

**PANICUM TYPES**  
**AT THE UNIVERSITY OF NORTH CAROLINA HERBARIUM (NCU)**

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**ABSTRACT**

Examination of more than 4300 *Dichanthelium* and *Panicum* sensu lato specimens at NCU has resulted in the discovery of 35 additional type specimens, bringing the herbarium's total to 70, representing 46 names. Among them are several holotypes and lectotypes, and nine lectotypes had to be designated as a result of this investigation. Also discussed are specimens that were wrongly thought to be types, including those for invalid names. Detailed information is provided for each of the treated *Panicum* names, including protologue data, typification, and current treatment of the name.

A thorough examination has been made of the *Panicum* sensu lato collection at the University of North Carolina Herbarium (NCU). During that examination, completed in 2014, 35 type specimens not previously known to be in the collection were identified. That brings the herbarium's total of *Panicum* sensu lato type specimens to 70, representing 46 names (Table 1). Among them are 12 holotypes, 5 lectotypes, 17 isotypes, and 15 isolectotypes, making NCU a significant repository of *Panicum* types. It was also determined during this examination that nine *Panicum* sensu lato names were in need of lectotypification and this was accomplished in a separate paper (LeBlond 2015). All of those specimens are treated here, and portions of the introduction in that paper are repeated due to their essential application.

Type specimen determination required searches of older literature and online databases, and examination of type specimens in other herbaria. The Missouri Botanical Garden's Tropicos database (Tropicos 2018) provided the basis for nomenclatorial authority and type specimen documentation. Biodiversity Heritage Library (BHL 2018) provided access to several of the nomenclatorial protologues published during a particularly active period of *Panicum* field work and taxonomy in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries.

There is a concentration of *Panicum* nomenclatorial literature from the work of George Vasey (1889) to the monumental treatment by A.S. Hitchcock and Agnes Chase in 1910. Hitchcock & Chase (1910) has often been cited for its remarkably comprehensive and coherent treatment of the massive *Panicum* complex. But it is also remarkable for its use of the type concept, which had only been codified three years before (Nomenclatural Commission 1907). Hitchcock & Chase attempted to locate and verify a type specimen for every name, including synonyms, in their 1910 treatment. This effort formed a significant part of the publication and was one of the earliest uses — if not the starting point — of a process now called lectotypification.

Identification of types in that era was complicated not only by the lack of consistent historical application but also by the nonstandardized documentation of collection data and specimen labeling. Specimen and/or sheet numbering by collectors was particularly troubling. Hitchcock & Chase noted that “It not infrequently occurs that two or more species, collected at the same time and place, or collected at different times and places but supposed by the collector to be the same species, are distributed under the same number to different herbaria.” Dates of collection were also nonstandardized. Some collectors — including W.W. Ashe, G.V. Nash, and J.K. Small — used the inclusive dates of the field expedition as the date on the label. For example, Ashe indicated “June 10 – July 6, 1898” as the dates for an expedition that included the type collections of *Panicum glabrissimum* Ashe, *P. lucidum* Ashe, *P. mattamuskeetense* Ashe, and *P. roanokense* Ashe. Sometimes he recorded the month of collection without noting the year, indicating the date was only important phenologically.

During this era many new names were created, far more than are currently recognized. This was due in part to the disparity between those who worked in the field and those who worked in the herbarium. It was common for field botanists to have limited or no access to herbaria and botanical libraries. “On the other hand,” wrote Gleason (1952), “the professional botanists [in the herbarium] often had little field experience with the plants which they studied. Careful study of plants in this country by competent men both in the field and in the herbarium is scarcely more than 50 years old.”

The typification of 50 *Panicum* sensu lato names is treated here, 46 of which have one or more type specimens at NCU. The other four treated names are *P. amarulum* Hitchc. & Chase, *P. chrysopsidifolium* Nash, *P. eatonii* Nash, and *P. microphyllum* Ashe. The latter two names are represented by specimens at NCU that were thought to be types but which were determined not to be (Table 2). *Panicum amarulum* and *P. chrysopsidifolium* are included because of needed clarification of typification (Table 3).

Ashe authored 29 of the names treated here. He was the most prolific *Panicum* author, naming 48 entities altogether. Nash authored 13 of the names included here, second only to Ashe. Hitchcock & Chase authored two, and one each was authored by M.L. Fernald, F.L. Scribner, Scribner & Merrill, H.K. Svenson, and Vasey. Ashe’s herbarium was donated to NCU in 1932, accounting for the large number of both Ashe and Nash types. It appears to have been a common practice for field workers in that era to exchange specimens for new names.

Five other NCU specimens regarded as types (representing four names) were rejected because the names are invalid (Table 2). Four specimens belong to three Scribner names that were never published — *P. biloxi*, *P. caricifolium* (two specimens), and *P. nitidum* var. *pubescens* — and one for an Ashe name that was published without designation of a type collection (*P. iowense*) and for which there are no known specimens. All of these names and so-called types are discussed at the end of the treatment under “Voucher Specimens for Invalid Names.” Also briefly discussed at the end is the replacement name *Panicum halophilum* Nash and the status of specimens treated by some as its types.

The format begins with the currently accepted form of the name and its publication details, plus any other spelling forms of the specific epithet and where they appeared. This is followed by the typification data in the protologue, determination of type specimens by Hitchcock and Chase, the

classification and location of all known type specimens, classification commentary where needed (in all but three instances), Hitchcock and Chase taxonomic treatment, and current taxonomic treatment in Freckmann and Lelong (2003) and LeBlond (2019a, 2019b, 2019c).

**Protologue typification.** This includes all data provided by the nomenclatorial author relating to type collections, including locale, date, habitat, collector, and habit. When examining older *Panicum* types, it is important to go to the protologue. The author often cited additional collections that represented his or her concept of the named entity — what today are classified as paratypes and syntypes. Hitchcock and Chase frequently omitted references to additional collections in the protologue. Their concern was with the establishment of a primary type, either holotype or lectotype, along with verification of other specimens from the same collection. If more than one collection was referenced in the protologue, they chose the first mentioned as the primary type collection, following the newly published code.

**Type specimen determination by Hitchcock & Chase.** Because of the newness of the typification requirement, most eligible type specimens lacked a designation as type on the sheet itself, requiring deductive investigation. Hitchcock and Chase detailed their investigative procedure in the 1910 introduction: “Not infrequently the description [protologue] is based upon a single specimen, in which case there is no doubt as to what specimen is the type. Sometimes the author had several specimens at hand, in which case it becomes necessary to determine, if possible, which specimen represented to the author his ideal of the species. This may be shown, in case the author has designated no type, by the specific name, which may indicate a collector or locality, or by a careful comparison of the description, and especially of notes, with the specimens, or by some note upon the sheets of specimens which the author is known to have had before him at the time of describing the species. In the absence of any indication that will point toward a particular specimen, the first one mentioned or the one from the locality first mentioned with the original description, or at least the first one among those equally eligible, is chosen as the type.” Hitchcock and Chase also provided a description of the habit of the specimen they recognized or designated as the type, a useful feature for subsequent investigations.

Unlike Ashe and other field workers, Nash did annotate the great majority of his holotype specimens by hand. Frequently, especially in the case of Ashe, Hitchcock and Chase could not locate the type specimen referred to in the protologue. A portion of the Ashe herbarium had been sent to the National Herbarium (US) in 1905, and another portion in 1908, but “Certain of Mr. Ashe’s type specimens were not included in either of those loans.” Many Ashe specimens for new names were unmounted in folders (“covers”) or sometimes with both mounted and unmounted specimens in the same folder. Almost all Ashe type specimens were identified and designated as types anonymously by Chase (her handwriting is distinctive). She frequently referred to notes entered by Ashe on the folders, or on the sheets, or within the sheets, that helped in identifying the type specimen.

Hitchcock and Chase used the term “type” equally in regard to specimens designated by the author (holotypes) and those designated by themselves (lectotypes), and it is frequently difficult to determine whether a specimen they identified as a type is a holotype or lectotype. They often used “chosen” to indicate what now is called lectotypification of a specimen. They more frequently used the term “taken,” but ambiguously, sometimes in the designation of an apparent (though not doubtless) holotype, and sometimes as lectotypification. There are instances where the “taken”

specimen appears to have been the only specimen found that represented the type but without designation as such by the author. Sometimes “taken” is used in their 1910 treatment to denote lectotypification of the first specimen listed of two or more specimens or sites in the protologue. There are at least two instances, *Panicum taxodiorum* Ashe and *P. wilmingtontense* Ashe, where Chase’s reference to “taken as type” appears to refer to the entire contents of a folder in the author’s herbarium, unmounted as well as mounted material. Ambiguous typification applies mostly to the Ashe specimens.

**Types.** All known holotype/isotype and lectotype/isolectotype specimens are listed for the treated names, with herbarium and specimen identification number provided for each specimen. The herbarium specimen number is usually the accession or catalogue number (e.g., NCU, US); the barcode number is used when it is the only identifying number (e.g., NY). The holotype/lectotype designator (when known) and location of designation are provided; designation was usually accomplished by annotation on the specimen sheet or by publication. Label data from the holotype/lectotype is also provided. A slash ( / ) with a space on either side is used to indicate breaks in the label data where needed for clarity. Collector names are not italicized unless that is how they are represented on the label.

In addition to the holotype/isotypes and lectotype/isolectotypes, all known syntypes, paratypes/paralectotypes, and topotypes/topolectotypes located at NCU are listed. Although not formally recognized by the International Code of Nomenclature (2012), topotypes/topolectotypes are frequently used in taxonomic literature. They deserve formal recognition, as they are almost always likely to be more closely related genetically to holotypes and lectotypes, and to their isotypes and isolectotypes, than are syntypes and paratypes, which were collected at other sites.

**Commentary.** This section primarily deals with how the type specimens were determined (the majority by Hitchcock and Chase) and how they were treated by subsequent workers (including me).

**Taxonomic treatment by Hitchcock & Chase (1910).** The taxon to which the name was assigned. Sometimes it was to the name as published in the protologue, but more often it was assigned in synonymy to another name.

**Current treatment.** The taxon to which the name is assigned in and Freckmann and Lelong (2003) and LeBlond (2019a, 2019b, 2019c).

## TYPE SPECIMEN DETERMINATIONS

**1. PANICUM ALABAMENSE** Ashe, North Carolina Agric. Res. Serv., Bull. 175: 116. 1900, nom. illeg. hom., not Trin., 1854.

**Protologue typification:** “Auburn, Ala., May 7, 1898. Number 1530, Alabama Biological Survey” (Ashe 1900b, p. 116).

**Type specimen determination by Hitchcock & Chase (1910, p. 244):** “The type, in Ashe’s herbarium, is a tuft of young vernal culms, the panicles only partly exerted. Mounted on the sheet with this is a specimen of *P. lucidum*. Ashe’s description refers to the latter only in so far as the spikelets are said to be glabrous.”

**Types:** **HOLOTYPE:** NCU 366. **ISOTYPES:** NY 381575; US 2383597 (fragm. ex NCU 366). Holotype designation: NCU 366 annotated as “type” by Chase, and published in Hitchcock & Chase (1910). Label data: “1530 / Alabama Biological Survey / *Panicum* / Auburn, Lee Co. / 5/7 1898 / F.S. Earle & C.F. Baker.”

**Commentary:** The NCU specimen was annotated as “taken for type” by Chase. It apparently was the only specimen of type material found in Ashe’s herbarium. On isotype US 2383597 is a single mounted fertile culm, and material in a packet. A Chase note reads: “from mounted specimen taken as type of *P. alabamense* Ashe.” Both fragments are presumed to be from the holotype. Isotype NY 381575 was purchased from the Earle Herbarium in 1902 and appears not to have been seen by Hitchcock & Chase. It is annotated on the label as coming from the “type collection,” and was also noted as an isotype by Gould & Clark in 1977.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum wilmingtontense* Ashe.

**Current treatment:** *Panicum wilmingtontense* is a synonym of *Dichantherium ovale* (Ell.) Gould & C.A. Clark var. *addisonii* (Nash) Gould & C.A. Clark (LeBlond 2019a), and of *D. ovale* subsp. *pseudopubescens* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

## 2. *PANICUM ALBEMARLENSE* Ashe, J. Elisha Mitchell Sci. Soc. 16: 84. 1900.

**Protologue typification:** “in well drained open woods in Beaufort and Hyde counties, N.C., where the type material was collected by me May 26, 1899, near Scranton” (Ashe 1900a, p. 84).

**Type specimen determination by Hitchcock & Chase (1910, p. 212):** “The type specimen has been arbitrarily chosen from unmounted material in Ashe’s herbarium in a cover marked on the outside ‘*P. albermarlense*,’ and on a sheet upon which is written ‘*Panicum* ? very common in N.E. Beaufort County, also in Hyde, in open woods well drained.’ There is nothing to indicate in which place the specimens were collected, except the published statement cited above.”

**Types:** **LECTOTYPE:** US 2383612. **SYNTYPE:** NCU 17484. Lectotype designation: US 2383612 annotated by Chase “from material taken as type.” Label data: see Commentary.

**Commentary:** US 2383612, the specimen designated as the lectotype, was prepared at the National Herbarium “from unmounted material in cover marked ‘*P. albemarlense*’.” The location, date, and collection data are from the protologue. NCU 17484 includes a handwritten note by Chase: “type ? of / *P. albemarlense* Ashe / data agrees with that published, but no date of collection is given.” There is no label or other Ashe data on the sheet. There are other instances where Chase’s use of “type” refers to all material in a folder (“cover”), mounted and/or unmounted.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum albemarlense*.

**Current treatment:** *Panicum albemarlense* is a synonym of *Dichantherium meridionale* (Ashe) Freckmann (LeBlond 2019a) and of *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *implicatum* (Scribner) Freckmann & Lelong (Freckmann & Lelong 2003).

## 3. *PANICUM AMARULUM* A.S. Hitchcock & Chase, Contr. U.S. Natl. Herb. 15: 96. 1910.

**Protologue and typification, from Hitchcock & Chase (1910, p. 96):** “Type U.S. National Herbarium no. 592748, collected September 24, 1900, Virginia Beach, Va., by T.A. Williams (no. 3090).”

**Types:** **HOLOTYPE:** US 592748. **PARATYPE:** MO 2974815. Holotype designated by Hitchcock & Chase (1910, p. 96). Label data: “UNITED STATES DEPARTMENT OF

AGRICULTURE / North American Grasses Distributed by the Division of Agrostology / *Panicum amarum* Ell. / Virginia Beach, Va. / Sept 24<sup>th</sup> 1900 / No. 3090 / T.A. Williams.”

**Commentary:** The MO 2974815 paratype specimen, Tracy 6508, was determined by me to be closer to *Panicum amarum* var. *amarum*, and was so annotated on 13 Jun 2012. The other many collections referenced in the protologue are also paratypes, but no attempt was made during this investigation to locate them.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum amarulum*.

**Current treatment:** *Panicum amarulum* is the basionym of *Panicum amarum* Elliott var. *amarulum* (A.S. Hitchcock & Chase) P.G. Palmer (LeBlond 2019a), and of *Panicum amarum* subsp. *amarulum* (A.S. Hitchcock & Chase) Freckmann & Lelong (Freckmann & Lelong 2003).

**4. PANICUM ARENICOLA** Ashe, J. Elisha Mitchell Sci. Soc. 15: 56. 1898. (Name spelled *P. arenicolum* in protologue, and *P. arenaecolum* on some Ashe sheets.)

