

## NEEDED LECTOTYPIFICATIONS IN *PANICUM* (POACEAE) AND A FEW OBSERVATIONS OF ANOTHER ERA

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### ABSTRACT

During an examination of *Panicum sensu lato* at herbarium NCU, it was determined that 9 published *Panicum* names were in need of lectotypification: *Panicum arenicola* Ashe, *P. commelinifolium* Ashe, *P. filiculme* Ashe, *P. filiramum* Ashe, *P. georgianum* Ashe, *P. microphyllum* Ashe, *P. nemopanthum* Ashe, *P. onslowense* Ashe, and *P. subvillosum* Ashe. For the majority, the original type is missing, but types were never designated for *P. filiculme* and *P. microphyllum*. The needed lectotypifications are designated here.

Nine *Panicum* names needing lectotypification (Table 1) were found during a 2011-2014 examination of the *Panicum sensu lato* collection at the University of North Carolina-Chapel Hill (NCU). Lectotypification is the designation of a specimen as the substitute for a holotype by a later worker when the nomenclatorial author either failed to designate a valid specimen as holotype or when the designated holotype is missing. Lectotypification is also required when a previously designated lectotype is missing. All 9 names were originally published between 1898 and 1901 by W.W. Ashe and were treated by Hitchcock and Chase (1910). That 1910 treatment remains the authority for typification of most North American *Panicum* names from that era.

Table 1. Nine *Panicum* names needing lectotypification.

name	reason for lectotypification
<i>Panicum arenicola</i>	original lectotype missing; subsequent invalid lectotypification
<i>Panicum commelinifolium</i>	holotype missing
<i>Panicum filiculme</i>	type never designated; subsequent invalid lectotypification
<i>Panicum filiramum</i>	holotype missing
<i>Panicum georgianum</i>	holotype missing; subsequent invalid lectotypification
<i>Panicum microphyllum</i>	type never designated; subsequent invalid citing of specimen as islectotype
<i>Panicum nemopanthum</i>	“co-type” was designated, but type wasn’t seen and remains missing
<i>Panicum onslowense</i>	holotype missing; subsequent invalid lectotypification
<i>Panicum subvillosum</i>	holotype missing; subsequent invalid citing of another specimen as holotype

There is a concentration of *Panicum* nomenclatural literature from the work of George Vasey (1889) to the treatment by A.S. Hitchcock and Agnes Chase in 1910. The Hitchcock & Chase volume 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 and 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 of the process now called lectotypification.

Type determinations in the recent NCU examination required searches of the older literature and online databases, as well as examination of type specimens in other herbaria (usually online, but sometimes on loan). The Missouri Botanical Garden's Tropicos database (Tropicos 2015) provided a basis for nomenclatorial authority and type specimen locations. Biodiversity Heritage Library (BHL 2015) provided access to several of the nomenclatural protologues published during the particularly active period of *Panicum* field work and taxonomy in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries.

Identification of types in that era was complicated not only by inconsistent historical application but also by the nonstandardized documentation of collection data and specimen labeling. Specimen and/or sheet numbering by collectors were 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 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*, *P. lucidum*, *P. mattamuskeetense*, and *P. roanokense*, all subsequently named by him. Sometimes Ashe just recorded the month of collection, without the year, indicating the date to him was only important phenologically.

All 9 names in this treatment were authored by Ashe. This is not surprising given that the specimens from his herbarium are housed at NCU and contributed to the discovery of some of the needed lectotypifications. Also, Ashe authored more *Panicum* names than anyone, 48. Nash was the second most prolific *Panicum* author, with 44 names.

During this era many new names were published, far more than are currently recognized. This was due in part to the disparity between those who worked in the field, many of whom were amateurs, and those who worked in the herbarium. It was common for field botanists to have limited access to herbaria and botanical libraries. "On the other hand," wrote Gleason (1952), "the professional botanists 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."

