicum hauchucaae** Ashe. Hairy Panic-grass. A perennial, erect and simple at first, later profusely branched and somewhat decumbent. Nodes barbed; sheaths papillose-hirsute; ligule of hairs $\frac{1}{16}$ inch or less long; leaves erect or spreading, thin lax or firm, upper surface pilose, lower surface appressed-pubescent with a luster; panicle 2 to 4 inches long, secondary shorter than the primary, branches ascending or spreading; spikelets pubescent, 1-16 inch or less long; outer empty glume minute; second empty glume papillose-pilose, slightly shorter than the fruit. Prairies or open ground. General.

21. **Panicum villosissimum** Nash. Villous Panic-grass. A villous, olive green, erect or ascending slender perennial. Sheaths villous with spreading hairs, ligule at the top of leaf sheath $\frac{1}{8}$ to $\frac{3}{16}$ inch long; leaves firm, ascending, $2\frac{1}{4}$ to 4 inches long, $\frac{1}{8}$

to $\frac{3}{8}$ inch wide, slightly involute toward the end, pilose on both surfaces, hairs appressed on the upper surface; primary panicle long-exserted or equaled by the uppermost leaf, loosely flowered; spikelets a little more than $\frac{1}{16}$ inch long, obovate to elliptic, densely pubescent with short spreading hairs; outer empty glume a little less than $\frac{1}{2}$ as long as the second empty glume; second empty glume a little shorter than the fruit. Sandy or dry soil. Cuyahoga, Erie, Licking.

22. **Panicum implicatum** Scrib. Slender stemmed Panic-grass. A slender, more or less pubescent tufted and erect perennial. Sheaths shorter than the internodes, papillose-pilose; ligule at the top of the leaf sheath $\frac{3}{16}$ inch or less; leaves 1 to 3 inches long, $\frac{1}{8}$ to $\frac{1}{4}$ inch wide, erect, lanceolate, firm, upper surface pilose, hairs erect, hairs on the lower surface appressed; panicle open, wide-spreading, flexuous, $1\frac{1}{4}$ to 2 inches long, branches sometimes tangled; spikelets about $\frac{1}{16}$ inch long, obovoid, obtuse, papillose-pilose; outer empty glume almost $\frac{1}{2}$ as long as the spikelet, pubescent; second empty glume equaling the fruit. Wet soil. Gallia county.

23. **Panicum tsugetorum** Nash. Hemlock Panic-grass. A bluish-green or purplish, slender perennial, 10 to 20 inches ascending or spreading, often geniculate below. Sheaths appressed pubescent, shorter than the internodes; leaves 2 to $2\frac{1}{2}$ inches long, $\frac{1}{8}$ to $\frac{1}{4}$ inch wide, minutely appressed-pubescent beneath, glabrous above or with a few hairs near the base or margin; panicle loosely flowered, branches ascending or spreading; spikelets about $\frac{1}{16}$ inch long, broadly ovate, pubescent; outer empty glume $\frac{1}{3}$ as long as the spikelet; second empty glume equaling the fruit. Sandy woods. Defiance, Summit.

24. **Panicum leibergii** (Vasey) Scrib. Leiberg's Panic-grass. A perennial 1 to $2\frac{1}{2}$ feet tall, scabrous at least below the nodes. Sheaths sometimes longer than the internodes, papillose-hispid, hairs spreading; ligule minute; leaves ascending, lanceolate, ciliate near the base, papillose-hispid on both sides or almost glabrous above, 3 to 6 inches long; panicle 3 to 6 inches long, less than $\frac{1}{2}$ as wide, branches ascending; spikelets $\frac{1}{8}$ inch long, papillose-hirsute with spreading hairs; outer empty glume $\frac{1}{2}$ as long as the spikelet, 1 to 3 nerved; second empty glume oval, 7 to 9 nerved. Dry soil. No specimens.

25. **Panicum scribnerianum** Nash. Scribner's Panic-grass. An erect perennial 6 to 14 inches high, in clumps. Sheaths papillose-hispid or nearly glabrous; ligule $\frac{1}{32}$ inch long; leaves 2 to 4 inches long, $\frac{1}{8}$ to $\frac{7}{16}$ inch wide, sometimes ciliate toward the base; panicle short-exserted, $1\frac{1}{2}$ to $3\frac{1}{2}$ inches long; spikelets $\frac{1}{8}$ inch long, turgid, obtuse, slightly pubescent, outer empty glume minute, second empty glume shorter than the fruit. Sandy or dry soil. Cuyahoga, Erie, Wood, Franklin.

