

THE ILLINOIS TAXA OF *PASPALUM*

B. J. VERTS AND ROBERT H. MOHLENBROCK

*Illinois Natural History Survey, Urbana, and
Southern Illinois University, Carbondale*

ABSTRACT.—The grass genus *Paspalum* is composed of seven taxa in Illinois. This paper presents detailed descriptions and discussions of the taxa. A key for identification of Illinois taxa is provided, as well as an annotated list of specimens examined.

Paspalum, a genus in the tribe Paniceae of the family Gramineae, is a group in which several species show considerable morphological variation. Series of intermediate forms exist between several of these species, and descriptions of some species appear to have been based on specimens which exhibited extremes of variation for such species. This study is intended to define species of *Paspalum*, provide a key for identifying these species, give synonymy, and show distribution of the taxa in Illinois. The synonymy given is essentially that of Chase (1929).

Herbaria of the Illinois State Museum (ISM), Illinois Natural History Survey (ILLS), University of Illinois (ILL), Missouri Botanical Garden (MO), Chicago Museum of Natural History (F), and Southern Illinois University (SIU) made their collections available for this study. This research was supported in part by research grant #CC 00047 from the Communicable Disease Center, U. S. Public Health Service.

HISTORY OF THE GENUS

Paspalum was described by Linnaeus in 1759. Several agrostologists have studied *Paspalum*, climaxed by the monographic work of Chase in 1929. In her study, Chase recognized 140 North American species, 6 of which she reported from Illinois. When Chase revised Hitchcock (1950) she made several minor changes in synonymy.

Among the workers in Illinois (Jones, 1950; Mohlenbrock and Voigt, 1959) and those who have included Illinois in their floristic treatments (Gleason, 1952; Fernald, 1950; Hitchcock, 1950) there is little agreement concerning the genus.

Various authors have included species of *Digitaria*, *Axonopus*, *Cabera*, *Eriochloa*, *Capriola*, and *Anastrophus* in *Paspalum* (Chase, 1929).

GEOGRAPHICAL AND ECOLOGICAL CONSIDERATIONS

Paspalum is a genus which tends to be most abundant and diverse in the tropics, particularly of the western hemisphere. Only 40 of 140 North American species recognized by Chase (1929) occur within continental United States. Hitchcock (1950) recorded 49 species from the United States, 8 from Illinois.

In Illinois, with exception of *P. ciliatifolium*, *Paspalum* is restricted to the southern two-thirds of the state. Various species may be encountered in such diverse habitats as sand and hill prairies, railroad ballast, fencerows, open pastures, meadows, roadside ditches, openings in moist woods, stream borders, and shallow swamps.

Paspalum ciliatifolium is scattered throughout Illinois, but its distribution tends to be associated with major stream valleys of the state (Fig. 1). In these areas, it is more frequently encountered in dry situa-

tions, particularly where soils are sandy.

Paspalum pubiflorum var. *glabrum*, common in southern counties, also tends to be somewhat more common along major streams (Fig. 2). Although moist habitats appear to be preferred, this species is relatively tolerant of drought.

Paspalum fluitans is restricted mostly to counties bordering the Mississippi, Illinois, Ohio, and Wabash rivers (Fig. 3), appearing to be fairly common in shallow water of swamps. It appears to be restricted to such habitats.

Figure 1.—Distribution of *Paspalum ciliatifolium* in Illinois.