**Protologue typification:** “Type material collected by the writer at Chapel Hill, N.C. June 1898, and later at several localities in the eastern portion of the same state” (Ashe 1898, p. 56).

**Type specimen determination by Hitchcock & Chase (1910, p. 166):** “The type could not be found in Ashe’s herbarium. In Hitchcock’s herbarium is a specimen labeled ‘*Panicum arenaecolum* Ashe’ collected in the vicinity of Chapel Hill, North Carolina, by W.W. Ashe, and sent by him to Professor Scribner. The date of collection is not given. This specimen, which is probably a duplicate type, consists of two vernal culms, somewhat appressed-pubescent below; the stiffly ascending blades are glabrous except the lowermost, which is sparsely pubescent beneath.”

**Types:** **LECTOTYPE:** NCU 20397. **ISOLECTOTYPES:** MO 1837598; NY 381579, 381580. Lectotype designation: NCU 20397 annotated and published by LeBlond (2015). Label data: “PLANTS OF THE SOUTHERN UNITED STATES IN THE VICINITY OF CHAPEL HILL, NORTH CAROLINA / *P. arenaecolum* Ashe / June / W.W. Ashe, Collector.”

**Commentary:** Subsequent workers identified the type specimens at MO and NY as isotypes, apparently based on the then-missing type in Ashe’s herbarium. Gould & Clark (1978) included the following in synonymy with *Dichantherium aciculare* Desvaux ex Poiret: “*P. arenicolum* Ashe, 1898. Lectotype, US; isolectotypes, NY.” There are no known types for this name at US, so the “Lectotype, US” must refer to the specimen from “Hitchcock’s herbarium.” However, the location of that specimen is unknown. Hitchcock & Chase’s usual designation of a lectotype was with the phrase “chosen [or ambiguously, taken] as the type.” Its absence here, plus the doubt in the term “probably,” argue that Hitchcock & Chase did not select this specimen as the (lecto)type. In any case, since the location of the Hitchcock herbarium specimen is unknown, another specimen has to be chosen as the lectotype.

A specimen from the Ashe herbarium matching the protologue was found at NCU (no. 20397) during the current examination. It could well be the missing holotype, but lacks a type designation by Ashe on the sheet. It is selected as the lectotype.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum aciculare* Desvaux ex Poiret.

**Current treatment:** *Panicum aciculare* is the basionym of *Dichantherium aciculare* (Desv. ex Poir.) Gould & C.A. Clark (Freckmann & Lelong 2003; LeBlond 2019a).

**5. PANICUM AUBURNE** Ashe, North Carolina Agric. Res. Serv., Bull. 175: 115. 1900.

**Protologue typification:** “Collected by Professors F.S. Earle and C. Baker, of the Alabama Biological Survey, at Auburn, Ala., May 7, 1898. No. 1527” (Ashe 1900b, p. 116).

**Type specimen determination by Hitchcock & Chase (1910, p. 223):** “The type specimen, in Ashe’s herbarium, consists of several immature vernal culms with portions of the dead autumnal culms of the previous year attached.”

**Types:** **HOLOTYPE:** NCU 17430. **ISOTYPES:** NY 381586; US 2383621 (fragm. ex NCU 17430). **SYNTYPE:** NY 381587. Holotype designation: NCU 17430 annotated as “type” by Chase. Label data: “1527 / Alabama Biological Survey. *Panicum* / Auburn, Lee Co. / 5/7 1898 / Coll. F.S. Earle, C.F. Baker.”

**Commentary:** Syntype NY 381587 is assignable to *Dichantherium sphaerocarpon* (Elliott) Gould. Since *Panicum auburne* is a synonym of *D. acuminatum* (Swartz) Gould & C.A. Clark, NY 381587 is therefore a syntype rather than an isotype.

**Taxonomic treatment by Hitchcock & Chase (1910, p. 223):** *Panicum auburne*.

**Current treatment:** *Panicum auburne* is a synonym of *Dichantherium acuminatum* (Swartz) Gould & C.A. Clark var. *acuminatum* (LeBlond 2019a), and of *D. acuminatum* subsp. *acuminatum* (Freckmann & Lelong 2003).

**6. PANICUM CHRYSOPSIDIFOLIUM** Nash in Small, Fl. S.E. U.S. 100, 1327. 1903.

**Protologue typification:** “In dry sandy soil, middle Florida. Spring” (Nash 1903, p. 100). “Type, Curtiss, N. Am. Pl., no. D, in Herb. N.Y.B.G.” (Nash 1903, p. 1327).

**Type specimen determination by Hitchcock & Chase (1910, p. 168):** “The type, in the herbarium of the New York Botanical Garden, is labeled ‘Hammock land, Leon Co., Fla., May 12, 1886,’ and consists of a clump of four vernal culms 30 to 55 cm. high with mature, short-exserted panicles.”

**Types:** **HOLOTYPE:** NY 413960. **ISOTYPE:** US 2808891. Holotype designation: NY 413960 annotated as “Type” by Nash. Label data: “Curtiss. NORTH AMERICAN PLANTS. No. D / *Panicum chrysopsidifolium* / Lake Jackson, Leon Co. Fla. / Legit A.H.C. / May 12 ‘86.”

**Commentary:** Hitchcock & Chase’s statement that “the type” at NY is from “Hammock land, Leon Co. Fla.,” differs from the NY 413960 label, which reads “Lake Jackson,” also in Lake Co. The label on US 2808891 does read “Hammock land, Leon Co. Fla.” with a Chase note stating “an excellent match for the type.” This indicates she saw the specimen at NY that Nash had annotated as the (holo)type, so the difference in locality given for the NY specimen is likely a transcription error by Hitchcock & Chase. Because of the habitat difference indicated by “Hammock land” and “Lake Jackson,” the NY and US specimens were likely collected at different sites, and I have concluded that US 2808891 should be treated as a paratype rather than an isotype.

In the protologue, Nash (1903, p. 100) describes the location as “In dry sandy soil, middle Florida,” which seems to add to the confusion. But in that era, “middle Florida” referred to the panhandle region between Apalachicola River and Suwannee River. Labeling inconsistencies were common in that era.

**Treatment by Hitchcock & Chase (1910):** *Panicum chrysopsidifolium*.

**Current treatment:** *Panicum chrysopsidifolium* is a synonym of *Dichantherium filiramum* (Ashe) LeBlond (LeBlond 2019a). It is not treated by Freckmann & Lelong (2003).

**7. PANICUM CILIOSUM** Nash, Bull. Torrey Bot. Club 26: 568. 1899.

**Protologue typification:** “Type collected by S.M. Tracy, at Biloxi, Mississippi, September 1, 1898, no. 4580. . . . The specimen . . . is the late state and has the panicle included.” (Nash 1899, p. 569).

**Type specimen determination by Hitchcock & Chase (1910, p. 221):** “The type, in Nash’s herbarium, is the early autumnal form with a simple culm and primary panicle attached, and without the winter rosette. The specimen of Tracy 4580 in the National Herbarium has a winter rosette, the blades 4 to 6 cm. long. In the description the ligule is said to be ‘about 0.5 mm. long’ but in the type it measures 3 mm. long.”

**Types:** **HOLOTYPE:** NY 413963. **ISOTYPES:** NCU 17360; US 2383619. Holotype designation: NY 413963 annotated as “Type” by Nash. Label data: “HERB. S.M. TRACY. 4580 / *Panicum ciliosum* Nash, sp. nov. [*ciliatilaminum* Nash” crossed out] / HAB. Biloxi, Miss. Coll. S.M. Tracy 9/1 1898.”

**Commentary:** None required.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum lanuginosum* Elliott.

**Current treatment:** *Panicum lanuginosum* is a synonym of *Dichantherium acuminatum* (Swartz) Gould & C.A. Clark var. *acuminatum* (LeBlond 2019a), and of *D. acuminatum* subsp. *acuminatum* (Freckmann & Lelong 2003).

**8. PANICUM COLUMBIANUM** Scribner, Bull. Div. Agrostol., U.S.D.A. 7: 78, f. 60. 1897.

**Protologue typification:** “Dry, sandy fields, meadows, and open woodlands, New England southward to the Carolinas, and westward to Tennessee and Alabama, mostly near the coast; also in California. June-August” (Scribner 1897, p. 78).

**Type specimen determination by Hitchcock & Chase (1910, p. 247):** “The type ... is in Hitchcock’s herbarium. It is labeled as follows in Scribner’s writing: ‘*Panicum columbianum* Scrib. (Type) Brookland, D.C., July 14, 1894. Coll. F.L.-S.’ The specimen consists of three branching culms, 25 to 38 cm. high, the primary panicles destitute of spikelets. A duplicate type is in the National Herbarium.”

**Types:** **HOLOTYPE:** US 743463. **ISOTYPE:** NY 413965. **SYNTYPE:** NCU 17320. Holotype designation: US 743463 annotated as “Type” by Scribner. Label data: “*Panicum columbianum* Scribn. (Type) / *Panicum nitidum* Lam. var. *brevifolium* / Brookland, D.C. / July 14, 1894, Coll. F. L.-S.”

**Commentary:** The label of NCU 17320 was prepared by the Division of Agrostology in Washington, D.C., and identifies it as “*P. columbianum* – Scribner. from type,” without locality or date. The material consists of five culms with terminal panicles at anthesis and no axillary branching. Both the holotype at US and isotype at NY are in the primary phase of axillary branching, with terminal panicles that have shed their spikelets. This suggests the plants on the NCU specimen were collected at an earlier date or at a more northerly location. Since “from type” on the specimen sheet does not appear to refer to the holotype or isotype, it is presumed to refer to the group of specimens Scribner studied, and is here regarded as a syntype.

The location of the “duplicate type in the National Herbarium” is unknown. If found, it would be an isotype.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum columbianum*.



**Current treatment:** *Panicum columbianum* is the basionym of *Dichanthelium columbianum* (Scribner) Freckmann (LeBlond 2019a), and of *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *columbianum* (Scribner) Freckmann & Lelong (Freckmann & Lelong 2003).

**9. PANICUM COMMELINIFOLIUM** Ashe, J. Elisha Mitchell Sci. Soc. 15: 29. 1898, nom. illeg. hom., not Rudge 1805. (Name spelled *P. commelinaefolium* in protologue and in Hitchcock & Chase 1910.) This nom. illeg. was later replaced by *P. curranii* Ashe, J. Elisha Mitchell Sci. Soc. 15: 113. 1899.

**Protologue typification:** “Based on material collected by Dr. J.K. Small near Stone Mt., Ga., Aug. 1-6, 1895, and distributed as *P. commutatum*” (Ashe 1898, p. 29).

**Type specimen determination by Hitchcock & Chase (1910, p. 304):** “The type, in the Biltmore Herbarium, consists of several late vernal culms beginning to branch, with short internodes and short-exserted panicles. The culms, sheaths, and both surfaces of the blades are puberulent, the blades 1.7 to 2.5 cm. wide, the spikelets 2.8 mm. long.”

**Types:** **LECTOTYPE:** US 80590 (fragm., photo of holotype). **ISOLECTOTYPES:** NCU 17318; NY 413967; US 2478905, 2478926. Lectotype designation: US 80590 designated and published by LeBlond (2015). Lectotype label data (on packet of fragment from holotype): “*Panicum commelinaefolium* Ashe / Stone Mountain Ga. / coll John K Small, Aug 1-6, 1895 / (from Biltmore Herb).”

**Commentary:** The location of the holotype (“type”) seen by Hitchcock & Chase is currently unknown. The lectotype, formerly treated as an isotype, contains only a small fragment of material, but it is from the missing holotype, along with the photo.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum commutatum* Schultes.

**Current treatment:** *Panicum commutatum* is the basionym of *Dichanthelium commutatum* (Schultes) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

-----species name and 'type' as lower case caps, from here to the end (as in 1-9)

**10. PANICUM COMMONSIANUM** Ashe, J. Elisha Mitchell Sci. Soc. 15: 55. 1898.

**Protologue typification:** “Based on No. 341, Commons. Collected in drifting sands along the coast, Cape May, N.J. June, 1898” (Ashe 1898, p. 55).

**Type specimen determination by Hitchcock & Chase (1910, p. 242):** “The type, in Ashe’s herbarium, ‘Ex. Herb. A. Commons,’ consists of five tufts of vernal culms with mature primary panicles.”

**Types:** **HOLOTYPE:** NCU 17314. **ISOTYPES:** NCU 17316; NY 413968; US 2383640. Holotype designation: NCU 17314 annotated as “n. sp.” by Ashe, and published as “The type” by Hitchcock & Chase (1910). Label data: “HERB. A. COMMONS / *Panicum commonsianum*, W.W. Ashe n. sp. / drifting sands along the coast. Cape May. New Jersey. June 29, 1898. Coll. A.C.”

**Commentary:** All four type specimens show June 29, 1898 as the date. Only US 2383640 indicates on the label that the collection number is 341, and that was entered by someone other than Ashe. The two specimens at NCU are from Ashe’s herbarium. NCU 17314 is noted “n. sp.” in Ashe’s handwriting, while NCU 17316 is not. The former is the apparent holotype.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum commonsianum*.

**Current treatment:** Synonym of *Dichantherium ovale* (Elliott) Gould & C.A. Clark var. *addisonii* (Nash) Gould & C.A. Clark (LeBlond 2019a), and of *D. ovale* subsp. *pseudopubescens* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

**11. PANICUM CRYPTANTHUM** Ashe, North Carolina Agric. Res. Serv., Bull. 175: 115. 1900.

**Protologue typification:** “Collected by writer in swamps at Wilson’s Mill, N.C., in July, 1897” (Ashe 1900b, p. 115).

**Type specimen determination by Hitchcock & Chase (1910, p. 299):** “The type, in Ashe’s herbarium, is a specimen arbitrarily chosen from among four bearing the label, ‘Wilson’s Mill, N.C. July 15, 1897. W.W. Ashe collector,’ and with the additional data, ‘In a small swamp on north side of railroad about one mile west of the station.’ The name does not appear upon any of these sheets, but these plants agree with the description and are from the locality published. These specimens all are the autumnal form, with the reduced panicles partially included in the sheaths.”

**Types: LECTOTYPE:** NCU 17544. **ISOLECTOTYPES:** NCU 17545, 17546; US 80522 (incl. fragm. ex NCU 17544). Lectotype designation: NCU 17544 “arbitrarily chosen” and published by Hitchcock & Chase (1910). Label data: “PLANTS OF THE SOUTHERN UNITED STATES / Wilsons Mill, N.C. / In a small swamp on North side of railroad about one mile west of the station. July 15, 1897, W.W. Ashe Collector.”

**Commentary:** US 80522 contains a fragment of the lectotype in addition to the specimen Ashe mounted on it. Thus it contains two isoelectotypes.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum cryptanthum*.

**Current treatment:** *Panicum cryptanthum* is the basionym of *Dichantherium cryptanthum* (Ashe) LeBlond (LeBlond 2019a), and synonym of *D. scabriusculum* (Elliott) Gould & C.A. Clark (Freckmann & Lelong 2003).

**12. PANICUM CURTIFOLIUM** Nash, Bull. Torrey Bot. Club 26: 569-570. 1899.

**Protologue typification:** “Collected by S.M. Tracy at Ocean Springs, Mississippi, May 2, 1898, no. 4598” (Nash 1899, p. 570).