Since 2001, the International Code of Nomenclature for algae, fungi, and plants (McNeill et al. 2012) requires that a lectotypification be explicitly designated when published. The designation must include a statement such as "lectotype designated here," so that the intent is clear. The designation must also clearly apply to a particular specimen. The lectotype must be chosen from material matching the taxonomic description in the protologue and known to have been original material studied by the author. The priority specimen for selection is a duplicate (isotype or isolectotype) of the cited type specimen (holotype or lectotype), followed by a syntype, then by a paratype. If none of these is available, then selection is made from original material known to have been studied by the author or from illustrations of such material. (Absent all of these, a neotype must be designated.)

During the examination of the NCU *Panicum* collection, many type specimens previously unknown from the collection were identified. Due to the complexities of determinations and verifications, a data format was created to maintain order and to assist subsequent workers who need to follow these paths. A subsequent paper will treat the newly found type specimens, and its data format is used here.

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 original protologue, determination of type specimens by Hitchcock and Chase, the classification of all known type specimens (including designation of the new lectotypifications), typification commentary, Hitchcock and Chase taxonomic treatment, and current taxonomic treatment in Freckmann & Lelong (2003) and LeBlond (2015).

When examining older *Panicum* types, it is important to go to the protologue. The author often cites multiple collections as representing his concept of the named entity, which today are usually called paratypes or syntypes. Hitchcock and Chase frequently omitted references to any additional collections in the protologue after the first. If more than one collection was cited, they mechanically chose the first mentioned as the type (as long as a specimen was available), following the newly-published code. Their concern was only with the establishment of a type specimen along with verification of other specimens from the same collection. The concepts of “holotype” and “lectotype” had not yet been developed, and the Hitchcock & Chase designations were often ambiguous relative to the current use of those terms. Hitchcock and Chase usually provided a brief description of the mounted material on the specimen sheet they determined to be the type, which has proven to be of great benefit.

This treatment employs the terms “topotype” and “topolectotype” for some specimens in the type classification section. These are specimens collected from the same site as the holotype or lectotype at an earlier or later date than the original type collection; the collections need not have been made by the original type collector. Although not formally recognized by the International Code of Nomenclature (McNeil et al. 2012), they are frequently used in taxonomic literature. They deserve formal recognition as they almost always are 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.

Unless otherwise stated, label data are from the holotype or lectotype. A backslash, /, with a space on either side, is used to indicate data breaks in the label data where needed for clarity. Collectors' names are not italicized unless that is how they are represented on the label. Distinction is made between printed and handwritten data only when necessary, but all capitalized data were printed as such.

1. PANICUM ARENICOLA Ashe, J. Elisha Mitchell Sci. Soc. 15: 56. 1898. Name spelled *P. arenicolum* in protologue, and *P. arenaecolum* on some 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 (designated here): NCU 20397. ISOLECTOTYPES: MO 1837598; NY 381579, 381580. Label data: “PLANTS OF THE SOUTHERN UNITED STATES IN THE VICINITY OF CHAPEL HILL, NORTH CAROLINA / *P. arenaecolum* Ashe / June / W.W. Ashe, Collector.”

**Typification 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 and Clark (1978) included the following in synonymy with *Dichantheium aciculare* Desv. ex Poir.: "*P. arenicolum* Ashe, 1898. Lectotype, US; isoelectotypes, NY." There are no known types for this name at US, so the "Lectotype, US" must refer to the specimen from "Hitchcock's herbarium" described by Hitchcock & Chase. However, the location of that specimen is unknown and 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 type referenced by Hitchcock & Chase, 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* Desv. ex Poir.

**Current treatment.** *Panicum aciculare* is the basionym of *Dichantheium aciculare* (Desv. ex Poir.) Gould & C.A. Clark (Freckmann & Lelong 2003; LeBlond 2015).