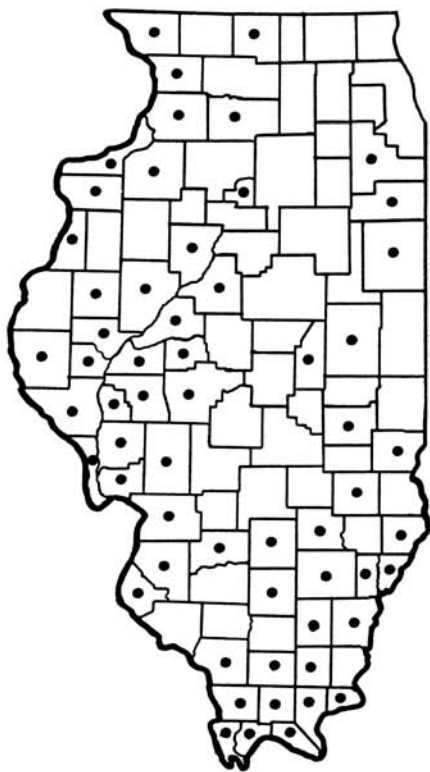
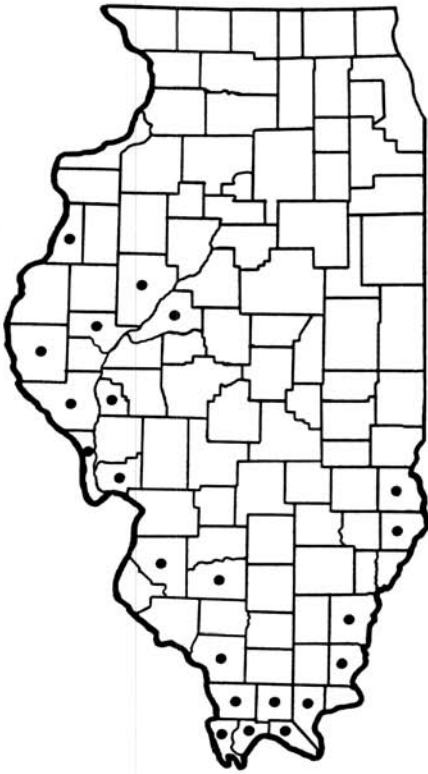


Figure 2.—Distribution of *Paspalum pubiflorum* var. *glabrum* in Illinois.



Figure 3.—Distribution of *Paspalum fluitans* in Illinois.



Paspalum dissectum is known only from three scattered southwestern counties (Fig. 4). Like *P. fluitans*, it appears to be tolerant of excessive moisture in swampy areas, but it does not appear to be restricted to habitats containing standing water.

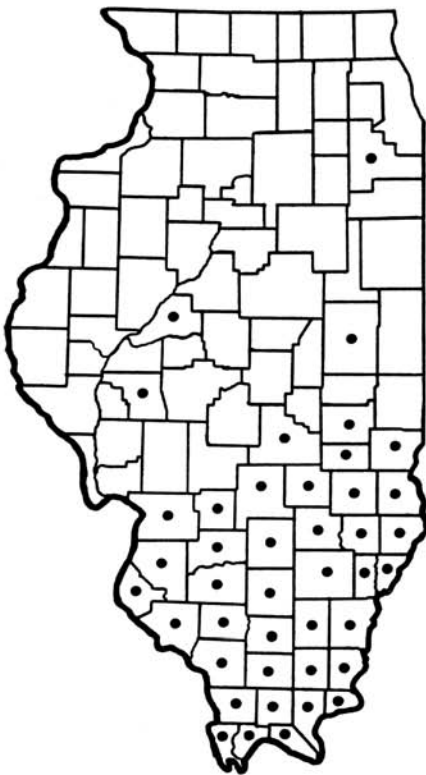
Paspalum laeve is the most common species in the southern third of the state; there are a few scattered records from some northern counties (Fig. 5). This species is most abundant in moist soils in roadside ditches, meadows, and along stream borders.

Paspalum floridanum has a restricted range within the southernmost fourth of Illinois (Fig. 6). It is known only from Jackson, Franklin, Perry, Washington, and Williamson counties, where it is encountered most frequently in moist habitats along highway and railroad rights-of-way.

The adventive, *P. lentiferum*, has been collected recently in Pulaski County, where it forms extensive colonies in a low roadside ditch near Karnak (Fig. 7).

Figure 4.—Distribution of *Paspalum dissectum* in Illinois.



Figure 5.—Distribution of *Paspalum laeve* in Illinois.

MORPHOLOGY OF THE GENUS

Annuals or perennials; inflorescence of many 1-flowered, usually plano-convex, sessile, solitary or paired spikelets arranged along a central axis in 2 or 4 rows with the convex sides toward the rachis, forming simple spike-like racemes; racemes 1-many, digitate or racemose, terminal; first glume usually wanting; second glume similar to sterile lemma; fertile lemma and palea chartaceous-indurate, the margins of the lemma inrolled at maturity; stamens 3; styles 2; stigmas plumose.