**Type specimen determination by Hitchcock & Chase (1910, p. 267):** “The type, in Nash’s herbarium, consists of a tuft with two slender vernal culms about 30 cm. long, beginning to branch at the middle nodes. The blades are glabrous above except at the base and glabrous or sparsely pubescent beneath. In a duplicate type in the National Herbarium several blades have a few scattered hairs on the upper surface.”

**Types: HOLOTYPE:** NY 413971. **ISOTYPES:** NCU 18039; US 340855, 743484. Holotype designation: NY 413971 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data: “Type. HERB. S.M. TRACY. 4598 / *Panicum curtifolium* Nash, sp. nov. [*“sphagnicolum* Nash” crossed out] / Hab. Ocean Springs Miss., COLL. S.M. TRACY. 5/2 1898.”

**Commentary:** NCU isotype 18039 was in Ashe’s herbarium, no doubt sent to him by Nash.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum curtifolium*.

**Current treatment:** *Panicum curtifolium* is the basionym of *Dichantherium curtifolium* (Nash) LeBlond (LeBlond 2019a), and of *D. ensifolium* (Baldwin ex Elliott) Gould subsp. *curtifolium* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

**13. PANICUM CUTHBERTII** Ashe, J. Elisha Mitchell Sci. Soc. 15: 48. 1898.

**Protologue typification:** “Wet sandy woods, North Carolina and South Carolina. South Carolina: Cuthbert: St. Helena island. North Carolina: Ashe: Chapel Hill, June, 1898” (Ashe 1898, p. 48).

**Type specimen determination by Hitchcock & Chase (1910, p. 264):** “This specimen could not be found in Ashe’s herbarium, but a piece of the type bearing the above data, sent by Mr. Ashe, is in the National Herbarium. It consists of a single vernal culm lacking the base, with two nodes, the blades broken off, but the sheaths present, the panicle short-exserted, the immature, pubescent spikelets 1.4 mm. long.”

**Types: HOLOTYPE:** NCU 18302. **ISOTYPES:** NCU 17540; US 80524 (fragm. ex NCU 17540). Holotype designation: NCU 18302 annotated as “type” by Ashe. Label data: Herb. Rutgers College. *Panicum* ? Locality Swamp / Date 1887 / St. Helena Island, S.C. / Collector A. Cuthbert.”

**Commentary:** NCU 18302 has been treated as a lectotype, but an Ashe note on the sheet identifies it as the “*P. cuthbertii* type.” If found, any specimens matching the Chapel Hill data in the protologue would be paratypes. The obvious evidence of material removed from NCU 17540 indicates it is the source of the material on US 80524.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum ensifolium* Baldwin.

**Current treatment:** *Panicum ensifolium* is the basionym of *Dichantherium ensifolium* (Baldwin ex Elliott) Gould (Freckmann & Lelong 2003, LeBlond 2019a).

#### 14. PANICUM DELAWARENSE Ashe, North Carolina Agric. Res. Serv., Bull. 175: 116. 1900.

**Protologue typification:** “Dry soil near Centreville, Del. Collected by A. Commons, July 6, 1878” (Ashe 1900b, p. 116).

**Type specimen determination by Hitchcock & Chase (1910, p. 156):** “The type, in Ashe’s herbarium, consists of four solitary culms with long-exserted, over-mature panicles, and sparsely pubescent spikelets.”

**Types: HOLOTYPE:** NCU 17535. **ISOTYPE:** US 2808899 (incl. fragm. ex NCU 17535). Holotype designation: NCU 17535 annotated as “type” by Chase (see Commentary), and published by Hitchcock & Chase (1910). Label data: “HERB. A. COMMONS 48 / *Panicum Delawareense* / dry soil, (Feldspar quarries) near Centreville, Delaware. July 6, 1878. Coll. A.C.”

**Commentary:** On NCU 17535 is a Chase note that reads, “taken as type of *P. Delawareense* Ashe.” Although the sheet contains no type designation by Ashe, it is the only known specimen of the type collection from his herbarium. Isotype US 2808899 has an A. Commons label matching the protologue except that the number in the upper right portion is 358, not 48. Just to the left of “358” is a note reading “=48 W.W.A,” probably by Chase, and referring to the Commons 48 specimen in Ashe’s herbarium. It is apparent that Commons’ numbering system applied to something other than place and date of collection. Elsewhere on the sheet is a note by Chase reading, “Dupl type agrees perfectly with type in Ashe herb.” A packet on US 2808899 contains material noted as “from type in Ashe herb,” and is a second isotype on the sheet.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum wernerii* Scribner.

**Current treatment:** *Panicum wernerii* is a synonym of *Dichantherium linariifolium* (Scribner) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

**15. PANICUM DICHOTOMIFLORUM** Michaux var. **PURITANORUM** Svenson, Rhodora 22: 154-156, f. 1-5. 1920.

**Protologue typification:** “dry sandy and gravelly beach, Half-way Pond, Barnstable, Sept. 13, 1919, Fernald (TYPE in Gray Herb.)” (Svenson 1920, p. 155).

**Type specimen determination:** There is only one specimen from the type collection at GH, and it is noted as the “TYPE.” It therefore is the holotype.

**Types:** **HOLOTYPE:** GH 24098. **ISOTYPES:** NEBC 28645; NY 413974; US 1125005, 1223441, 1502799. **TOPOTYPE:** NCU 600438. Holotype designation: GH 24098 anonymously stamped as “TYPE,” and published in Svenson (1920, p. 155). Label data: “PLANTAE EXSICCATAE GRAYANAE / 306. *Panicum dichotomiflorum* MICHX., Var. *puritanorum* SVENSON / Rhodora xxii. 154 (1920). Damp, sandy beach of Half-way Pond, Barnstable, Massachusetts. Coll. M.L. Fernald. September 13, 1919.”

**Commentary:** Tropicos and NY show the Fernald collection number as 306, but based on two isotypes at US (1125005 and 1223441) it should be 17831. The “306” that appears on the Gray Herbarium labels refers to the *Plantae Exsiccatae Grayanae* series of specimens that had been distributed to other herbaria. Half-way Pond is now called Mary Dunn Pond. Many paratypes are cited in the protologue, the majority collected by Fernald.

**Current treatment:** *Panicum dichotomiflorum* var. *puritanorum* (LeBlond 2019b), and *P. dichotomiflorum* subsp. *puritanorum* (Svenson) Freckmann & Lelong (Freckmann & Lelong 2003).

**16. PANICUM EARLEI** Nash, Bull. Torrey Bot. Club 26: 571. 1899.

**Protologue typification:** “Type collected at Auburn, Lee Co., Alabama, on May 7, 1898, by Messrs. F.S. Earle and C.F. Baker, no. 1532; no. 1535, of the same place and date, also belongs here” (Nash 1899, p. 571).

**Type specimen determination by Hitchcock & Chase (1910, p. 267):** “The type, in Nash’s herbarium, consists of a tuft of early vernal culms 8 to 15 cm. high, with immature panicles. The blades are sparsely pilose on the upper surface.”

**Types:** **HOLOTYPE:** NY 413978. **ISOTYPES:** NCU 17582, 596508; US 2808882 (fragm. ex NY 413978). Holotype designation: NY 413978 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data: “1532 Alabama Biological Survey. Type / *Panicum Earlei* Nash, sp. nov. / Auburn, Lee Co., 5/7 1898 / Coll. F.S. Earle & C.F. Baker.”

**Commentary:** NCU 596508 is the *Earle & Baker 1535* collection cited in the protologue. Since the date and place are the same as the type collection, it is an isotype. This sheet contains four taxa: *Dichanthelium curtifolium* (Nash) LeBlond, *D. ensifolium* (Baldwin ex Elliott) Gould, *D. strigosum* (Muhlenberg) Freckmann var. *strigosum*, and *D. villosissimum* (Nash) Freckmann var. *villosissimum*. The isotype specimen is *D. curtifolium*. Hitchcock & Chase (1910, p. 267) placed *P. earlei* with *Panicum curtifolium* Nash, while Gould & Clark (1978) placed it with *D. acuminatum* (Swartz) Gould & C.A. Clark var. *implicatum* (Scribner) Gould & C.A. Clark. The differing treatments reflect the intermediacy of some plants in the type collection. NCU isotype 17582 has glabrous spikelets 1.2-1.3 mm long and bearded nodes, consistent with *D. curtifolium* (which can also have pubescent spikelets to 1.4 mm long). But the internodes as well as sheaths are spreading-hairy, and the ligules are 2-2.5 mm long. In *D. curtifolium*, the internodes are glabrous, and the ligules are 1-2 mm long. These characters suggest hybridization between entities in the *Ensifolia* and

*Lanuginosa* sections, but that cannot be assumed. Study is needed. The characters of *D. curtifolium* specimen NCU 596508 are consistent with *D. curtifolium* sensu stricto.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum curtifolium*.

**Current treatment:** *Panicum curtifolium* is the basionym of *Dichanthelium curtifolium* (LeBlond 2019a), and of *D. ensifolium* subsp. *curtifolium* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

**17. PANICUM EATONII** Nash, Bull. Torrey Bot. Club 25: 84-85. 1898. (Name spelled *P. eatoni* in protologue and Hitchcock & Chase 1910.)

**Protologue typification:** “Along the coast, Maine to New York. I take pleasure in naming this grass for Mr. Alvah A. Eaton, who sent me specimens of it collected by himself at Seabrook, N.H.” (Nash 1898, p. 85).

**Type specimen determination by Hitchcock & Chase (1910, p. 201):** “The type, in Nash’s herbarium, consists of two vernal culms with spikelets measuring 1.5 to 1.6 mm. long.”

**Types: HOLOTYPE:** NY 413979. **ISOTYPE:** US 80879 (fragm. ex NY 413979 & photo). Holotype designation: NY 413979 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data: “Type / *Panicum Eatonii* Nash. Seabrook, N.H. Coll: A.A. Eaton, 1897.”

**Commentary:** NCU specimen 17589 has been treated as a type of *Panicum eatonii*. It is from the herbarium of Alvah A. Eaton, and the label reads: “*Panicum Eatonii* Nash / Flat, swampy undrained mowing field / 7-27-’96 / Type specimen / Amesbury Mass.” Neither the date nor the locality agree with the protologue and holotype label data, and Nash referenced no other collection. This specimen is not a type.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum spretum* Schultes.

**Current treatment:** *Panicum spretum* is the basionym of *Dichanthelium spretum* (Schultes) Freckmann (Freckmann & Lelong 2003; LeBlond 2019a).

**18. PANICUM ERYTHROCARPON** Ashe, J. Elisha Mitchell Sci. Soc. 16: 90-91. 1900.

**Protologue typification:** “The type material was collected by the writer on the sand hills of New Hanover county, N.C., May 19, 1899” (Ashe 1900a, p. 91).

**Type specimen determination by Hitchcock & Chase (1910, p. 237):** “The type, in Ashe’s herbarium, is the vernal form, labeled, ‘Shady slopes on the sand hills one mile north of Wilmington [New Hanover County] [sic], N.C.’”

**Types: HOLOTYPE:** NCU 17821. **ISOTYPES:** NCU 17822, 17823; US 2383635. Holotype designation: NCU 17821 annotated as “type” by Chase (see Commentary), and published by Hitchcock & Chase (1910). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. EASTERN NORTH CAROLINA. =*Panicum ovale* Ell. Shady slope on the sand hills one mile north of Wilmington N.C., May 17, 1899, W.W. Ashe, Collector.” “=*Panicum ovale* Ell.” appears to have been added later over an erased name, apparently by H.L. Blomquist, whose initials appear above the label with the date: “! H.L.B. 10-28-37.” The “H” looks like an “N,” suggesting Nathaniel Lord Brown, but Brown died in 1934. The devil truly is in the details.

**Commentary:** On holotype NCU 17821 is a Chase note indicating that it was “taken as type of *Panicum erythrocarpon* Ashe / data is consistent except date with that published. Published date is 19 instead of 17. Probably typographical error.” Isotype NCU 17822 contains a Chase note reading

“These are same form as those in cover marked in Ashe’s hand ‘*P. erythrocarpon* – sp. nov.’ Data on label is exactly the same.” Chase’s use of “These” and “those” refers to the individual plants on the two specimen sheets rather than to additional sheets or unmounted material. Her comment that the data on the label of NC 17822 was “exactly the same” can only refer to the label on the specimen in the folder (“cover”) marked “sp. nov.,” NC 17821. Isotype NCU 17823 is labeled as a “co-type,” but not by Chase or Ashe. Isotype US 2383635 agrees with the protologue, and contains a note by Chase stating that it was “from unmounted material,” and thus not a fragment of the holotype. These notes argue that NCU 17821 was the only mounted and labeled specimen in the “cover marked in Ashe’s hand ‘*P. erythrocarpon* – sp. nov.’”

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum ovale* Elliott.

**Current treatment:** *Panicum ovale* is the basionym of *Dichanthelium ovale* (Elliott) Gould & C.A. Clark (Freckmann & Lelong 2003, LeBlond 2019a).

**19. PANICUM FILICULME** Ashe, J. Elisha Mitchell Sci. Soc. 15: 59-60. 1898, nom. illeg. hom., not Hackel ex Schinz, 1895.

**Protologue typification:** “Dry soil, middle North Carolina to Georgia in the Piedmont plateau region. ... North Carolina: Ashe; Chapel Hill, 1898. Georgia: Small; Stone Mt., Aug. 1895” (Ashe 1898, p. 60).

**Type specimen determination by Hitchcock & Chase (1910, p. 210):** “The type could not be found in Ashe’s herbarium. In the National Herbarium is a specimen from Stone Mountain, Georgia, collected by Ashe, which answers to the description. The culms are erect, slender, 12 to 20 cm. high, with small panicles about 2 cm long. The culms are the early autumnal form with a few erect fascicles of secondary branches. This specimen differs somewhat in aspect from the type of *P. meridionale*, but they are forms of the same species.”

**Types:** **LECTOTYPE:** NCU 18291. **TOPOLECTOTYPE:** US 970525. Lectotype designation: NCU 18291 annotated and published by LeBlond (2015). Label data: “GEORGIA PLANTS / COLLECTED ON AND ABOUT STONE MOUNTAIN, DEKALB COUNTY / JOHN K. SMALL, AUGUST 1-6, 1895 / ALTITUDE 1000-1500 FEET.”

**Commentary:** NCU 18291 is from Ashe’s herbarium. No taxonomic name was entered on Small’s label, but the specimen matches the protologue date, location, collector, and description for *P. filiculme*.

Hitchcock & Chase apparently never saw a type specimen for this name. The specimen labeled as collected by Ashe (not by Small, and without date) from Stone Mountain, and referenced by Hitchcock & Chase, was erroneously considered to be the lectotype by Lelong (1984) and Hansen & Wunderlin (1988). But it should be noted that “W.W. Ashe, Collector” on the label is printed, along with “PLANTS OF THE SOUTHERN UNITED STATES.” It is possible that Ashe, who annotated this specimen on the label as “*Panicum filiculme* Ashe,” carelessly used his own label for a Small specimen. Seven of the names treated in this paper were based on Small collections, four by Nash and three by Ashe. No doubt Small was sending specimens to the two most talented field taxonomists working in *Panicum* in the southeastern U.S. It is possible that the so-called Ashe specimen was collected by Small, and might have been from the type collection.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum meridionale* Ashe.

**Current treatment:** *Panicum meridionale* is the basionym of *Dichanthelium meridionale* (Ashe) Freckmann (LeBlond 2019a), and synonym of *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *implicatum* (Scribner) Freckmann & Lelong (Freckmann & Lelong 2003).