**2. 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 (designated here): US 80590 (fragm., photo of holotype). ISOLECTOTYPES: NCU 17318; NY 413967; US 2478905, 2478926. 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)."

**Typification commentary.** The location of the type seen by Hitchcock & Chase is currently unknown. US 80590, formerly treated as an isotype, contains a small fragment of material and a photograph of the Biltmore type. It is selected as the lectotype.

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

**Current treatment.** *Panicum commutatum* is the basionym of *Dichantheium commutatum* (Schult.) Gould (Freckmann & Lelong 2003; LeBlond 2015).

**3. 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 (designated here):** NCU 18291. Label data: “GEORGIA PLANTS / COLLECTED ON AND ABOUT STONE MOUNTAIN, DEKALB COUNTY / JOHN K. SMALL, AUGUST 1-6, 1895 / ALTITUDE 1000-1500 FEET.”

**Typification 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 collected by Ashe (not Small) 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.

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

**Current treatment.** *Panicum meridionale* is the basionym of *Dichanthelium meridionale* (Ashe) Freckmann (LeBlond 2015), and synonym of *D. acuminatum* (Sw.) Gould & C.A. Clark subsp. *implicatum* (Scribn.) Freckmann & Lelong (Freckmann & Lelong 2003).

**4. PANICUM FILIRAMUM** Ashe, J. Elisha Mitchell Sci. Soc. 16: 88. 1900. *Panicum* “*filirameum*” is the common spelling, but “*filiramum*,” the spelling in the protologue, has been determined to be valid (K. Gandhi, pers. comm., 12 Feb 2013).

**Protologue typification.** “Habitat: sandy woods, eastern North Carolina. Type material collected in New Hanover county, N.C., in June 1899” (Ashe 1900, 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 (designated here):** US 2808880 (mounted material). **ISOLECTOTYPES:** NCU 18214; US 2808880 (unmounted material in packet). Label data: “PLANTS OF THE SOUTHERN UNITED STATES. EASTERN NORTH CAROLINA. *Panicum filiramum* W.W. Ashe / Near Wilmington N.C. / June 1899 / W.W. Ashe, Collector.”

**Typification commentary.** The type seen by Hitchcock & Chase “in Ashe’s herbarium” has never been relocated. A Chase notation on US 2808880 identifies it as “a good match for type loaned Dec 1905.” US 2808880 contains an isolectotype in addition to the mounted lectotype. The isolectotype 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. filiramum*, NCU 18214 also contains material currently treated as *Dichanthelium dichotomum* (L.) Gould var. *dichotomum*.

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

**Current treatment.** *Panicum aciculare* is the basionym of *Dichantherium aciculare* (Desv. ex Poir.) Gould & C.A. Clark (Freckmann & Lelong 2003; LeBlond 2015). My research has determined that plants referable to *P. filirimum* are the same as those identified as *P. chrysopsidifolium* Nash. These plants are currently in preparation for recognition at the rank of species. *Panicum filirimum*, published in 1900, has priority over *P. chrysopsidifolium*, published in 1903.

**5. 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 (designated here): US 742690. ISOLECTOTYPES: NCU 17707; NY 381606, 413982; US 2808870. Label data: “GEORGIA PLANTS. COLLECTED ABOUT DARIEN JUNCTION, MCINTOSH CO. BY JOHN K. SMALL, JUNE 25-27, 1895. *Panicum Georgianum* Ashe. At sea level.”

**Typification commentary.** Ashe misnamed the site as “Darden Junction” in the protologue. The Biltmore Herbarium 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, but Hansen & Wunderlin did not indicate which one they believed to be the lectotype. Neither US sheet has a “*P. georgianum*” notation in Ashe’s handwriting, so neither can be the missing Biltmore type.

US 742690 matches the protologue and is identified as the “Type” but not in Ashe’s or Chase’s handwriting (Chase was the most frequent typification annotator of Ashe *Panicum* specimens in that era). 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 the name *P. georgianum*). It is selected here 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 [US 742690, the lectotype here designated].” 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.