KEY TO THE ILLINOIS TAXA OF
Paspalum

- A. Rachis foliaceous, the margins folded over and clasping the spikelets or their bases.
- B. Racemes of each inflorescence 1-5; rachis shorter than the rows of spikelets.....1. *P. dissectum*
- B. Racemes of each inflorescence 5-50, usually more than 10; rachis longer than the rows of spikelets2. *P. fluitans*
- A. Rachis firm, narrow or broad, but the margins not folded over the rows of spikelets.
- C. Rachis broad, over 1.5 mm wide; spikelets appear to be arranged in 4 rows.....3. *P. pubiflorum* var. *glabrum*

Figure 6.—Distribution of *Paspalum floridanum* in Illinois.

Figure 7.—Distribution of *Paspalum lentiferum* in Illinois.



- C. Rachis narrow, less than 1.5 mm wide (about 1.5 mm wide in *P. lentiferum*; spikelets in 2 rows (4 rows in parts of some racemes of *P. floridanum*).
- D. Spikelets 3.6 mm long or longer; culms robust, 1-2 m tall4. *P. floridanum*
- D. Spikelets less than 3.2 mm long; culms slender, usually less than 1 m tall.
- E. Spikelets 2.5-3.2 (-3.4) mm long; sterile lemma 5-veined with lateral veins approximate at the margins.
- F. Leaves glabrous to sparsely pilose.....
-5. *P. laeve*
- F. Leaves pilose, becoming villous at base6. *P. lentiferum*

- E. Spikelets 1.2-2.4 mm long; sterile lemma 3-veined, the marginal veins obscure at maturity...7. *P. ciliatifolium*

SYETEMATIC TREATMENT OF THE TAXA

- 1. *Paspalum dissectum* (L.) L. Sp. Pl. ed. 2:81. 1762.
- Panicum dissectum* L. Sp. Pl. 57. 1753.
- Paspalum dimidiatum* L. Syst. Nat. ed. 10, 2:855. 1759.
- Paspalum membranaceum* Walt. Fl. Carol. 75. 1788.
- Paspalum vaginatum* Ell. Bot. S. C. & Ga. 1:109. 1816.
- Paspalum walterianum* Schult. Mant. 2:166. 1824.
- Paspalum tectum* Steud. Syn. Pl. Glum. 1:29. 1854.
- Paspalum drummondii* C. Muell. in Bot. Zeit. 19:332. 1861.
- Creeping, branching, glabrous, sub-aquatic, perennial; culms repent, 20-60 cm long, often forming mats; leaves 3-6 cm long, 4-5 mm wide; racemes 1-5, 2-3 cm long, terminal or axillary, falling entire; rachis membranous, 2-3 mm wide, narrower and shorter than the rows of spikelets but folded over and clasping them; spikelets glabrous, ovoid to obovoid, 2 mm long, 1.4 mm wide; glume and sterile lemma 3- to 5-nerved, slightly longer than the fruit.
- Habitats.—Moist soil to edges of shallow swamps.
- Range.—New Jersey to Missouri south to Texas and Florida.
- Paspalum dissectum* is distinguished easily by the terminal spikelet extending well beyond the tip of the infolded rachis.
- Only 3 specimens have been collected in Illinois, none since 1893. It is uncertain whether this species still occurs within the state.
- Specimens examined.—Perry: locality unknown, *Eggert s.n.* (ILL). Pulaski: Mound City, *Brendel s.n.* (ILL). St. Clair: locality unknown, *Brendel s.n.* (ILL).
- 2. *Paspalum fluitans* (Ell.) Kunth, Rev. Gram. 1:24. 1829.
- Ceresia fluitans* Ell. Bot. S. C. & Ga. 1:109. 1816.
- Paspalum mucronatum* Muhl. Descr. Gram. 96. 1817.
- Paspalum natans* LeConte, in Journ. de Phys. 91:285. 1820.
- Paspalum pyramidale* Nees, Agrost. Bras. 77. 1829.

Paspalum frankii Steud. Syn. Pl. Glum. 1:19. 1854.

Paspalum bistipulatum Steud. Syn. Pl. Glum. 1:29. 1854.

Cymatocloa fluitans Schlecht. in Bot. Zeit. 12:822. 1854.

Cymatocloa repens Schlecht. in Bot. Zeit. 12:822. 1854.

Sprawling or repent, branching, glabrous, aquatic, annual; culms soft and spongy, 30-100 cm long; leaves 10-20 cm long, 10-15 mm wide; racemes 5-50, usually more than 10, 3-8 cm long, spreading or recurved; rachis herbaceous, 1.3-2.0 mm wide, wider and longer than the rows of spikelets but folded over and clasping them; spikelets minutely glandular pubescent, ellipsoidal, 1.3-2.0 mm long, 0.8 mm wide; glume and sterile lemma 2-nerved, the mid-nerve suppressed, slightly longer than the fruit.