**20. PANICUM FILIRAMUM** Ashe, J. Elisha Mitchell Sci. Soc. 16: 88-89. 1900. *Panicum* “*filirameum*” is the common spelling, but “*filiramus*,” the spelling in the protologue, has been determined to be valid (Gandhi 2013).

**Protologue typification:** “Habitat: sandy woods, eastern North Carolina. Type material collected in New Hanover county, N.C., in June 1899” (Ashe 1900a, p. 89).

**Type specimen determination by Hitchcock & Chase (1910, pp. 166-167):** “The type, in Ashe’s herbarium, consists of two single vernal plants, with slender, villous culms, sheaths less villous, blades nearly glabrous on one plant, sparsely long-pilose on the other, the panicles overmature.”

**Types:** **LECTOTYPE:** US 2808880 (mounted specimen). **ISOLECTOTYPES:** NCU 18214; US 2808880 (unmounted material in packet). Lectotype designation: US 2808880 designated by LeBlond (2015). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. EASTERN NORTH CAROLINA. *Panicum filiramus* W.W. Ashe / Near Wilmington N.C. / June 1899 / W.W. Ashe, Collector.”

**Commentary:** The type seen by Hitchcock & Chase “in Ashe’s herbarium” has never been located. A Chase notation on US 2808880 identifies it as “a good match for type loaned Dec 1905.” US 2808880 contains an isoelectotype in addition to the mounted lectotype. The isoelectotype is in a packet “from unmounted dupl. type in Ashe herb.” A Chase notation on the lower left of NCU 18214 states “not type of *Panicum filirameum* / the type is a mounted duplicate of this in Ashe herb loaned Nat Herb Dec 1905.” In other words, NCU 18214 is a “duplicate” of the now-missing type. In addition to material of *P. filiramus*, NCU 18214 also contains material currently treated as *Dichanthelium dichotomum* (L.) Gould var. *dichotomum*.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum aciculare* Desvaux.

**Current treatment:** *Panicum filiramus* is the basionym of *Dichanthelium filiramus* (Ashe) LeBlond (LeBlond 2019a). *Panicum aciculare* is the basionym of *Dichanthelium aciculare* (Desvaux ex Poiret) Gould & C.A. Clark (Freckmann & Lelong 2003; LeBlond 2019a).

**21. PANICUM GEORGIANUM** Ashe, J. Elisha Mitchell Sci. Soc. 15: 36. 1898. (This name, thought to be blocked by *Panicum georgicum* Spreng. 1825, was superfluously replaced by *Panicum cahoonianum* Ashe, J. Elisha Mitchell Sci. Soc. 15: 113. 1899.)

**Protologue typification:** “Dry sandy soil, southern Georgia and Florida. ... Georgia: Small; Darden Junction, McIntosh Co., June 27, 1895. Florida: Chapman; Apalachicola” (Ashe 1898, p. 36).

**Type specimen determination by Hitchcock & Chase (1910, p. 169):** “The type specimen, which is in the Biltmore Herbarium and which is marked ‘*P. georgianum* W.W. Ashe,’ in Ashe’s writing, is the autumnal form.”

**Types:** **LECTOTYPE:** US 742690. **ISOLECTOTYPES:** NCU 17706, 17707; NY 381606, 413982; US 2808870. Lectotype designation: US 742690 designated by LeBlond (2015). Label data: “GEORGIA PLANTS. COLLECTED ABOUT DARIEN JUNCTION, MCINTOSH CO. BY JOHN K. SMALL, JUNE 25-27, 1895. *Panicum Georgianum* Ashe. AT SEA LEVEL.”

**Commentary:** Ashe misnamed the site as “Darden Junction” in the protologue. Hitchcock & Chase determined the Biltmore Herbarium specimen to be the holotype. That specimen has not been relocated. Hansen & Wunderlin (1988) interpreted the Hitchcock & Chase designation as lectotypification, stating under synonymy of *Dichantherium ovale*: “*Panicum georgianum* Ashe ... (lectotype, US). Lectotypified by Hitchcock & Chase (Contr. U.S. Natl. Herb. 15: 169. 1910).” There are two sheets from the type collection at US, and Hansen & Wunderlin did not indicate which one they believed to be the lectotype. Neither US sheet has a *Panicum georgianum* notation in Ashe’s handwriting, so neither can be the missing Biltmore holotype.

US 742690 matches the protologue, and is identified as the “Type,” but not in Ashe’s or Chase’s handwriting. The sheet is identified as having been purchased from Scribner’s herbarium by Hitchcock in 1905. This sheet was examined by Hitchcock & Chase (see following discussion of US 2808870), and the specimen placed in synonymy with *Panicum consanguineum* Kunth (which is where they placed *P. georgianum*). It is selected as the lectotype.

US 2808870 contains two plants representing two collections. The plant on the left is the autumnal form, and is designated on the sheet as “type of *P. Georgianum*.” The plant on the right is the vernal form. There are separate labels for each plant, but as Chase notes, “they are doubtless transposed; the May 20 label [beneath autumnal plant] should go with the vernal culm, and June 25-27 with branching plant which is certainly of same collection as the Darien Junction June 25-27 specimen in Hitchcock herbarium [the lectotype, US 742690].” A notation in E.D. Merrill’s handwriting identifies the autumnal plant as “the co-type of *Panicum georgianum*.” The May 20 vernal plant, collected from Ocmulgee Swamp, has no standing as a type. Hitchcock & Chase do not mention the Florida collection cited in the protologue. Any specimen determined to be from that collection would be a paralectotype.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum consanguineum* Kunth.

**Current treatment:** *Panicum consanguineum* is the basionym of *Dichantherium consanguineum* (Kunth) Gould & C.A. Clark (Freckmann & Lelong 2003; LeBlond 2019a).

## 22. PANICUM GLABRISIMUM Ashe, J. Elisha Mitchell Sci. Soc. 15: 62. 1898.

**Protologue typification:** “The type material was collected by me June 1898, at Manteo, Dare Co., N.C.” (Ashe 1898, p. 62).

**Type specimen determination by Hitchcock & Chase (1910, p. 265):** “The type could not be found in Ashe’s herbarium. In the Mohr Herbarium is a specimen labeled in Ashe’s writing ‘*Panicum glabrisimum* Ashe’ and bearing the cited data. This is a tuft of three vernal culms and agrees with the description, except that the spikelets are said to be glabrous, while these are pubescent. The specimen in the National Herbarium from the same station and sent by Ashe as part of the type collection is *P. tenue*, and fails in several particulars to agree with the description. While neither of these specimens is the type itself, the one which most nearly agrees with the description is taken to represent the type.”

**Types:** **LECTOTYPE:** US 2808917. **ISOLECTOTYPES:** NY 381610, 381611. **SYNTYPES:** NCU 18009, 18013, 18014, 199964, 356867; US 971785. Lectotype designation: US 2808917 designated by Hitchcock & Chase (1910, p. 265), and annotated by LeBlond in 2012. Label data: “PLANTS OF THE SOUTHERN UNITED STATES. ON OR NEAR THE COAST OF



NORTH CAROLINA / JUNE 10- [JULY crossed out] 6, 1898. *Panicum glabrissimum* Ashe / Manteo. No. 74 in Elis. Mitch S. Society. W.W. Ashe, Collector.”

**Commentary:** A careful reading of the Hitchcock & Chase type determination is required to identify which specimen they designated as the lectotype. The specimen “which most nearly agrees” is the one from Mohr’s Herbarium, US 2808917, and thus is the specimen designated as the lectotype. Both types at NY are *P. ensifolium*, in agreement with the lectotype, and thus are isoelectotypes. The label on NY 381611 reads “Roanoke Island” instead of “Manteo,” but Manteo is on Roanoke Island and the label otherwise agrees with the protologue. The syntypes at NCU, along with US 971785, are *Dichantherium tenue* (Muhlenberg) Freckmann & Lelong and thus do not agree with the lectotype.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum ensifolium*.

**Current treatment:** *Panicum ensifolium* is the basionym of *Dichantherium ensifolium* (Baldwin ex Elliottii) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

### 23. PANICUM HAEMACARPON Ashe, J. Elisha Mitchell Sci. Soc. 15: 55-56. 1898.

**Protologue typification:** “District of Columbia: Kearney; 1897. Ashe: North Carolina; Chapel Hill, 1898. Iowa: Carver; Jewell Junction, 1895, No. 258” (Ashe 1898, p. 56).

**Type specimen determination by Hitchcock & Chase (1910, p. 233):** “The first specimen cited is chosen as the type. This is in Ashe’s herbarium and consists of a tuft of three simple culms with nearly mature panicles and two autumnal culms of the previous year.”

**Types:** **LECTOTYPE:** NCU 22518. **ISOLECTOTYPES:** NY 381618; US 314395 (incl. fragm. ex NCU 22518). **PARALECTOTYPE:** NCU 18148. Lectotype designation: by Chase annotation on NCU 22518, and published in Hitchcock & Chase (1910). Label data: “PLANTS OF THE VICINITY OF WASHINGTON, D.C. COLLECTED BY THOS. H. KEARNEY, JR. / *Panicum pubescens* Lam. / June 6 1897.”

**Commentary:** A Chase note on NCU 22518 states: “this is type collection of *P. haemacarpum* Ashe.” US 314395 contains two isoelectotypes: a mounted duplicate, and a fragment of the lectotype in a packet. On paralectotype NCU 18148 is a Chase note reading: “evidently the basis of Chapel Hill N.C. Ashe citation in publication of *P. haemacarpum* Ashe. / second specimen cited.”

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum villosissimum* Nash.

**Current treatment:** *Panicum villosissimum* is the basionym of *Dichantherium villosissimum* (Nash) Freckmann (LeBlond 2019a), and *D. ovale* (Elliott) Gould & C.A. Clark subsp. *villosissimum* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

### 24. PANICUM LEUCOTHRIX Nash, Bull. Torrey Bot. Club 24: 41-42. 1897.

**Protologue typification:** “Type collected by the writer in the low pine land at Eustis, Lake County, Florida, in the latter part of July, 1894, no. 1338. Nos. 334 and 467, of the same collection, also belong here” (Nash 1897a, p. 42).

**Type specimen determination by Hitchcock & Chase (1910, p. 205):** “The type, in Nash’s herbarium, consists of somewhat branching primary culms, decumbent at base. The [protologue] description reads: ‘Spikelets obovate, about 0.65 mm. long, 0.4 mm. wide.’ This is evidently an error, as the spikelets of the type measure 1.2 mm. as do also those of Nash 334 and 467 cited with the description.”

**Types:** **HOLOTYPE:** NY 381627. **ISOTYPES:** MO 1837650, 1837651; NCU 17754; NY 381626; US 208336, 480512, 742828, 742830. Holotype designation: NY 381627 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data: “PLANTS OF CENTRAL PENINSULAR FLORIDA, COLLECTED IN VICINITY OF EUSTIS, LAKE COUNTY BY GEO. V. NASH JULY 16-31, 1894. / 1338. *Panicum leucothrix* Nash, n. sp. / LOW PINE LAND.”

**Commentary:** Isotype NCU 17754 has a printed and typed label indicating that the specimen is “Type material” and conforming with the protologue, except it states that it was collected by Ashe, not Nash. Under this label is another label handwritten by Ashe himself, which reads: “Type material / *P. leucothrix* Nash, Eustis, Lake Co., Fla, July 16, 1894.” The typed label undoubtedly was prepared by someone other than Ashe, who presumed Ashe to be the collector. This specimen likely was sent by Nash to Ashe, a common practice among field taxonomists of that era.

No type sheets are known from “Nos. 334 and 467, of the same collection” (Nash 1897a, protologue). These specimens may be in the main collection at US. This is another example of label numbers used for purposes other than their restricted use of today.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum leucothrix*.

**Current treatment:** *Panicum leucothrix* is the basionym of *Dichanthelium leucothrix* (Nash) Freckmann (LeBlond 2019a), and *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *leucothrix* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

## **25. PANICUM LONGIFOLIUM** Torrey var. **TUSKETENSE** Fernald, Rhodora 23: 192-193. 1921.

**Protologue typification:** “wet peaty margin of Butler’s Lake, Gavelton, September 4, [1920] Fernald, Long & Linder, no. 19,764 (TYPE in Gray Herb.)” (Fernald 1921, p. 192-193).

**Types:** **HOLOTYPE:** GH 23009. **ISOTYPE:** US 1100024. **TOPOTYPE:** NCU 54029. Holotype designation: “TYPE” anonymously stamped on GH 23009, and published in Rhodora (1921, p. 193). Label data: “GRAY HERBARIUM EXPEDITION TO NOVA SCOTIA / YARMOUTH COUNTY / No. 19764 / *Panicum longifolium* Torr., var. *tusketense* Fernald, n.v. / Type no. / Wet peaty margin of Butler’s (Gavelton) Lake, Gavelton / M.L. Fernald, B. Long, & D.H. Linder / September 4, 1920.”

**Commentary:** In addition to the types referenced here, five paratype collections are cited in the protologue.

**Current treatment:** Plants belonging to *Panicum longifolium* var. *tusketense* are outside the range of LeBlond (2019a), and the name was not treated by Freckmann & Lelong (2003). An examination of the topotype at NCU suggests they are more closely aligned with =*P. longifolium* var. *combsii* (Scribner & C.R. Ball) Fernald than with var. *longifolium*. *Panicum longifolium* is now treated as *Coleatania longifolia* (Torrey) Soreng subsp. *longifolia* and subsp. *combsii* (Scribner & C.R. Ball) Soreng.

## **26. PANICUM LUCIDUM** Ashe, J. Elisha Mitchell Sci. Soc. 15: 47-48. 1898.

**Protologue typification:** “Collected in June 1898 by the writer in deep, shady swamps bordering lake Mattamuskeet, N.C.” (Ashe 1898, p. 48).

**Type specimen determination by Hitchcock & Chase (1910, p. 198):** “There is no specimen in Ashe’s herbarium from the type locality, but there is a specimen of the vernal form in the National Herbarium collected by Ashe in 1898 at Lake Mattamuskeet. This specimen is either the type or a duplicate type. The label is in Ashe’s handwriting.”

**Types:** **LECTOTYPE:** US 2808887. **ISOLECTOTYPES:** NCU 570351; NY 381634, 381635. Lectotype designation: US 2808887 effectively designated by Hitchcock & Chase (1910). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. ON OR NEAR THE COAST OF NORTH CAROLINA / JUNE 10—JULY 6, 1898. / *Panicum lucidum* Ashe / Lake Mattamuskeet / W.W. Ashe, Collector.”

**Commentary:** Since it is still unknown whether US 2808887 “is either the type or a duplicate type,” it is best to continue to regard it as a lectotype. Chase noted on the sheet that the specimen was a “Co-Type.” There are three specimens at NY annotated as *Panicum lucidum* isolectotypes by Gould. This designation is correct for NY 381634 and NY 381635. But NY 381636 differs in locale, date, and collector. That specimen is a syntype of *P. taxodiorum* Ashe (also treated in this paper).

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum lucidum*.

**Current treatment:** *Panicum lucidum* is a basionym of *Dichantherium lucidum* (Ashe) LeBlond (LeBlond 2019a), and of *D. dichotomum* subsp. *lucidum* (Ashe) Freckmann & Lelong (Freckmann & Lelong 2003).