**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 2015).

6. 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 (designated here): NY 381644. ISOLECTOTYPE: US 2383610 (fragm. ex NY 381644). 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.

**Typification 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 islectotype, apparently interpreting Hitchcock & Chase as designating the missing Ashe herbarium specimen as the lectotype. But their usual method of designating what is now regarded as a lectotype was with the phrase “chosen [or taken] as the type,” and circumstances indicate they did not designate specimens they hadn’t seen.

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 syntype or 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 2015), and a synonym of *D. acuminatum* (Sw.) Gould & C.A. Clark subsp. *implicatum* (Scribn. ex Nash) Freckmann & Lelong (Freckmann & Lelong 2003).

7. 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 (designated here): US 2383604. TOPOLECTOTYPE: NCU 17850. Label data: “PLANTS OF THE SOUTHERN UNITED STATES / *Panicum nemopanthurum* Ashe / Raleigh N.C. / April 1895 / W.W. Ashe, Collector.”

**Typification commentary.** Chase designated the US specimen as a “Co-type,” and it was subsequently treated as an isotype of the missing type 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* was treated as a synonym of *Dichantherium boreale* (Nash) Freckmann by Gould & Clark (1978). It is regarded as a “putative hybrid” by Freckmann & Lelong (2003), who did not treat it in synonymy. My research has determined that *P. bicknellii* should be recognized at the rank of species (as *Dichantherium bicknellii*), and a new treatment is in preparation.

#### 8. 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 1900, 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 (designated here): US 2808968. SYNTYPE: NCU 18104. 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.”

**Typification commentary.** Confusion exists between the typification described by Hitchcock and Chase and the notations on the two extant type specimens. Hansen and 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 and Chase “clearly stated that the type is in Ashe’s herbarium, now at NCU.”

The Chase notation on syntype NCU 18104 reads “type of *P. onslowense* a mounted specimen in Ashe herb. loaned Nat Herb Dec 1905.” I interpret this to mean that the type designated 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 type, 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, not 1905.



Further complicating matters is that two taxa are present in the type material: *P. webberianum* Nash and *P. lancearium* Trinius. Hitchcock and Chase recognized this in their discussion of typification. NCU 18104 is conspecific with *P. lancearium*, while US 2808968 is conspecific with *P. webberianum*. The protologue matches *P. webberianum*, which is where Hitchcock and Chase placed *P. onslowense*.

Hitchcock and 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.” The specimen at NCU does not match the protologue while the specimen at US does, and the latter is selected as the lectotype. Since NCU 18104 is conspecific with *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 *Dichantherium webberianum* (Nash) LeBlond (LeBlond 2015) and a synonym of *D. portoricense* (Desv. ex Poir.) B.F. Hansen & Wunderlin subsp. *patulum* (Scribn. & Merr.) Freckmann & Lelong (Freckman & Lelong 2003).

#### 9. 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 1900, 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 (designated here): US 2382624 (fragm. & photo). ISOLECTOTYPES: NCU 18025; US 971092. 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.”

**Typification commentary.** The type from Ashe’s herbarium has not been located. The specimen at NCU, which has been treated as the holotype (e.g., Hansen & Wunderlin 1988), 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 Ashe herbarium type on US 2382624 along with a small tuft of mounted material presumably from the Ashe herbarium type and material in a packet noted as “from holotype.” For these reasons US 2382624 has been selected as the lectotype. Neither NCU 18025 nor US 971092 matches the image of the missing Ashe herbarium type. 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 *Dichantherium acuminatum* (Sw.) Gould & C.A. Clark subsp. *fasciculatum* (Torr.) Freckmann & Lelong (Freckmann & Lelong 2003). Specimens referred to *Panicum subvillosum* are not treated by LeBlond as they are outside the range of the Weakley Flora (LeBlond 2015).

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