Habitats.—Floating in shallow standing water. Terrestrial plants are dwarfed.

Range.—North Carolina to Kansas south to Texas and Florida.

Paspalum fluitans is distinguished readily by its numerous racemes and by its rachis infolding and clasping all of the spikelets.

Specimens examined.—Adams: Quincy, *Bellrose s. n.* (ILLS). Alexander: two miles E. of Miller City, *Buser 5401* (ILLS). Calhoun: Brussels, *Bellrose s. n.* (ILLS). Crawford: eight miles S. of Oblong, *Ahles 4993* (ILL). Fulton: Anderson Lake, *Winterringer 12245* (ISM). Gallatin: Shawneetown, *Brewer s. n.* (SIU). Henderson: Oquawka, *Patterson s. n.* (ILL). Jackson: Turkey Bayou, *Bailey & Swayne 2886* (ISM). Jersey: Pere Marquette State Park, *Fuller & Link 403* (ISM). Johnson: Belknap, *Gleason s. n.* (ILL). Lawrence: Lawrenceville, *Sivert s. n.* (ILL). Mason: locality unknown, *Revroat 708* (ISM). Massac: two miles S of Unionville, *Evers 55615* (ILLS). Pike: N of Florence, *Evers 20266* (ILLS). Pope: Grantsburg, *Ahles 1809* (ILL). Pulaski: Olmstead, *Thieret 2476* (ILLS). St. Clair: W of Lebanon, *Evers 14258* (ILLS). Schuyler: three miles SW of Beardstown, *Revroat 2317* (ISM). Scott: Naples, *Revroat 4475* (ISM). Union: Wolf Lake, *Bailey & Swayne 1802* (SIU). Washington: twelve miles W of Nashville, *Winterringer 7344* (ISM). White: S of Mill Shoals, *Ahles 6638* (ILL).

3. *Paspalum pubiflorum* var. *glabrum* Vasey ex Scribn. in Bull. Tenn. Exp. Sta. 7:32. 1894.

Paspalum remotum var. *glabrum* Vasey, in Bull. Torrey Club 13:166. 1886.

Paspalum geminum Nash, in Bull. N. Y. Bot. Gard. 1:434. 1900.

Paspalum laevigatum Scribn. ex Nash, in Small, Fl. Southeast. U.S. 75. 1903.

Decumbent, rooting at the nodes, glabrous to pubescent, perennial; culms stout, geniculate, 40-200 cm tall; leaves 10-15 cm long, 6-20 mm wide, pilose on the margin; racemes 4-8, usually 5 or more, the lower frequently distant, 2-10 cm long; rachis with scarious, nearly wing-like margin, 1.2-2.0 mm wide, frequently near maximum; spikelets in pairs, glabrous, obovoid, 3.0-3.2 mm long, about 2 mm wide; glume and sterile lemma 3- to 5-veined.

Habitats.—In moist soil in ditches, along roadsides, and along streams; tolerant of drought.

Range.—Pennsylvania to Kansas south to Texas and Florida.

Paspalum pubiflorum var. *glabrum* may be distinguished easily from other Illinois species by its wide rachis and its paired spikelets which appear to be in 4 rows along the rachis. The typical variety, which does not enter Illinois, has puberulent spikelets.

Nash's *P. geminum*, used by several Illinois workers, is based upon material identical with *P. pubiflorum* var. *glabrum*.

This grass is sometimes used for forage.

Specimens examined.—Alexander: SE of Thebes, *Evers 55511* (ILLS). Clay: Flora, *Ahles 6609* (ISM). Cumberland: S of Neoga, *Evers 59303* (ILLS). Edwards: S of Brown, *Evers 55124* (ILLS). Franklin: two miles S of Sesser, *Evers 52350* (ILLS). Gallatin: SW of Ridge-way, *Evers 40737* (ILLS). Hardin: near Herod, *Winterringer 2422* (ISM). Jackson: one-half mile S of SIU campus, *Voigt 758* (SIU). Jefferson: S of Dix, *Evers 15344* (ILLS). Johnson: E of Vienna, *Bailey & Swayne 2933* (SIU). Massac: two miles SE of Mermet, *Evers 44429* (ILLS). Pope: Dixon Springs State Park, *Pierre s. n.* (ILL). Pulaski: W of Karnak, *Winterringer 11916* (ISM). Randolph: Prairie du Rocher, *Winterringer 17106* (ISM). St. Clair: Stripmine area, *Grandt s. n.* (ILL). Union: Pine Hills Swamp, *Stieglitz 9* (SIU). Wabash: S of Mt. Carmel, *Winterringer 13743* (ISM). White: two miles E of Crossville, *Winterringer 8949* (ISM). Williamson: Crab Orchard Lake, *Weik 5* (SIU).