## 27. PANICUM MALACOPHYLLUM Nash, Bull. Torrey Bot. Club 24: 198. 1897.

**Protologue typification:** “Type collected by Mr. B.F. Bush on May 19, 1895, at Sapulpa, Indian Territory, no. 1228. The grass secured by Dr. Edward Palmer in 1868, on the False Washita, between Fort Cobb and Fort Arbuckle, Indian Territory, no. 383, belongs here. Dr. Gattinger also obtained it in the cedar barrens of Tennessee, in May, 1880” (Nash 1897b, p. 198).

**Type specimen determination by Hitchcock & Chase (1910, p. 280):** “The type, in Nash’s herbarium, consists of two early autumnal culms 28 and 35 cm. high, with mature primary panicles.”

**Types:** **HOLOTYPE:** NY 381641. **ISOTYPES:** MO 440022, 440023, 440024; NCU 17725; US 2808946 (fragm. & photo ex NY 381641). Holotype designation: NY 381641 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data (in Nash’s handwriting): “HERBARIUM OF COLUMBIA COLLEGE, NEW YORK. *Panicum malacophyllum* Nash n. sp. COL B.F. Bush, May 19, 18985, No. 1228. Common. LOC Sapulpa, Indian Territory.”

**Commentary:** None required.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum malacophyllum*.

**Current treatment:** *Panicum malacophyllum* is the basionym of *Dichantherium malacophyllum* (Nash) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

## 28. PANICUM MATTAMUSKEETENSE Ashe, J. Elisha Mitchell Sci. Soc. 15: 45. 1898.

**Protologue typification:** “Roadsides, ditch banks and wet open woods around lake Mattamuskeet, N.C., where it grows with *P. barbulatum*. June and July. . . . Collected by the writer, and Mr. Gilbert Pearson in June, 1898” (Ashe 1898, p. 45).

**Type specimen determination by Hitchcock & Chase (1910, p. 186):** “The type could not be found in Ashe’s herbarium. In the National Herbarium is a specimen labeled ‘*Panicum Mattamuskeetense* Ashe, Lake Mattamuskeet’ in Ashe’s handwriting, collected ‘June 10-July 6, 1898,’ by ‘W.W. Ashe,’ evidently a duplicate type. This is a single vernal culm nearly 80 cm. high, with a mature panicle, and agrees in all respects with the description except that the spikelets are described as glabrous, while those of the specimen are pubescent. The two lower sheaths and lower blade are velvety pilose; the spikelets are 2.3 mm. long. A second duplicate type in Biltmore Herbarium is a better and more characteristic specimen.”

**Types:** **LECTOTYPE:** US 2808955. **ISOLECTOTYPES:** NCU 17718, 17721, 410427; NY 951433, 951434, 951435. **TOPOLECTOTYPE:** NCU 578243. Lectotype designation: US 2808955 effectively designated by Hansen & Wunderlin (1988, p. 1645) (see Commentary). Label data: *Panicum Mattamuskeetense* Ashe, “Lake Mattamuskeetense,” June 10-July 6, 1898, W.W. Ashe s.n.

**Commentary:** Hitchcock & Chase did not state that either the Biltmore specimen or US 2808955 was “chosen” or “taken” by them as the (lecto)type in place of the missing type in Ashe’s herbarium. Among these, US 2808955 is the only surviving specimen designated as a type (“co-type”), as the Biltmore specimen is also missing. Hansen & Wunderlin (1988) effectively designated US 2808955 as the lectotype by the following published statement in the synonymy of *Dichantheium dichotomum* (Linnaeus) Gould var. *dichotomum*: “(lectotype, US; isotype, NY). Lectotypified by Hitchcock & Chase (Contr. U.S. Natl. Herb. 15: 186. 1910).” From Jan. 1, 2000 onward, the International Code of Botanical Nomenclature requires that publication of lectotypification also include the phrase “designated here” or an equivalent.

NCU 17718 has the most complete label data of the three isolectotypes at NCU from Ashe’s herbarium. It may well be the missing holotype, but there is no notation on the sheet from that era identifying it as a type. The topolectotype at NCU was collected by Ashe at Lake Mattamuskeet in May 1898, a month before the lectotype collection.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum mattamuskeetense*.

**Current treatment:** *Panicum mattamuskeetense* is the basionym of *Dichantheium mattamuskeetense* (Ashe) Mohlenbrock (LeBlond 2019a), and of *D. dichotomum* subsp. *mattamuskeetense* (Ashe) Freckmann & Lelong (Freckmann & Lelong 2003).

## 29. PANICUM MERIDIONALE Ashe, J. Elisha Mitchell Sci. Soc. 15: 59. 1898.

**Protologue typification:** “I have collected this species at two localities in North Carolina, Chapel Hill in June, 1898; and Jonas Ridge, Burke Co., June 1893” (Ashe 1898, p. 59).

**Type specimen determination by Hitchcock & Chase (1910, p. 210):** “The type could not be found in Ashe’s herbarium. In the National Herbarium are two specimens, one from Chapel Hill and one from Burke County, collected by Ashe and labeled in his writing as this species. The first specimen is a tuft of very slender vernal culms, each bearing but three distant leaves, with panicles 2 to 3 cm. long. This specimen does not agree so well with the description as the Burke County plant, which is therefore chosen to represent the type. In this the culms are numerous, less delicate, erect, 10 to 15 cm. high. The spikelets are described as glabrous, but in both specimens they are minutely pubescent.”

**Types:** **LECTOTYPE:** US 2383609. **ISOLECTOTYPE:** NCU 21629. **PARALECTOTYPE:** US 2383608. **TOPOLECTOTYPE:** US 722483. Lectotype designation: by Chase annotation, “taken as type,” on US 2383609, and published in Hitchcock & Chase (1910). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. *Panicum meridionale* Ashe / Blue Ridge / Burke Co. N.C. W.W. Ashe, Collector.”

**Commentary:** The specimen at the National Herbarium (US 2383609) designated as the lectotype identifies the location as Blue Ridge, rather than Jonas Ridge. However, Jonas Ridge is part of Blue Ridge, and it is presumed this specimen is from the same collection referenced in the protologue. The isolectotype at NCU is labeled as coming from Jonas Ridge. US 2383608 was

collected from “the vicinity of Chapel Hill, North Carolina,” the other locale noted in the protologue. Topolectotype US 722483 was collected by Ashe at Jonas Ridge in July 1898.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum meridionale*.

**Current treatment:** *Panicum meridionale* is the basionym of *Dichantherium meridionale* (Ashe) Freckmann (LeBlond 2019a), and synonym of *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *implicatum* (Scribner) Freckmann & Lelong (Freckmann & Lelong 2003).

### 30. PANICUM MICROPHYLLUM Ashe, J. Elisha Mitchell Sci. Soc. 15: 61. 1898.

**Protologue typification:** “Collected by the writer June, 1898, at Chapel Hill, N.C., in moist sunny woods” (Ashe 1898, p. 61).

**Type specimen determination by Hitchcock & Chase (1910, p. 210-211):** “The type could not be found in Ashe’s herbarium, nor any specimens so named by him. The description seems to apply to the autumnal form of *P. meridionale*, though the culms and sheaths described as ‘glabrous or pubescent,’ seem to indicate that some material of *P. tenue* or other species of the *Ensifolia* was mixed with it.”

**Types:** **LECTOTYPE:** NY 381644. **ISOLECTOTYPE:** US 2383610 (fragm. ex NY 381644). Lectotype designation: NY 381644 designated by LeBlond (2015). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. IN THE VICINITY OF CHAPEL HILL, NORTH CAROLINA. *Panicum microphyllum* Ashe =*P. filiculme* Ashe / June / W.W. Ashe, Collector.” “*Panicum microphyllum*” and “June” are in Ashe’s handwriting, but “=*Panicum filiculme* Ashe” is in someone else’s hand.

**Commentary:** NY 381644 contains a note, “Co-type,” in Chase’s handwriting, with an arrow pointing to the name *Panicum microphyllum* Ashe on the label. Doubtless this specimen was not seen by Hitchcock & Chase until after the 1910 publication, where they stated they had not seen “any specimens so named by him.” The Gould annotation label from 1978 denotes this specimen as an isolectotype, apparently interpreting Hitchcock & Chase as designating the missing Ashe herbarium specimen as the lectotype.

US 2383610 contains a small fragment of the “Co-type,” very likely the specimen at NY, which is the only known specimen matching the protologue.

At NCU is a specimen (17715) with a printed label identifying it as “*Panicum microphyllum* / Moist, grassy lands, Chapel Hill, Orange County, N.C. / Date May 26, 1898 / Coll. W.W. Ashe.” There is just enough variance in the date (“May” instead of “June”) and habitat (“Moist, grassy lands” instead of “sunny woods”) to disqualify it as a type. Nonetheless, it may well have been regarded by Ashe as a paratype equivalent, with omission of its differing date and habitat from the protologue a common oversight of the time.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum meridionale* Ashe.

**Current treatment:** *Panicum meridionale* is the basionym of *Dichantherium meridionale* (Ashe) Freckmann (LeBlond 2019a), and a synonym of *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *implicatum* (Scribner ex Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

### 31. PANICUM NASHIANUM Scribner var. PATULUM Scribner & Merrill, Circ. Div. Agrostol. U.S.D.A. 27: 9. 1900. (Name published as *Panicum nashianum patulum*.)

**Protologue typification:** “Type specimen: 1296 Robert Combs, Braidentown, Manatee County, Fla., September 3, 1898. ... Other specimens referred to this species: *Florida*: Old Town, 858, 859 Combs, 1898; Grasmere, 1169 Combs, 1898; Lake City, 132 (in part) Combs and Rolfs, 1898; Lake Alfred, T. Holm, 1893; Jacksonville, 140 T.H. Kearney, 1895. *Mississippi*: Biloxi, 4586, 4587 S.M. Tracy, 1898” (Scribner 1900, p. 9).

**Type specimen determination by Hitchcock & Chase (1910, p. 274):** “The type, in the National Herbarium, consists of a clump of numerous prostrate culms, 18 to 32 cm. long, with mature primary panicles and numerous branches with secondary panicles.”

**Types:** **HOLOTYPE:** US 2808982. **PARATYPE:** NCU 17851 (Tracy 4586). Holotype designation: US 2808982 annotated as “Type,” presumably by Scribner, and published by Hitchcock & Chase (1910). Label data: “Type / U.S. DEPARTMENT OF AGRICULTURE, DIVISION OF AGRISTOLOGY. *Panicum Nashianum* Scribn. var. *patulum* S & M / No. 1296. Collector: Combs. Date: 10-3, 1898. Town: Braidentown. County: Manatee. State: Fla. In fertile woods along the Manatee / not frequent.”

**Commentary:** The holotype collection date in the protologue is Sep. 3, 1898, while the date on the sheet itself is Oct. 3, 1898. The protologue date is presumed to be in error. The paratype at NCU is *Tracy 4586* from Biloxi, MS.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum patulum* (Scribner & Merrill) Hitchcock.

**Current treatment:** *Panicum patulum* is the basionym of *Dichantherium portoricense* (Desvaux ex Poiret) B.F. Hansen & Wunderlin subsp. *patulum* (Scribner & Merrill) Freckmann & Lelong (Freckmann & Lelong 2003; LeBlond 2019a).

### 32. PANICUM NEMOPANTHUM Ashe, J. Elisha Mitchell Sci. Soc. 15: 42. 1898.

**Protologue typification:** “Type material collected by the writer April, 1895, in the Penitentiary woods, Raleigh, N.C” (Ashe 1898, p. 42).

**Type specimen determination by Hitchcock & Chase (1910, p. 177):** “The type could not be found in Ashe’s herbarium, but a specimen from the type material labeled in Ashe’s handwriting is in the National Herbarium. This is a single vernal culm with an immature, partly included panicle; the spikelets are nearly or quite glabrous.”

**Types:** **LECTOTYPE:** US 2383604. **TOPOLECTOTYPE:** NCU 17850. Lectotype designation: US 2383604 designated by LeBlond (2015). Label data: PLANTS OF THE SOUTHERN UNITED STATES / *Panicum nemopanthum* Ashe / Raleigh N.C. / April 1895 / W.W. Ashe, Collector.

**Commentary:** Chase designated US 2383604 as a “Co-type,” and it was subsequently treated as an isotype of the missing holotype in Ashe’s herbarium. Since the Ashe type has not been relocated, the US “Co-type” is selected as the lectotype. The topolectotype was collected by Ashe from Penitentiary woods on May 1, 1899.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum bicknellii* Nash.

**Current treatment:** *Panicum bicknellii* is the basionym of *Dichantherium bicknellii* (Nash) LeBlond (LeBlond 2019a). It is regarded as a “putative hybrid” by Freckmann & Lelong (2003).

### 33. PANICUM NUDICAULE Vasey, Dept. Agric. Bot. Div. Bull. 8: 31. 1889.

**Protologue typification:** “Swamps, Santa Rosa County, Fla. (A.H. Curtiss.)” (Vasey 1889, p. 31).

**Type specimen determination by Hitchcock & Chase (1910, p. 179):** “The type, in the National Herbarium, is the vernal form. It was collected in ‘Swamps, Santa Rosa County, N.W. Florida,’ in May [1886] by A.H. Curtiss (no. 3583\*).”

**Types:** **LECTOTYPE:** US 2808984. **ISOLECTOTYPES:** NCU 437892; NY 7267, 381676; TAES; US 742715. Lectotype designation: by Hitchcock notation on US 2808984, and published by Hitchcock & Chase (1910). Label data: “HERB. UNITED STATES DEPARTMENT OF AGRICULTURE. *Panicum nudicaule* Vasey [*consanguineum* Kunth lined out] / Locality: Florida. Collector: A.H. Curtiss. 188\_.”

**Commentary:** In their discussion of the type determination, Hitchcock & Chase refer to “The type,” which usually indicates a type designated by the nomenclatorial author. But in this case, the type was “chosen” by a Hitchcock notation on the specimen sheet.

Confusion has arisen from the number appearing on the label of the type specimens from Santa Rosa County, and from the same number appearing on the label of a Curtiss collection of this taxon from Duval Co., Florida, made in April of a year not cited. A sheet at NY bears two specimens, one collected from Santa Rosa Co. (NY 7267, on the left), and one from Duval Co. (NY 381651, on the right). NY 7267 is an isoelectotype, and NY 381651 has been treated as a syntype. However, the protologue and Hitchcock & Chase only refer to the collection from Santa Rosa Co., made in May, so the Duval Co. collection cannot be a type. In that era, label numbers were not always collection numbers. It is apparent that some collectors used them to refer to a catalogue or list, or to a group of specimens not necessarily united by place or date. That appears to have been the case here, with Curtiss apparently using “3583\*” to refer to other collections he believed were =*Panicum nudicaule*. (The asterisk is on the label itself, applied by Curtiss. Its meaning could prove enlightening.)

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum nudicaule*.

**Current treatment:** *Panicum nudicaule* is the basionym of *Dichanthelium nudicaule* (Vasey) B.F. Hansen & Wunderlin (Freckmann & Lelong 2003; LeBlond 2019a).

### 34. *PANICUM ONSLOWENSE* Ashe, J. Elisha Mitchell Sci. Soc. 16: 88. 1900.

**Protologue typification:** “in the eastern part of Onslow county, N.C., where the type material was collected near Ward’s Mill” (Ashe 1900a, p. 88).