26. **Panicum xanthophysum** Gr. Slender Panic-grass. A tufted, yellowish-green ascending perennial 1 to 2 feet tall, simple. Sheaths loose, sparingly papillose-pubescent; ligule minute; leaves 3 to 6 inches long, $\frac{1}{4}$ to $\frac{3}{4}$ inch wide, often widest at the middle, strongly nerved, glabrous except near the ciliate base; panicle short to long exserted, few flowered, branches erect; spikelets $\frac{1}{8}$ inch long, or slightly more, obovate, turgid, pubescent, or rarely glabrous; outer empty glume about $\frac{1}{2}$ as long as the spikelet, second empty glume and lemma of the sterile flower equal. Dry soil. Rare. Lake county.

27. **Panicum ashei** Pear. Ashe's Panic-grass. An erect, stiff, usually sparingly branched, purplish perennial, in loose clumps 10 to 20 inches high. Sheaths short-ciliate on the margin, pubescent, shorter than the internodes; leaves 2 to $3\frac{1}{4}$ inches long, $\frac{3}{8}$ to $\frac{1}{2}$ inch wide, rigid, spreading or ascending, glabrous, ciliate near the base; panicle 2 to 4 inches long, branches ascending; spikelets purplish, a little more than $\frac{1}{8}$ inch long, obtuse; outer empty glume minute. Dry woods. Cuyahoga, Lake, Trumbull, Fairfield.

28. **Panicum commutatum** Schultes. Variable Panic-grass. A stout, erect, perennial, glabrous, except for the puberulent nodes, 8 to 30 inches high, dichotomously branched above. Sheaths glabrous or puberulent toward the summit, ciliate on the margin, sheaths generally shorter than the internodes; leaves firm, cordate clasping, glabrous or puberulent 2 to $4\frac{1}{2}$ inches long, $\frac{3}{8}$ to $\frac{3}{4}$ inches wide; panicle 2 to 5 inches long, spreading; spikelets less than $\frac{1}{8}$ inch long, elliptic, obtuse; outer empty glume minute; second empty glume as long as the fruit, 7 nerved, pubescent. Dry woods. Lawrence, Gallia, Fairfield, Wayne.

29. **Panicum latifolium** L. Broad-leaf Panic-grass. An erect smooth, perennial, simple or branched above, 1 to 3 feet high. Sheaths smooth and glabrous, ciliate; leaf-blades 2 to 7 inches long, $\frac{3}{4}$ to $1\frac{1}{2}$ inch wide, cordate, clasping at the base, acuminate, glabrous or nearly so, ciliate, panicle $2\frac{1}{2}$ to 6 inches long, short or long exserted, rarely included, ascending, rather few flowered; outer empty glume almost $\frac{1}{2}$ as long as the spikelet, acuminate; second empty glume oval, obtuse 9 nerved, pubescent. In woods. General.

30. **Panicum boscii** Poir. Bosc's Panic-grass. A glabrous or minutely pubescent perennial 1 to $2\frac{1}{2}$ feet, bearded with reflexed hairs at least at the lower nodes. The sheaths usually glabrous or pubescent on the margin and at the summit, leaves ovate to broadly lanceolate, 2 to 5 inches long, $\frac{1}{2}$ to $1\frac{1}{4}$ inches wide, pubescent below, slightly pubescent or glabrous above; panicle $2\frac{1}{2}$ to 4 inches long, usually nearly as wide; spikelets $\frac{1}{8}$ to $3\text{-}16$ inch long, ovate; outer empty glume $\frac{1}{3}$ to $\frac{1}{2}$ as long as the spikelet. Warren, Adams, Jackson and Belmont.

30 a. **Panicum boscii molle** (Vasey) Hitchc. and Chase. Much like *P. boscii* except not quite so tall and downy pubescent throughout. Hamilton, Lawrence, Cuyahoga.

31. **Panicum chandestinum** L. Hispid Panic-grass. An erect or ascending rather stout perennial, simple at first but much branched later in the season. Sheaths longer than the internodes, papillose-hispid, especially the upper ones; leaf-blades 2 to 8 inches long, $\frac{1}{2}$ to $1\frac{1}{4}$ inches wide, cordate, clasping, glabrous, ciliate at the base; primary panicle 3 to 5 inches long, branches ascending, often long-exserted, secondary panicles often inclined; spikelets $\frac{1}{8}$ inch long, pubescent, elliptic; outer empty glume $\frac{1}{3}$ as long as the spikelet; the second empty glume 9 nerved. In moist thickets. General.