4. *Paspalum floridanum* Michx. Fl. Bor. Amer. 1:44. 1803.

Paspalum macrospermus Flugge, Monogr. Pasp. 172. 1810.

Paspalum glabrum Bosc in Flugge, Monogr. Pasp. 172. 1810.

Paspalum laevigatum Poir, Encycl. Suppl. 4:313. 1816.

Paspalum laeve var. *floridanum* Wood, Class-book 782. 1861.

Erect, stout, glabrous, perennial; culms solitary or few, 80-200 cm tall, commonly 150-200 cm tall; leaves 12-50 cm long, 4-10 cm wide; racemes 2-6, usually 3 or 4, 4-12 cm long, suberect or ascending; rachis 1.0-1.4 mm wide, strongly flexuous; spikelets in pairs (one of pair sometimes rudimentary), glabrous, crowded, oval, 3.6-4.0 mm long, 2.8-3.1 mm wide; glume and sterile lemma firm and papery, 5-veined, scarcely covering fruit at maturity.

Habitat.—Low, moist sandy soil.

Range.—Pennsylvania to Kansas south to Oklahoma, Texas, and Florida.

Paspalum floridanum is distinguishable from other Illinois taxa by its large spikelets. It is apparently rare in the state.

Specimens examined.—Franklin: S of Benton, *Evers* 55498 (ILLS). Jackson: Elkville, *Verts* 351 (SIU). Perry: N of Cutler, *Thieret* 2790 (ILLS). Washington: E of Nashville, *Winterringer* s. n. (ISM). Williamson: N of Marion, *Evers* 27878 (ILLS).

5. *Paspalum laeve* Michx. Fl. Bor. Amer. 1:44. 1803.

Paspalum undulosum LeConte, in Journ. de Phys. 91:285. 1820.

Paspalum angustifolium LeConte, in Journ. de Phys. 91:285. 1820.

Paspalum alternans Steud. Syn. Pl. Glum. 1:26. 1854.

Paspalum tenue Darby, Bot. South. States 576. 1857.

Paspalum laeve var. *undulosum* Wood, Class-book 782. 1861.

Paspalum laeve var. *angustifolium* Vasey, in Bull. Torrey Club 13:165. 1886.

Paspalum laeve var. *brevifolium* Vasey, in Contr. U. S. Nat. Herb. 3:18. 1892.

Paspalum australe Nash in Britton, Man. 1039. 1901.

Paspalum circulare Nash in Britton, Man. 73. 1901.

Paspalum praelongum Nash in Small, Fl. Southeast. U.S. 74. 1903.

Paspalum laeve var. *australe* Nash in Hitchc. in Rhodora 8:205. 1906.

Paspalum laeve var. *circulare* Stone, in Ann. Rep. N.J. Mus. 1910:187. 1910.

Erect or ascending, tufted, glabrous to ciliate or pilose, perennial; culms slender and firm, 30-130 cm tall; leaves 5-30 cm long, 3-10 mm wide; racemes 2-7, usually 3 or 4, 4-17 cm long, ascending or spreading; rachis about 1 mm wide, with a tuft of hairs at base; spikelets solitary, glabrous, suborbicular to orbicular, 2.5-3.2 mm long, 2.0-2.5 mm wide; glume and sterile lemma 5-veined with the lateral veins approximate at the margins; fruit similar in shape and size to spikelet, the tip exposed at maturity.

Habitats.—Moist soils of roadside ditches, meadows, and stream borders.

Range.—Massachusetts to Kansas south to Texas and Florida.

Paspalum laeve can be distinguished from other Illinois taxa by its combination of a narrow rachis and a 5-veined sterile lemma.