**Type specimen determination by Hitchcock & Chase (1910, p. 276):** “The type, in Ashe’s herbarium, is the vernal form with immature panicles, the culms glabrous or minutely puberulent, the lower blades as much as 1 cm. wide, and immature spikelets 2.4 mm. long. Other specimens in Ashe’s herbarium and some distributed as *P. onslowense* and bearing the same data as the type are *P. lancearium*.”

**Types:** **LECTOTYPE:** US 2808968. **SYNTYPE:** NCU 18104. Lectotype designation: US 2808968 designated by LeBlond (2015). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. EASTERN NORTH CAROLINA. May, 19-20, 1899. 11. m. East of Jacksonville, Onslow Co. / W.W. Ashe, Collector.”

**Commentary:** Great confusion exists between the typification described by Hitchcock & Chase, and the notations on the two extant type specimens. There is also confusion about the location of the designated type, and whether it is a holotype or lectotype. The Chase notation on syntype NCU 18104 reads: “type of *P. onslowense* [is] a mounted specimen in Ashe herb. loaned Nat Herb Dec

1905.” I interpret this to mean that the (holo)type seen by Hitchcock & Chase was not NCU 18104, but instead another mounted specimen loaned by Ashe to the National Herbarium in 1905. If Chase had interpreted NCU 18104 as the holotype, she would not have used the phrase “a mounted specimen” etc. US 2808968, the only other known type sheet, has a U.S. Department of Agriculture label prepared by E.D. Merrill, not by Ashe, and noted by Merrill as “Portion of type sent by Ashe June 1900 [1899 crossed out].” This suggests that the mounted material on US 2808968 was either from unmounted material sent by Ashe, or from another mounted specimen sent in 1900.

Further complicating matters, the two type specimens are different taxa: US 2808968 =*P. webberianum* (*Dichanthelium webberianum*), and NCU 18104 =*P. lancearium* (*D. portoricense* subsp. *patulum*). Hitchcock & Chase recognized the presence of two taxa in their discussion of typification. The protologue matches =*P. webberianum*, which is where Hitchcock & Chase placed *P. onslowense*.

Hitchcock & Chase described the type “in Ashe’s herbarium” as “the vernal form with immature panicles.” This condition matches that of NCU 18104, but the remainder of their description belongs to =*P. webberianum*, not =*P. lancearium*. The vernal panicles on US 2808968 are mature. This is added evidence that neither US 2808968 nor NCU 18104 represents the “mounted specimen in Ashe herb. loaned Nat Herb Dec 1905.”

Hansen & Wunderlin (1988) interpreted the Hitchcock & Chase type designation as lectotypification of a specimen at NCU. They also indicated there was at least one other type specimen (“isotype”) present at NCU, but no other NCU type specimen is known. They noted that Hitchcock & Chase “clearly stated that the type is in Ashe’s herbarium, now at NCU.”

Regardless of interpretation, the specimen at NCU does not match the protologue while the specimen at US does, and it is selected as the lectotype. Since NCU 18104 is =*P. lancearium*, it is a syntype.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum webberianum* Nash.

**Current treatment:** *Panicum webberianum* is the basionym of *Dichanthelium webberianum* (Nash) LeBlond (LeBlond 2019a), and a synonym of *D. portoricense* (Desvaux ex Poir.) B.F. Hansen & Wunderlin subsp. *patulum* (Scribner & Merrill) Freckmann & Lelong (Freckman & Lelong 2003).

### 35. PANICUM PAMMELI Ashe, North Carolina Agric. Exp. Sta. Bull. 175: 116. 1900.

**Protologue typification:** “Prairies of Iowa, June” (Ashe 1900b, p. 116).

**Type specimen determination by Hitchcock & Chase (1910, p. 154):** “The type, in Ashe’s herbarium, collected by R.I. Cratty, June 12, 1881, has spikelets 3.1 to 3.2 mm. long.”

**Types: HOLOTYPE:** NCU 17879. **ISOTYPE:** US 2808966 (incl. fragm. ex NCU 17879). Holotype designation: NCU 17879 “taken as type” by Chase notation, published by Hitchcock & Chase (1910), and subsequently treated as holotype (see Commentary). Label data: “FLORA OF IOWA. *Panicum Pammelii* [“*Pammelii*” written above “*depauperatum* Muhl.”] / Dry prairies, Armstrong, Emmet Co. / [“*Weneri* ?” and “*Bushii* ?” are also written on the label] / Legit R.I. Cratty, June 12, 1881.”

**Commentary:** NCU 17879 has an Ashe label and was a mounted specimen when seen by Chase. The only other known type specimen is US 2808966. That sheet has mounted material, plus material in a packet marked “from type in Ashe herb.” The label for the mounted material is in



Chase's handwriting. Below the label is a Chase note reading "from specimen in Ashe herb." NCU 17879 could not have been the source of the mounted material on US 2808966, based on the condition and amount of material on both sheets. Chase does not mention the presence of other mounted specimens in the Ashe herbarium, so the source of material for the mounted specimen on US 2808966 was likely unmounted material in the folder with Ashe's mounted specimen. This circumstantial evidence supports the continued recognition of NCU 17879 as a holotype rather than a lectotype.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum perlongum* Nash.

**Current treatment:** *Panicum perlongum* is the basionym of *Dichantherium perlongum* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003). It does not occur within the range of the LeBlond (2019a) treatment.

### 36. PANICUM PARVIPANICULATUM Ashe, J. Elisha Mitchell Sci. Soc. 16: 87. 1900.

**Protologue typification:** "Collected May 20, in Onslow county, N.C. Type material is preserved in my herbarium" (Ashe 1900a, p. 87).

**Type specimen determination by Hitchcock & Chase (1910, p. 265):** "No specimen so labeled could be found in Ashe's herbarium, but a cover marked in Ashe's hand '*P. parvipaniculatum*' was found which contained eight sheets of unmounted material, of which two sheets (one within the fold of the other) were accompanied by a label with the following data in Ashe's writing: '*Panicum* gray spikelets? Peaty-soiled thickets sandy flatwoods and ditch banks, 10-18 miles east of Jacksonville, Onslow county, N.C. May 20, 1899.' Since these were the only specimens with locality and date according with those published, the specimens on the sheet with the label were chosen as the type, one tuft being deposited in the National Herbarium."

**Types:** **LECTOTYPE:** NCU 18272. **ISOLECTOTYPE:** US 2808959. Lectotype designation: by Chase notation on NCU 18272, and published by Hitchcock & Chase (1910). Label data: "PLANTS OF THE SOUTHERN UNITED STATES. EASTERN NORTH CAROLINA. *Panicum* gray spikelets? Peaty-soiled thickets sandy flatwoods & ditch banks, 10-18 miles east of Jacksonville, Onslow County, N.C. May 20, 1899, W.W. Ashe, Collector."

**Commentary:** The lectotype at NCU contains the Ashe label Chase found with the unmounted specimens.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum ensifolium* Baldwin [ex Elliott].

**Current treatment:** *Panicum ensifolium* Baldwin ex Elliott is the basionym of *Dichantherium ensifolium* (Baldwin ex Elliott) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

### 37. PANICUM PARVISPICULUM Nash, Bull. Torrey Bot. Club 24: 347-348. 1897.

**Protologue typification:** "Type collected by Dr. John K. Small at Darien Junction, McIntosh Co., Ga., June 25-27, 1895.... I would also refer to this species the grass collected by Mr. A.H. Curtiss, near Jacksonville, Fla., on May 4, 1893, No. 4033, and distributed as *P. nitidum* Lam. The panicle and spikelets are somewhat smaller, but in other respects it agrees" (Nash 1897c, p. 348).

**Type specimen determination by Hitchcock & Chase (1910, p. 205):** "The type, in Nash's herbarium, consists of a tuft of mature vernal culms, beginning to branch. The culms and sheaths are appressed-pubescent, though less copiously so than is the type of *P. leucothrix*, and the panicles are

larger. In the description the spikelets are given as 1.5 mm long, but those of the type measure 1.3 mm.”

**Types:** **HOLOTYPE:** NY 381657. **ISOTYPES:** NY 381662, 381663; US 2808956 (fragm. and photo ex NY 381657). **SYNTYPE:** NCU: 18272. Holotype designation: NY 381657 annotated by Nash as “Type,” and published by Hitchcock & Chase (1910). Label data: “GEORGIA PLANTS. COLLECTED ABOUT DARIEN JUNCTION, MCINTOSH CO. BY JOHN K. SMALL, JUNE 25-27, 1895. *Panicum parvispiculum* Nash, n. sp. AT SEA LEVEL.”

**Commentary:** Both holotype NY 381657 and isotype NY 381662 were annotated as the holotype by F.W. Gould in 1978, but NY 381657 is the only specimen annotated as the “Type” by Nash. NCU 18272, which has the same label data as the holotype, has glabrous culm internodes and sheaths above the base, as well as glabrous nodes, blade abaxial surfaces, and panicle axis. It was annotated by me to *D. longiligulatum* Nash.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum leucothrix* Nash.

**Current treatment:** *Panicum leucothrix* is the basionym of *Dichantherium leucothrix* (Nash) Freckmann (LeBlond 2019a), and of *D. acuminatum* Swartz) Gould & C.A. Clark subsp. *leucothrix* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

### 38. PANICUM PSEUDOPUBESCENS Nash, Bull. Torrey Bot. Club 26: 577. 1899.

**Protologue typification:** “Type collected at Auburn, Lee Co., Alabama, May 7, 1898, by Messrs. F.S. Earle and C.F. Baker, no. 1537. Nos. 1522, 1524, 1526 and 1529, of this same collection are also referred here” (Nash 1899, p. 577).

**Type specimen determination by Hitchcock & Chase (1910, p. 235):** “The type, in Nash’s Herbarium, is a clump of a few vernal, mostly immature culms. Some of the blades are nearly naked along the middle of the upper surface. Other specimens cited by Nash under this species, *Earle & Baker* 1522, 1524, 1526, 1529, have narrower blades than the type, with the upper surface often nearly glabrous; these represent the more usual form of the species.”

**Types:** **HOLOTYPE:** NY 381672. **ISOTYPES:** NCU 18236, 18240; US 2383632, 2383633 (fragm. ex NY 381672). Holotype designation: NY 381672 annotated by Nash as “Type,” and published by Hitchcock & Chase (1910). Label data: “1537 Alabama Biological Survey. Type. *Panicum pseudopubescens* Nash, sp. nov. Auburn, Lee Co. 5/7 1898 / Coll. F.S. Earle & C.F. Baker.”

**Commentary:** The protologue statement that “Nos. 1522, 1524, 1526 and 1529, of this same collection” is another example of label numbers referring to something other than current use.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum pseudopubescens*.

**Current treatment:** *Panicum pseudopubescens* is a synonym of *Dichantherium villosissimum* (Nash) Freckmann var. *villosissimum* (LeBlond 2019a) and the basionym of *Dichantherium ovale* (Elliott) Gould & C.A. Clark subsp. *pseudopubescens* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

### 39. PANICUM PYRIFORME Nash, Bull. Torrey Bot. Club 26: 579. 1899.

**Protologue typification:** “Type collected by the writer in clay soil, at Orange Bend, Lake Co., Florida, March 12[-]31, 1894, no. 239. .... The following numbers of my collection of 1895 are also referred here: 2034, 2156, 2531a” (Nash 1899, p. 579).

**Type specimen determination by Hitchcock & Chase (1910, p. 158):** “The type, in Nash’s Herbarium, consists of a clump of three culms, 15 to 45 cm. high. The description states that the blades are glabrous on the margin, but the type, as well as duplicate types in the National and Columbia University herbaria and in Hitchcock’s herbarium, has several sparingly ciliate blades; the spikelets are said to be ‘about 2.5 mm. long’ but measure 2.2 mm.”

**Types:** **HOLOTYPE:** NY 381673. **ISOTYPES:** MO 2526337; NY 381674; US 221672. **PARATYPE:** NCU 17975. Holotype designation: NY 381673 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data: “PLANTS OF CENTRAL PENINSULAR FLORIDA / Type / COLLECTED IN VICINITY OF EUSTIS, LAKE COUNTY BY GEO. V. NASH, MARCH 12-31, 1894. *Panicum pyriforme* Nash, sp. nov. [“*laxiflorum* Lam. / DETERMINED BY PROF. F.L. SCRIBNER.” crossed out] / CLAY SOIL.”

**Commentary:** The label data of the holotype at NY conforms with the protologue, except that “Orange Bend” is not mentioned. The only locale data on the label is the pre-printed “vicinity of Eustis.” Orange Bend is seven miles west of Eustis. The label data on isotype NY 381674 also differs from the protologue, showing a date of “March 29, 1894” and a habitat descriptor, “Hammock land.” The label data otherwise agrees with the holotype, including “no. 239.”

The paratype at NCU is from number 2156 cited in the protologue. It was collected July 11-29, 1895, from Lake City, Florida.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum laxiflorum* Lamarck.

**Current treatment:** *Panicum laxiflorum* is the basionym of *Dichantheium laxiflorum* (Lamarck) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

#### 40. PANICUM RHIZOMATUM A.S. Hitchcock & Chase, Contr. U.S. Natl. Herb. 15: 109. 1910.

**Protologue and typification, from Hitchcock & Chase (1910, p. 109):** “Type U.S. National Herbarium no. 592752, collected August 18, 1905, Orangeburg, S.C., by A.S. Hitchcock (no. 450).”

**Types:** **HOLOTYPE:** US 592752. **ISOTYPES:** MO 742741; NY 381683. **PARATYPES:** NCU 20717, 20820, 578806. **SYNTYPE:** NCU 21047. Holotype designation: US 592752 annotated as “Type,” and published by Hitchcock & Chase (1910). Label data: “AMERICAN GRASSES / FROM THE U.S. NATIONAL HERBARIUM, SMITHSONIAN INSTITUTION / 55. *Panicum rhizomatum* Hitchc. & Chase / As described by Hitchcock & Chase, North American Species of Panicum (Contr. U.S. Nat. Herb. 15: 109. 1910 / South Carolina: Orangeburg. Low sandy pine woods. (This is the type collection, *Hitchcock* no. 450.) Collector A. S. Hitchcock / August 18, 1905.”

**Commentary:** Syntype NCU 21047 was determined by me to be closer to *Panicum anceps* var. *anceps*, and was so annotated on 6 May 2014. The other many collections referenced in the protologue are also syntypes or paratypes, but no attempt was made during this investigation to locate them (beyond NCU).

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum rhizomatum*.

**Current treatment:** *Panicum rhizomatum* is the basionym of *Coleataenia anceps* (Michaux) Soreng subsp. *rhizomata* (Hitchcock & Chase) Soreng (Freckmann & Lelong 2003; LeBlond 2019c).

#### 41. PANICUM ROANOKENSE Ashe, J. Elisha Mitchell Sci. Soc. 15: 44. 1898.

**Protologue typification:** “Type material collected by writer in dry soil, Roanoke Island, N.C. June, 1898; also collected at Rose Bay and Mackleyville, N.C., the same month” (Ashe 1898, p. 44).

**Type specimen determination by Hitchcock & Chase (1910, p. 196):** “The type could not be found in Ashe’s herbarium. In the Biltmore Herbarium is a specimen from Manteo, Roanoke Island, N.C., collected by Ashe, June 10, 1898, and labeled by him *Panicum roanokense* Ashe. This is a duplicate type or possibly the type. It consists of two vernal culms with mature primary panicles.”