Shape of spikelets, degree and location of pubescence, shape of leaves, and degree of spreading of racemes appear to be extremely variable characters. Chase (1929) and Hitchcock (1950), using these characters primarily, separated these plants into two species: *Paspalum laeve* Michx. and *P. circulare* Nash. In attempting to separate Illinois material, intermediates were found to be more numerous and no less homogeneous than those referable to the described species. Fernald (1950) assigned specimens with the more orbicular spikelets to *P. laeve* var. *circulare* (Nash) Fern.

Because variation in shape of the spikelets within individual specimens is frequently greater than between specimens, it appears undesirable to recognize *P. circulare* Nash or *P. laeve* var. *circulare* (Nash) Fern. in Illinois.

Specimens examined.—Alexander: one mile N of Tamms, *Winterringer* 6029 (ISM). Bond: S of Greenville, *Winterringer* 12953 (ISM). Cass: locality unknown, *Rearcoat* 479 (ISM). Champaign: S of Champaign, *Ahles* 8453 (ISM). Clark: Rocky Branch, *Fuller* 11001 (ISM). Clay: three miles N of Flora, *Winterringer* 2154 (ISM). Clinton: E of Bartelso, *Winterringer* 12967 (ISM). Coles: Lincoln Log Cabin State Park, *Voigt* 954 (SIU). Crawford: NE of Robinson, *Winterringer* 2983 (ISM). Cumberland: N of Neoga, *Winterringer* 3376 (ISM). Edwards: Albion, *Winterringer* 2139 (ISM). Effingham: E of Teutopolis, *Winterringer* 9726 (ISM). Fayette: one mile SW of Laclede, *Evers* 58265 (ILLS). Franklin: S of Ina, *Winterringer* 3520 (ISM). Gallatin: three miles W of Omaha, *Evers* 19901 (ILLS).

Hamilton: N of McLeansboro, *Evers* 8644 (ILLS). Hardin: near Herod, *Winterringer* 2413 (ISM). Jackson: Thompson Lake, SW of Carbondale, *Swayne & Bailey* 518 (SIU). Jasper: five miles S of Newton, *Winterringer* 2140 (ISM). Jefferson: W of Waltonville, *Boewe s. n.* (ILLS). Johnson: E of Vienna, *Evers* 40747 (ILLS). Lawrence: SW of Birds, *Evers* 19796 (ILLS). Madison: W of Hamel, *Winterringer* 13006 (ISM). Marion: near Patoka, *Winterringer* 3503 (ISM). Mason: S of Havana, *Rexroat* 4210 (ISM). Massac: E of Midway, *Evers* 52535 (ILLS). Monroe: S of Monroe, *Evers* 7980 (ILLS). Morgan: three miles NE of Meredosia, *Rexroat* 2062 (ISM). Perry: four miles W of DuQuoin, *Bell s. n.* (SIU). Pope: W of Dixon Springs, *Evers* 20014 (ILLS). Pu'aski: S of Ullin, *Evers* 49994 (ILLS). Randolph: NE of Bremen, *Evers* 7925 (ILLS). Richland: eight miles NW of Olney, *Shaw* 757 (ISM). St. Clair: locality unknown, *Brendel* 1914 (ILL). Saline: S of Harrisburg, *Winterringer* 6031 (ISM). Shelby: NE of Sigel, *Boewe s. n.* (ILLS). Union: near Dongola, *Mohlenbrock* 5517 (SIU). Wabash: S of Mt. Carmel, *Winterringer* 9764 (ISM). Washington: four miles S of Nashville, *Evers* 7871 (ILLS). Wayne: Cisne, *Carter* 14120 (ISM). White: near Norris City, *Winterringer* 3635 (ISM). Will: locality unknown, *Pepoon & Barrett* 4399 (ILLS). Williamson: Crab Orchard Lake, *Sands & Garrison* 325 (SIU).

6. *Paspalum lentiferum* Lam. Tabl.

Encycl. 1:175. 1791.

Paspalum lanuginosum Willd. ex Steud. Nom. Bot. ed. 2. 2:271. 1841, in synonym.

Paspalum curtisianum Steud. Syn. Pl. Glum. 1:26. 1854.

Paspalum praecox var. *curtisianum* Vasey, in Bull. Torrey Club 13:165. 1886.

Paspalum glaberrimum Nash in Small, Fl. Southeast. U.S. 76. 1903.

Paspalum tardum Nash in Small, Fl. Southeast. U.S. 77. 1903.

Paspalum kearneyi Nash in Small, Fl. Southeast. U.S. 77. 1903.

Paspalum amplum Nash in Small, Fl. Southeast. U.S. 77. 1903.

Erect, rather robust, usually glabrous; culms to 1.5 m tall; leaves to 25 cm long, to 7 mm wide, pilose, the sheaths pilose and strongly keeled; racemes 4-5, spreading-ascending; rachis slender, 1.5-2.0 mm wide; spikelets paired and solitary in

the same raceme, suborbicular, 2.7-3.4 mm long, the glume and sterile lemma delicate.

Habitat.—Wet roadside ditch.

Range.—Virginia to Florida and Texas; Illinois.

This recent addition to the flora of Illinois occupies several square feet in a moist roadside ditch near Karnak in Pulaski County. The great distance from its nearest station indicates that it is probably adventive. It has persisted and spread for at least two years.

Specimen examined.—Pulaski: near Karnak, *Boyce s. n.* (SIU).

7. *Paspalum ciliatifolium* Michx. Fl.

Bor. Amer. 1:44. 1803.

Paspalum pubescens Muhl. in Willd.

Emum. Pl. 89. 1809.

Paspalum spathaceum Desv. ex Poir. in Lam. Encycl. Suppl. 4:314. 1816.

Paspalum latifolium LeConte, in Journ. de Phys. 91:284. 1820.

Paspalum ciliatifolium var. *brevifolium* Vasey, in Proc. Acad. Phila. 1886:285. 1886.

Paspalum setaceum var. *ciliatifolium* Vasey, in Contr. U.S. Nat. Herb. 3:17. 1892.

Paspalum chapmani Nash, in Bull. N.Y. Bot. Gard. 1:290. 1899.

Paspalum eggertii Nash, in Bull. N.Y. Bot. Gard. 1:434. 1900.

Paspalum stramineum Nash in Britton, Man. 1:74. 1901.

Paspalum bushii Nash in Britton, Man. 1:75. 1901.

Paspalum muhlenbergii Nash in Britton, Man. 1:75. 1901.

Paspalum blepharophyllum Nash in Small Fl. Southeast. U.S. 1903.

Paspalum epile Nash in Small, Fl. Southeast. U.S. 72. 1903.

Paspalum pubescens var. *muhlenbergii* House, in N.Y. State Mus. Bull. 243-244:39. 1923.

Erect or spreading, tufted, glabrous to ciliate or pilose, perennial; culms slender, appressed, 35-100 cm tall; leaves 6-35 cm long, 2-20 mm wide; racemes 1-3, rarely 4, slender, arching; rachis slender, 1.0-1.2 mm wide, with a tuft or hairs at the base; spikelets in pairs, glabrous, shiny, suborbicular, 1.9-2.2 mm long, 1.3-1.7 mm wide; glume and sterile lemma 3-veined, the mid-vein frequently obscure; fruit similar in size and shape to spikelet.

Habitat.—Dry or moist sandy soils.

Range.—Vermont to Minnesota south to Colorado, Arizona, and Florida.

Paspalum ciliatifolium may be distinguished by its very small spikelets and its sterile lemma with 3 veins.

Chase (1929) and Hitchcock (1950) differentiate among, and assign species status to, *P. stramineum*, *P. pubescens*, and *P. ciliatifolium* primarily on the bases of the relative density of hairs on the blades and of the presence or absence of minute pubescence on the spikelets. Chase (1929) states, "To place *P. pubescens* as a subspecies of *P. ciliatifolium*, with *P. stramineum* and *P. supinum* under that as varieties, . . . would express an exactness of relationship that the facts do not at all warrant." Despite this warning, Fernald (1950), among others, gives status to *P. stramineum* and *P. pubescens* (the latter as var. *muhlenbergii*) as varieties of *P. ciliatifolium*.

Characters used to distinguish the several taxa were so variable among Illinois specimens examined that recognition of varieties of *P. ciliatifolium* in the state does not appear to be warranted.