**Types:** **HOLOTYPE:** NCU 17962. **ISOTYPE:** NCU 17963. **PARATYPES:** NCU 24095, 356878; US 970167. Holotype designation: NCU 17962 annotated as “type” by Ashe, and published by LeBlond (2010). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. *Panicum Roanokense* type - / W.W. Ashe, Collector.”

**Commentary:** A thorough discussion of the types of *Panicum roanokense* is provided in LeBlond (2010). Four specimens at NCU originally identified by W.W. Ashe as *Panicum roanokense* were determined to be the holotype, an isotype, and two paratypes. Two of the three specimens identified as *Panicum roanokense* in the US Type Specimen Register were determined not to be types, while the third specimen, US 970167, was confirmed to be a paratype, as currently treated.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum roanokense*.

**Current treatment:** *Panicum roanokense* is the basionym of *Dichanthelium roanokense* (Ashe) LeBlond (LeBlond 2019a), and *Dichanthelium dichotomum* subsp. *roanokense* (Ashe) Freckmann & Lelong (Freckmann & Lelong 2003).

**42. PANICUM SCHNECKI** Ashe, North Carolina Agric. Res. Serv., Bull. 175:116. 1900. (Name spelled *P. schneckii* at US.)

**Protologue typification:** “River bottoms, southern Indiana and Illinois. June” (Ashe 1900, p. 116).

**Type specimen determination by Hitchcock & Chase (1910, p. 315):** “The type, in Ashe’s herbarium, consists of two culms, one sterile and one with an immature, scarcely-exserted panicle. On the accompanying label with the printed heading ‘Herbarium of W.W. Ashe’ is written in Ashe’s hand ‘Panicum Schneckii W.W. Ashe,’ but no data whatever are given.”

**Types:** **HOLOTYPE:** NCU 17932. **ISOTYPE:** US 80975 (fragm. ex NCU 17932). Holotype designation: NCU 17932 annotated as “type?” by Chase (see Commentary), and published by Hitchcock & Chase (1910). Label data: “Herbarium of W.W. Ashe / No. / *Panicum Schneckii* W.W. Ashe.”

**Commentary:** Written on NCU 17932 in Chase’s handwriting is “type?.” Ashe did not specifically refer to this specimen in the protologue. As it was and is the only known specimen, and was in Ashe’s herbarium, it is better treated as a holotype than a lectotype, as no selection was necessary.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum latifolium* Linnaeus.

**Current treatment:** *Panicum latifolium* is the basionym of *Dichanthelium latifolium* (Linnaeus) Harvill (Freckmann & Lelong 2003; LeBlond 2019a).

**43. PANICUM SCOPARIOIDES** Ashe, J. Elisha Mitchell Sci. Soc. 15: 53-54. 1898. (Name spelled *P. scoparioide* in protologue.)

**Protologue typification:** “Based on No. 283, ex Herb. A. Commons. Dry soil, Centreville, Del. June, 1873. Distributed sub nom. *P. Scribnerianum* Nash” (Ashe 1898, p. 54).

**Type specimen determination by Hitchcock & Chase (1910, p. 238 ):** “This specimen could not be found in Ashe’s herbarium, but a specimen bearing the above name and data is in the National Herbarium and is doubtless the type. This consists of four vernal culms with immature panicles partly included in the uppermost sheaths.”

**Types:** **LECTOTYPE:** US 2383638. **ISOLECTOTYPE:** NCU 18085. Lectotype designation: annotation of US 2383638 by Gould & C.A. Clark (1978). Label data: “Ex Herb. A. Commons. 283 / *Panicum Scribnerianum*. Nash. / dry soil / Centreville, Delaware, June 25, 1873.”

**Commentary:** The comment by Hitchcock & Chase that the specimen in the National Herbarium was “doubtless the type” suggests holotype rather than lectotype designation. However, this appears to be one of those instances where “the type” refers to type material collectively. A Chase note on US 2383638 reads: “Probably type / Dupl type of *P. scoparioides* Ashe.” In the 1910 treatment, there is a footnote in the type discussion of *P. scoparioides* that refers to the type treatment of *Panicum huachucae* Ashe. In that treatment is the following comment: “Such a specimen could not be found in Ashe’s herbarium, but in the National Herbarium is a specimen so labeled which agrees with the description and which is doubtless the type, since Mr. Ashe visited the National Herbarium in the summer of 1898 and took notes on species of *Panicum*.” These specimens of *P. scoparioides* and *P. huachucae* were designated as lectotypes by Gould & Clark (1978). We now know that Ashe had at least one specimen in his herbarium matching the details of the *P. scoparioides* type (here treated as an isolectotype, but possibly the holotype), and at least one specimen of *P. huachucae* that may have been treatable as a syntype. Given these circumstances, lectotype seems the appropriate designation.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum scoparioides*.

**Current treatment:** This name does not appear as a synonym in either Freckmann & Lelong (2003) or LeBlond (2019a). The Catalogue of New World Grasses (Tropicos.org 2014) and Gould & Clark (1978) treat the name as a synonym of *Dichanthelium acuminatum* (Swartz) Gould & C.A. Clark var. *acuminatum*. Based on a preliminary analysis of the isolectotype at NCU, it deserves more study.

#### 44. **PANICUM SUBSIMPLEX** Ashe, North Carolina Agric. Res. Serv., Bull. 175:115. 1900.

**Protologue typification:** “Collected by Mr. A. Commons in dry rocky woods near Wilmington, Del., in August” (Ashe 1900b, p. 115).

**Type specimen determination by Hitchcock & Chase (1910, p. 304):** “The type, in Ashe’s herbarium, consists of autumnal culms, with broadly elliptic, somewhat falcate blades 1.5 to 2.5 cm. wide, and small, few-flowered panicles, overtopped by the upper blades.”

**Types:** **HOLOTYPE:** NCU 18029. **ISOTYPES:** MO 816401; NY 381688, 381689; US 81298 (fragm. ex NCU 18029), 81299. Holotype designation: NCU 18029 annotated as “type” by Chase, and published by Hitchcock & Chase (1910). Label data: “Herb. A. Commons. 10 / *Panicum subsimplex* W.W. Ashe / dry soil rocky woodlands. / Wilmington, Delaware / Aug 16, 1897 / Coll. A.C.”

**Commentary:** Various numbers appear in the upper right corner of the type labels: “10” on the holotype, “10” over a crossed-out “49” on NY 381688, and “48” on NY 381689. Based on other

Commons specimen sheets, it is clear the numbers referred to something other than a collection made at a specific place and date (see Commentary under *P. delawarensis*).

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum commutatum* Schultz.

**Current treatment:** *Panicum commutatum* is the basionym of *Dichanthelium commutatum* (Schultz) Gould (Freckmann & Lelong 2003; LeBlond 2019a).

#### 45. PANICUM SUBVILLOSUM Ashe, J. Elisha Mitchell Sci. Soc. 16: 86-87. 1900.

**Protologue typification:** “Collected by the writer at Carlton, Minnesota, in August, in the simple state. Type material preserved in my herbarium” (Ashe 1900a, p. 87).

**Type specimen determination by Hitchcock & Chase (1910, p. 227):** “The type specimen, in Ashe’s herbarium, consists of three tufts of several culms each, 15 to 30 cm. high, with leaves clustered at the base and long-exserted mature panicles.”

**Types:** **LECTOTYPE:** US 2383624 (fragm. & photo). **ISOLECTOTYPES:** NCU 18025; US 971092. Lectotype designation: US 2383624 designated by LeBlond (2015). Label data (from photo of missing holotype): “PLANTS OF THE SOUTHERN UNITED STATES [“SOUTHERN” crossed out]. [“EASTERN NORTH CAROLINA” crossed out] / *Panicum subvillosum* W.W. Ashe / Carlton Minn. / Aug 1899 / W.W. Ashe, Collector.”

**Commentary:** The holotype from Ashe’s herbarium has not been located. The specimen at NCU, which has been treated as the holotype, has the following Chase note: “dupl. type / *P. subvillosum* Ashe / type is a mounted specimen in Ashe herb. loaned Nat Herb Dec 1905.” There is a photograph of the missing holotype on US 2383624 along with a small tuft of mounted material presumably from the holotype, and material in a packet noted as “from holotype.” For these reasons US 2383624 has been selected as the lectotype. Neither NCU 18025 nor US 971092 matches the image of the missing holotype. US 971092 was also identified as a duplicate type by Chase, with the note: “from unmounted material in Ashe herb.” No other type specimens are known.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum subvillosum*.

**Current treatment:** *Panicum subvillosum* is a synonym of *Dichanthelium acuminatum* (Swartz) Gould & C.A. Clark subsp. *fasciculatum* (Torrey) Freckmann & Lelong (Freckmann & Lelong 2003). Specimens referred to *Panicum subvillosum* do not occur within the range of LeBlond (2019a).

#### 46. PANICUM TAXODIORUM Ashe, J. Elisha Mitchell Sci. Soc. 16: 91. 1900.

**Protologue typification:** “Type: K.K. McKenzie’s [Mackenzie] No. 460. Hummocks in cypress swamps. Lake Charles, La., September 1890” (Ashe 1900a, p. 91).

**Type specimen determination by Hitchcock & Chase (1910, p. 198):** “The type, in Ashe’s herbarium, is a specimen passing from the vernal to the autumnal form and showing the early branching condition.”

**Types:** **HOLOTYPE:** NCU 18024. **SYNTYPES:** MO 1837653, 1837654; NY 381636; US 81291 (fragm. ex MO; fragm. ex Ashe herb.). Holotype designation: NCU 18024 annotated as “taken as type” by Chase from folder in Ashe’s herbarium, and published by Hitchcock & Chase (1910). Label data: “PLANTS COLLECTED IN THE VICINITY OF LAKE CHARLES, LOUISIANA, BY KENNETH K. MACKENZIE. August 25 – September 10, 1898. *Panicum* / Hummocks in cypress swamp. No. 460. Frequent.”

**Commentary:** There is much confusion and complexity among the type sheets. The complete Chase annotation on holotype NCU 18024 is: “taken as type of *Panicum taxodiorum* Ashe / ‘*P. Taxodiorum*’ marked on cover in Ashe’s hand.” Ashe himself had not written “*taxodiorum*” on the sheet, but it apparently was the only mounted specimen in his “*P. Taxodiorum*” folder (“cover”). A Chase note on US 81291 indicates that material was taken “from unmounted specimen” from the same Ashe folder. Hitchcock & Chase (1910) assigned all of the type sheets to *Panicum lucidum* Ashe, but none is. The holotype itself belongs to *Dichanthelium longiligulatum* (Nash) Freckmann, while the syntypes (formerly treated as isotypes) belong to *D. dichotomum* (Linnaeus) Gould var. *dichotomum*.

Syntype US 81291 contains two fragments, one mounted, the other in a packet. The mounted fragment is noted as having come from a “duplicate type” at MO, most likely MO 1837653 based on morphology. The notation for the fragment in the packet reads: “from unmounted specimen in Ashe herb. in cover marked in Ashe’s writing: ‘*P. taxodiorum*,’ taken as type of *Panicum taxodiorum* Ashe.” Her “taken as type” comment evidently refers to all the material in the folder, not just the mounted holotype. Both fragments belong to *D. dichotomum* var. *dichotomum*.

The syntype at NY has been treated as a paratype of *Panicum lucidum*, but the collection is not mentioned in the *P. lucidum* protologue. It too belongs to *D. dichotomum* var. *dichotomum*.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum lucidum*.

**Current treatment:** *Panicum lucidum* is the basionym of *Dichanthelium lucidum* (Ashe) LeBlond, and *D. dichotomum* subsp. *lucidum* (Ashe) Freckmann & Lelong (Freckmann & Lelong 2003). However, none of the type specimens belongs to this taxon. The holotype belongs to *D. longiligulatum* (LeBlond 2019a), and *D. acuminatum* (Swartz) Gould & C.A. Clark subsp. *longiligulatum* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003). The syntypes belong to *D. dichotomum* var. *dichotomum* (LeBlond 2019a), and *D. dichotomum* subsp. *dichotomum* (Freckmann & Lelong 2003).

#### **47. PANICUM TRIFOLIUM** Nash, Bull. Torrey Bot. Club 26: 550-551. 1899.

**Protologue typification:** “In sandy soil, North Carolina to northern Florida, west to Mississippi. Type collected by Dr. John K. Small, in the Oculmgee River Swamp, below Macon, Georgia, May 18-24, 1895. The following specimens are also referred here: NORTH CAROLINA: Chapel Hill, W.W. Ashe (distributed as *P. ensifolium*). SOUTH CAROLINA: Aiken, H.W. Ravenel. FLORIDA: Chapman, 1890, no. 3; Apalachicola, 1892, *Dr. Geo. Vasey*. ALABAMA: Buckley; Auburn, May 5, 1898, *Earle and Baker*, nos. 1534 and 1547a. MISSISSIPPI: S.M. Tracy, Biloxi, Aug. 1, 1894, no. 2865, March 28, 1898, no. 4602, April 2, 1898, no. 4612; Avondale, April 28, 1898, no. 4610; Horn Island, June 1, 1898, no. 4613” (Nash 1899, p. 550-551).

**Type specimen determination by Hitchcock & Chase (1910, p. 261):** “The type, in Nash’s herbarium, consists of two tufts of slender vernal culms, 25 to 40 cm. high, with leafy bases and elongated internodes, the rather short-exserted panicles immature.”

**Types: HOLOTYPE:** NY 381691. **ISOTYPES:** NCU 18219; US 2808942 (fragm. ex NY 381691). Holotype designation: NY 381691 annotated as “Type” by Nash, and published by Hitchcock & Chase (1910). Label data: “GEORGIA PLANTS. Collected in the Ocmulgee River Swamp, below Macon. By John K. Small, May 18-24, 1895. *Panicum* [*albo-marginatum* Nash crossed out].”

**Commentary:** Although the holotype fragment on isotype US 2808942 is large, and the holotype itself crowded, it does appear that material was removed from the right side of the holotype sheet.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum trifolium*.

**Current treatment:** *Panicum trifolium* is a synonym of *Dichanthelium tenue* (Muhlenberg) Freckmann & Lelong (LeBlond 2019a). The name was not treated by Freckmann & Lelong (2003).

#### 48. PANICUM VILLOSISSIMUM Nash, Bull. Torrey Bot. Club 23: 149. 1896.

**Protologue typification:** “Collected by Dr. John K. Small in the Ocmulgee River swamp, below Macon, May 18-24, 1895. Only the early and more simple state was secured” (Nash 1896, p. 149).

**Type specimen determination by Hitchcock & Chase (1910, p. 233):** “The type, in Nash’s herbarium, consists of several vernal culms with branches appearing, but secondary panicles not expanded. The spikelets are 2.3 mm. long.”

**Types: HOLOTYPE:** NY 381695. **ISOTYPES:** NCU 18151; NY 381696; US 743139, 2383627. Holotype designation: designated on sheet by a “Type of:” label, and with “HoloTYPE” written by anonymous annotaters (“Holo” added later), and published by Hitchcock & Chase (1910). Label data: “GEORGIA PLANTS. COLLECTED IN THE OCMULGEE RIVER SWAMP, BELOW MACON. BY JOHN K. SMALL, MAY 18-24, 1895. *Panicum* [*Smallii* crossed out] *villosissimum* Nash n. sp.”

**Commentary:** None required.

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum villosissimum*.

**Current treatment:** *Panicum villosissimum* is the basionym of *Dichanthelium villosissimum* (Nash) Freckmann (LeBlond 2019a), and of *D. ovale* (Elliott) Gould & C.A. Clark subsp. *villosissimum* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

#### 49. PANICUM VIRGATUM Linnaeus var. BREVIRAMOSUM Nash, Bull. Torrey Bot. Club 23: 150-151. 1896. (Name published as *Panicum virgatum breviramsum*.)

**Protologue typification:** “Collected by Dr. Small in clay soil in the pine lands about Augusta, Georgia, where it was common, June 27-July 1, 1895” (Nash 1896, p. 150).

**Type specimen determination by Hitchcock & Chase (1910, p. 92):** “The type, in Columbia University Herbarium, is a slender plant with narrow panicles about 12 cm. long and 3 to 4 cm. wide, rather compactly flowered, and as a whole very like Wright’s no. 183 ....”

**Types: HOLOTYPE:** NY 381697. **ISOTYPES:** NCU 18133; NY 381698; US 82405. Holotype designation: NY 381697 (Columbia University specimen) published by Hitchcock & Chase (1910) (see Commentary). Label data: “GEORGIA PLANTS. COLLECTED ABOUT AUGUSTA, RICHMOND CO. BY JOHN K. SMALL, JUNE 27-JULY 1, 1895. *Panicum virgatum breviramsum* Nash, n. var.”

**Commentary:** Neither of the two type sheets at NY was annotated by Nash or Chase as the “type.” In 2010, T. Zanoni annotated NY 381698 as the “Probable Holotype” and NY 381697 as a “Probable Isotype.” However, NY 381697 contains the accession stamp of the Columbia University Herbarium, where the holotype was housed, while NY 381698 does not.

**Taxonomic treatment by Hitchcock & Chase (1910):** Synonym of *Panicum virgatum* var. *cubense* Grisebach.



**Current treatment:** *Panicum virgatum* var. *cubense* is an accepted taxon in LeBlond (2019b), and a synonym of *Panicum virgatum* in Freckmann & Lelong (2003).

**50. PANICUM WILMINGTONENSE** Ashe, J. Elisha Mitchell Sci. Soc. 16: 86. 1900.

**Protologue typification:** “The type material collected in May, 1899 on the sand hills near Wilmington, N.C., is preserved in my herbarium” (Ashe 1900a, p. 86).

**Type specimen determination by Hitchcock & Chase (1910, p. 244):** “The type, in Ashe’s herbarium, is labeled, ‘Shady slopes on the sand hills one mile to north of Wilmington, May 17, 1899. W.W. Ashe, Collector.’ The plants are the vernal form with some autumnal culms of the preceding season attached.”

**Types: HOLOTYPE:** NCU 18099. **ISOTYPE:** US 2383596. Holotype designation: NCU 18099 “taken for type” by Chase note, and published by Hitchcock & Chase (1910) (see Commentary). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. EASTERN NORTH CAROLINA / shady slopes on the sand hills one mile to north of Wilmington, May 17, 1899 / W.W. Ashe, Collector.”

**Commentary:** NCU 18099 was a mounted specimen with Ashe’s label. US 2383596, the only other known type, was prepared “from unmounted material in Ashe herbarium in cover marked in Ashe’s hand ‘*Panicum wilmingtontense*.’”

**Taxonomic treatment by Hitchcock & Chase (1910):** *Panicum wilmingtontense*.

**Current treatment:** *Panicum wilmingtontense* is a synonym of *Dichanthelium ovale* (Elliott) Gould & C.A. Clark var. *addisonii* (Nash) Gould & C.A. Clark (LeBlond 2019a), and *D. ovale* subsp. *pseudopubescens* (Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

### Voucher specimens for invalid names

During this examination specimens were encountered that are now regarded as invalid names. These include names, lacking descriptions or without reference to specimens, are nomina nuda. Sometimes these names were listed in publications and sometimes they were entered on specimen sheets (“herbarium names”). They occasionally show up incorrectly as synonyms for valid names and associated specimens are sometimes incorrectly treated as types. Such specimens are best referred to as vouchers for invalid names. The following are those known at NCU.

***Panicum biloxi*** – a Scribner name never published with a description and apparently never treated in synonymy. The name appears on a specimen sheet at NCU, no. 17808, as follows: “Type collection, *Panicum Biloxi* Scrib., Biloxi, Miss., 10 Aug 1899, S.M. Tracy 6465.” On the sheet is a Chase note that reads: “Scribner never published this / *P. lancearium* Trin / =*P. Nashianum* Nash.” The name is invalid and has no standing as a synonym. The specimen, while a voucher for the name, has no standing as a type. It belongs to *Dichanthelium portoricense* (Desveau ex Hamilton) B.F. Hansen & Wunderlin subsp. *patulum* (Scribner & Merrill) Freckmann & Lelong.

***Panicum caricifolium*** – a Scribner name never published with a description. It was included as a synonym of *Panicum laxiflorum* Lamarck by Ashe (1898, p. 57), and of *P. xalapense* H. B. K. by Hitchcock & Chase (1910, p. 159). As an invalid name, it has no standing as a synonym. The name was applied by Scribner to more than one collection. Vouchers for two of these are located at NCU:

no. 17374, Washington D.C., May 1897, *Kearney* s.n.; and no. 17377, Tennessee, Cocke Co., 24 Aug 1897, *Kearney* 970. Both specimen sheets belong to *Dichantherium laxiflorum* (Lamarck) Gould.

***Panicum iowense*** – a published Ashe name without known type. The only data Ashe provides in the protologue is “Dry prairies, eastern Iowa to Kansas. June and July” (Ashe 1900b, p. 115). There is no reference to a collection. Hitchcock & Chase (1910) wrote: “There is no specimen in Ashe’s herbarium bearing this name nor that can with any degree of certainty be connected with the description. There is a specimen of *P. praecocius* collected on dry prairies at Armstrong, Iowa, July, 1890, by R.I. Cratty, which is marked in pencil by Ashe, ‘*Panicum prairie*.’” At NCU is a specimen, no. 17673, matching the details of the Hitchcock & Chase description of the Cratty specimen. On it is a Chase note stating: “taken for the type of *P. Iowense* Ashe because data agrees with that published for that species.” The Chase note, similar to others of hers on Ashe specimens, was undoubtedly written before the 1910 publication, where it is countermanded. While this remains an intriguing specimen, the data are insufficient to designate it as a type, and *Panicum iowense* Ashe is a nomen nudum. The Cratty specimen belongs to *Dichantherium villosissimum* (Nash) Freckmann var. *praecocius* (Hitchcock & Chase) Freckmann.

***Panicum nitidum* var. *pubescens*** – a Scribner name never published with a description. It was included in a list published by Kearney (1893), and was treated as a synonym of *Panicum villosissimum* Nash by Hitchcock & Chase (1910, p. 233). But as an invalid name, it has no standing as a synonym. The name was applied to two Kearney numbers, 58 and 141. A voucher specimen for *Kearney* 141 is located at NCU, no. 17835. The specimen sheet belongs to *Dichantherium villosissimum* (Nash) Freckmann var. *villosissimum*.

### Note regarding the replacement name *Panicum halophilum*

*Panicum halophilum* Nash, in Lloyd & Tracy, Bull. Torrey Bot. Club 28: 86-87. 1901.

Nash renamed *Panicum repens* L. var. *confertum* Vasey as *P. halophilum* because the epithet “*confertum*” was blocked at species rank by *P. confertum* Desv., published in 1816. A single collection was cited by Nash in his publication of *P. halophilum* as a replacement name: “Collected on Petit Bois Island, Mississippi, by S.M. Tracy, on May 8, 1898, no. 4566, and distributed as *P. repens confertum*,” but he did not designate it as a type and explicitly included the varietal name in synonymy. Hitchcock & Chase also referred to this collection in their brief discussion of the name (p. 86). This collection was subsequently treated by some as a type collection, but it has no standing as a type. The type specimens for *P. halophilum* are the same as those for *P. repens* var. *confertum*.

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**Table 1. *Panicum sensu lato* type specimens at NCU. Specimens found during 2011-2014 examination of NCU collections are indicated in boldface.**

<b>Panicum type name</b>	<b>type status</b>	<b>collector &amp; no.</b>	<b>NCU</b>
Panicum alabamense	holotype	Earle & Baker 1530	366
Panicum albemarlense	syntype	Ashe s.n.	17484
Panicum arenicola	<b>lectotype</b>	Ashe s.n.	20397
Panicum auburne	holotype	Earle & Baker 1527	17430
Panicum ciliosum	isotype	Tracy 4580	17360
Panicum columbianum	syntype	Scribner s.n.	17320
Panicum commelinifolium	<b>isolectotype</b>	Small s.n.	17318
Panicum commonsianum	<b>holotype</b>	Commons 341	17314
Panicum commonsianum	<b>isotype</b>	Commons 341	17316
Panicum cryptanthum	lectotype	Ashe s.n.	17544
Panicum cryptanthum	isolectotype	Ashe s.n.	17545
Panicum cryptanthum	isolectotype	Ashe s.n.	17546
Panicum curtifolium	<b>isotype</b>	Tracy 4598	17582
Panicum curtifolium	<b>isotype</b>	Tracy 4598	596508
Panicum cuthbertii	holotype	Cuthbert s.n.	18302
Panicum cuthbertii	isotype	Cuthbert s.n.	17540
Panicum delawarensense	holotype	Commons 48	17535
Panicum dichotomiflorum var. puritanorum	<b>topotype</b>	LeBlond 1647	600438
Panicum earlei	isotype	Earle & Baker 1532	17582
Panicum earlei	<b>isotype</b>	Earle & Baker 1535	596508
Panicum erythrocarpon	holotype	Ashe s.n.	17821
Panicum erythrocarpon	isotype	Ashe s.n.	17822
Panicum erythrocarpon	isotype	Ashe s.n.	17823
Panicum filiculme	<b>lectotype</b>	Small s.n.	18291

<i>Panicum filirum</i>	isolectotype	Ashe s.n.	18214
<i>Panicum georgianum</i>	<b>isolectotype</b>	Small s.n.	17707
<i>Panicum georgianum</i>	<b>isolectotype</b>	Small s.n.	17706
<i>Panicum glaberrimum</i>	<b>syntype</b>	Ashe s.n.	356867
<i>Panicum glaberrimum</i>	<b>syntype</b>	Ashe s.n.	199964
<i>Panicum glaberrimum</i>	<b>syntype</b>	Ashe s.n.	18009
<i>Panicum glaberrimum</i>	<b>syntype</b>	Ashe s.n.	18013
<i>Panicum glaberrimum</i>	<b>syntype</b>	Ashe s.n.	18014
<i>Panicum haemacarpum</i>	lectotype	Kearney s.n.	22518
<i>Panicum haemacarpum</i>	<b>paralectotype</b>	Ashe s.n.	18148
<i>Panicum leucothrix</i>	isotype	Nash 1388	17754
<i>Panicum longifolium</i> var. <i>tusketense</i>	<b>topotype</b>	Fernald 19764 et al.	54029
<i>Panicum lucidum</i>	<b>isolectotype</b>	Ashe s.n.	570351
<i>Panicum malacophyllum</i>	<b>isotype</b>	Bush 1228	17725
<i>Panicum mattamuskeetense</i>	isolectotype	Ashe s.n.	17718
<i>Panicum mattamuskeetense</i>	isolectotype	Ashe s.n.	17721
<i>Panicum mattamuskeetense</i>	isolectotype	Ashe s.n.	410427
<i>Panicum mattamuskeetense</i>	<b>toplectotype</b>	Ashe s.n.	578243
<i>Panicum meridionale</i>	isolectotype	Ashe s.n.	21629
<i>Panicum nashianum</i> [var.] <i>patulum</i>	<b>paratype</b>	Tracy 4586	17851
<i>Panicum nemopanum</i>	<b>toplectotype</b>	Ashe s.n.	17850
<i>Panicum nudicaule</i>	<b>isolectotype</b>	Curtiss 3583*	437892
<i>Panicum onslowense</i>	syntype	Ashe s.n.	18104
<i>Panicum pammelii</i>	holotype	Cratty s.n.	17879
<i>Panicum parvipaniculatum</i>	lectotype	Ashe s.n.	18272
<i>Panicum parvispiculum</i>	<b>syntype</b>	Small s.n.	18272
<i>Panicum pseudopubescens</i>	isotype	Earle & Baker 1537	18236
<i>Panicum pseudopubescens</i>	<b>isotype</b>	Earle & Baker 1522	18240
<i>Panicum pyriforme</i>	<b>paratype</b>	Nash 2156	17975
<i>Panicum rhizomatum</i>	<b>paratype</b>	Tracy 3603	20717
<i>Panicum rhizomatum</i>	<b>paratype</b>	Tracy 4620	20820
<i>Panicum rhizomatum</i>	<b>paratype</b>	Curtiss 5747	578806
<i>Panicum rhizomatum</i>	<b>syntype</b>	Tracy 4564	21047
<i>Panicum roanokense</i>	holotype	Ashe s.n.	17962
<i>Panicum roanokense</i>	isotype	Ashe s.n.	17963
<i>Panicum roanokense</i>	paratype	Ashe s.n.	24095
<i>Panicum roanokense</i>	paratype	Ashe s.n.	356878
<i>Panicum schneckii</i>	holotype	unknown	17932
<i>Panicum scoparioides</i>	<b>isolectotype</b>	Commons 283	18085
<i>Panicum subsimplex</i>	holotype	Commons 10	18029
<i>Panicum subvillosum</i>	isolectotype	Ashe s.n.	18025
<i>Panicum taxodiorum</i>	holotype	Mackenzie 460	18024

<i>Panicum trifolium</i>	<b>isotype</b>	Small s.n.	18219
<i>Panicum villosissimum</i>	<b>isotype</b>	Small s.n.	18151
<i>Panicum virgatum</i> var. <i>breviramosum</i>	<b>isotype</b>	Small s.n.	18133
<i>Panicum wilmingtense</i>	holotype	Ashe s.n.	18099

**Table 2. NCU *Panicum* sensu lato specimens determined not to be types.**

<b>Panicum type name</b>	<b>specimen status</b>	<b>collector &amp; no.</b>	<b>NCU</b>
<i>Panicum biloxi</i>	voucher for unpublished Scribner name	Tracy 6465	17808
<i>Panicum caricifolium</i>	vouchers for unpublished Scribner name	Kearney s.n. Kearney 970	17374 17377
<i>Panicum eatonii</i>	location, date not in protologue	Eaton s.n.	17589
<i>Panicum halophilum</i>	replacement name for <i>P. repens</i> var. <i>confertum</i>	Tracy 4566	17966
<i>Panicum iowense</i> (nomen nudum)	data insufficient to designate specimen as type	Cratty s.n.	17673
<i>Panicum microphyllum</i>	date, habitat not in protologue	Ashe s.n.	17715
<i>Panicum nitidum</i> var. <i>pubescens</i>	voucher for unpublished Scribner name	Kearney 141	17835

**Table 3. Non-NCU type specimens that were found, clarified, or lectotypified during the 2011-2014 investigation.**

<b>Panicum type name</b>	<b>type status</b>	<b>collector &amp; no.</b>	<b>herbarium</b>
<i>Panicum amarulum</i>	paratype	Tracy 6508	MO 2974815
<i>Panicum chrysopsidifolium</i>	paratype	Curtiss No. D	US 2808891
<i>Panicum microphyllum</i>	lectotype isolectotype	Ashe s.n. Ashe s.n.	NY 381644 US 2383610