Specimens examined.—Adams: two miles S. of Burton, *Brinker 3104* (ISM). Alexander: Cairo, *Chase & Beck 151* (ILL). Brown: locality unknown, *Rexroat 3360* (ISM). Calhoun: Hardin, *Chase & Beck 198* (ILL). Carroll: Thompson, *Winterringer 2753* (ISM). Cass: NW of Virginia *Rexroat 7198* (ISM). Champaign: Urbana, *Ahles 7431* (ISM). Clark: Marshall, *Chase & Beck 18* (ILL). Clay: Salt Pond, *Ahles 5134* (ILL). Clinton: E. of Albers, *Evers 54135* (ILLS). Coles: three miles S. of Charleston, *Fuller 12075* (SIU). Edwards: Al'bon, *Chase & Beck 58* (ILL). Fulton: S. of Banner, *V. Chase 2232* (ILL). Greene: NW part of the county, *Rexroat 7009* (ISM). Hamilton: S of McLeansboro, *Evers 51556* (ILLS). Hardin: E. of Karbers Ridge, *Evers 5479* (ILLS). Henderson: two miles W. of Oquawka, *Evers 58883* (ILLS). Henry: Colona, *Fell & Fell 46851* (ISM). Iroquois: Donovan, *Ahles 6884* (ISM). Jackson: one mile S of SIU campus, *Voigt 746* (SIU). Jasper: Newton, *Yeater s. n.* (ILLS). Jefferson: S of Dix, *Evers 51757* (ILLS). Jersey: Pere Marquette State Park, *Evers 25022* (ILLS). Jo Daviess: SE of East Dubuque, *Evers 47494* (ILLS). Johnson: Vienna, *Ahles 6944* (ISM). Kankakee: E of St. Anne, *Graham 1904* (ISM). Lawrence: E of Billett, *Evers 34702* (ILLS). Lee: eight miles W of Maytown, *Evers 54573* (ILLS). McDonough: W of Macomb,

Myers C-1 (ISM). Macoupin: Carlinville, *Robertson s. n.* (ILLS). Madison: NW of Highland, *Evers 48922* (ILLS). Marion: locality unknown, *Menard s. n.* (ILL). Mason: Saidora, *Rexroat 6200* (ISM). Massac: Metropolis, *Chase & Beck 104* (ILL). Menard: Locality unknown, *Rexroat 5169* (ISM). Mercer: SE of Keithsburg, *Evers 48020* (ILLS). Monroe: W of Red Bud, *Chase & Beck 193* (ILL). Morgan: six miles S of Meredosia, *Rexroat 3029* (ISF). Peoria: Springdale Cemetery, *Cull s. n.* (ISM). Piatt: W of Monticello, *Evers 33770* (ILLS). Pike: S. of Chambersburg, *Rexroat 6557* (ISM). Pope: E of Dixon Springs, *Pepoon & Barrett 960* (ILLS). Pulaski: Grand Chain, *Chase & Beck 4143* (ILL). Putnam: Locality unknown, *Trojack 260R* (ISM). Rock Island: five miles N of Cordova, *Evers 6937* (ILLS). St. Clair: French Village, *Neill 1019* (ISM). Saline: locality unknown, *Pepoon & Foster 1403* (ILLS). Sangamon: Springfield Township, *Reeder 470* (ISM). Schuyler: Frederick, *V. Chase II 358* (ISM). Scott: NE of Naples, *Rexroat 3914* (ISM). Tazewell: eight miles W of South Pekin, *Evers 50846* (ILLS). Union: State Forest, *Fuller & Fisher 806* (ISM). Wabash: W of Allendale, *Evers 34730* (ILLS). Wayne: N of Cisne, *Evers 15677* (ILLS). White: N of Carmi, *Chase & Beck 4059* (ILL). Whiteside: N of Fulton, *Evers 54549* (ILLS). Will: two miles SE of Custer Park, *Swink 617* (ISM). Williamson: Crab Orchard Lake, *Sands & Garrison 326* (SIU). Winnebago: N of Shirland, *Fell 52-710* (ISM).

SPECIES EXCLUDED

Winterringer and Evers (1960) reported the occurrence of *Paspalum notatum* Flugge in Illinois, based upon a specimen collected from a stripmine in St. Clair County on June 29, 1950, by Alten Grandt. The specimen is deposited in ILL.

Examination of this specimen by the senior author shows it to be clearly *P. pubiflorum*. The spikelets are slightly pubescent, atypical for *P. pubiflorum* var. *glabrum*. There are 8 racemes as opposed to 2-3 in *P. notatum*; the incomplete culm is

nearly 1 m long, as opposed to 50 cm; the spikelets appear to be arranged in 4 rows rather than 2; the spikelets are more ovoid than in *P. notatum*. Thus, on the basis of this specimen, this southern grass can not be included in the flora of Illinois.

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Manuscript received June 11, 1965.