

**REINSTATEMENT OF *DIODIA HARPERI* (RUBIACEAE),
A SOUTHEASTERN USA COASTAL PLAIN ENDEMIC**

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ABSTRACT

Diodia harperi Small is re-instated as a species distinct from *D. virginiana*. From the latter it differs in several morphological characters, most notably its shorter and narrower capsules, shorter corolla tubes, and shorter leaves. *Diodia harperi* also differs from other, older, named taxa related to *D. virginiana*. Type material and all specimens examined are cited.

In the original description of *Diodia harperi* Small (1933), Small indicated that it differed from *D. hirsuta* Pursh, *D. tetragona* Walter, and *D. virginiana* L. by its short corolla tube (<5 mm vs. >6 mm), its globular capsule (vs. ellipsoid or ovoid), and by its eciliate sepals (vs. ciliate). Its habitat and range were given as "pond margins, Coastal Plain, s Ga."

Subsequently, most Georgia authors have not recognized *Diodia harperi* (Thorne 1954; Faircloth 1971; Lane 1976; Jones & Coile 1988; Drew, Kirkman, & Gholson 1998), although Duncan and Kartesz (1981) did accept it. Harper (1906) called attention to it as "*D. sp.* (near *D. Virginiana*, but probably undescribed). Berrien [County]. Margin of shallow pine-barren pond near Tifton, Sept. 26, 1902 (#1682)." The specimen cited by Harper (*Small 1682*) became the type of *D. harperi*.

Several morphological characters are significant in distinguishing *Diodia harperi* from the more common and widespread *D. virginiana* (Table 1). When ultimately deciding on species status, I placed primary emphasis on reproductive characters (fruit size and shape, corolla tube length) and secondary emphasis on leaf morphology (leaf shape and dimensions). Note that while *D. harperi* tends towards glabrous fruits and *D. virginiana* tends towards hirsute fruits, both species can span the range.

Table 1. Comparison of morphological characters between *Diodia harperi* and *D. virginiana*. Except where noted, measurements are based on 25 specimens (n = 25) from southeastern USA herbaria.

	<i>D. harperi</i>	<i>D. virginiana</i>
Leaf length at midstem	15-36 mm; mean 24.1 mm	(27-) 30-65 mm; mean 43.8 mm
Leaf width at midstem	3.5-10 mm; mean 6.2 mm	5-16 mm; mean 8.9 mm
# of leaf pairs per 10 cm of midstem	(3-) 4-8 pairs; mean 5.5 pairs	3-5 pairs; mean 4.0 pairs
Corolla tube length	4.0-7.5 mm; n=10	6.5-10.0 mm; n=11
Capsule length	(4.0) 4.5-6.0 (-6.5) mm; mean 5.0 mm	6.5-8.0 (-9.0) mm; mean 7.3 mm
Capsule shape	rotund to broadly ellipsoid	narrowly ellipsoid to broadly ellipsoid

Capsule pubescence	glabrous (n=11); sparsely hirsute (n=6); moderately hirsute (n=1); densely hirsute (n=1)	sparsely hirsute (n=4); moderately hirsute (n=7); densely hirsute (n=10)

Diodia harperi and *D. virginiana* share a large geographic range and likely occur syntopically, given the broad ecological tolerance of both species. However, none of the specimen labels that I examined, those that were originally determined as *D. harperi*, *D. tetragona*, or *D. hirsuta*, stated that the plant co-occurred with *D. virginiana*. The small number of equivocally identified specimens (see citations, Appendix 2) indicate that the *D. harperi* and *D. virginiana* are reproductively isolated and are justifiably considered as good biological species.

The three taxa cited by Small as differing from *Diodia harperi* are addressed here. I consider all three to be synonyms of *D. virginiana*.

1. *Diodia tetragona* Walter. Due to its longer corolla tube, Small (1933) recognized *D. tetragona* as distinct from *D. harperi*. However, Small noted that the fruit of *D. tetragona* was the same size (4.5–5.5 mm) and shape (Small says "ovate" for *D. tetragona*, but I describe it as broadly elliptical) as that of *D. harperi* ("about 5 mm"). My research shows that corolla tube length of *D. harperi* and *D. tetragona* are confluent. However, fruit size differs significantly: 4.5–6.0 mm in *D. harperi* vs. 6.5–7.5 mm in *D. tetragona*. Moreover, fruit shape differs: rotund to broadly ellipsoid in *D. harperi* vs. ellipsoid to narrowly ellipsoid in *D. tetragona*. I examined online the type specimen of *D. tetragona* at MPU (*Fraser s.n.*, 1788); the fruits measure 7.0 mm and are narrowly to broadly elliptical. Therefore, I conclude that *D. tetragona* Walter is synonymous with *D. virginiana* L. Note #1: Ward (2008) did not include *D. tetragona* in his list of Walter types; he was probably unaware of the specimen at MPU, which was annotated in 2012 by Paul Fabre (Herbier Universite Montpellier 2015). Note #2: The length of fruits — 7.0 mm — in the type of *D. tetragona* is at odds with the 4.5–5.5 mm as stated by Small (1933). It is highly doubtful that he examined *Fraser s.n.* or other type material and instead Small may have had in front of him specimens that I would place within *D. harperi*.

2. *Diodia hirsuta* Pursh was recognized by Small at species rank but as a variety by Torrey and Gray (1841) [*D. virginiana* L. var. *hirsuta* (Pursh) Torrey & A. Gray] and as a forma by Fernald (1950) [*D. virginiana* L. forma *hirsuta* (Pursh) Fern.]. After examining hundreds of sheets of *Diodia virginiana*, I agree with Fernald that the entity *hirsuta* is merely a morphological form of *D. virginiana* that appears at scattered points nearly throughout its range. In such plants, leaves and stems are variously hirsute, but otherwise there are no discernible differences in flower or fruit size from normal *D. virginiana*. Similarly hirsute plants occur sporadically throughout the range of *D. harperi*, as noted in the species description in this paper.

3. *Diodia virginiana* L. var. *latifolia* Torrey & Gray. According to the authors (1841), var. *latifolia* has ovate-lanceolate leaves and ovate fruits. Torrey and Gray synonymized *D. tetragona* Walter here. They noted, however, that "We find so many intermediate forms between *D. virginica* [sic], *tetragona*, and *hirsuta* of authors, that we can scarcely distinguish them even as varieties." Var. *latifolia* is considered here to be a populational variant of *D. virginiana*.

KEY TO NORTH AMERICAN DIODIA

- 1. Capsule length 6.5–9.0 mm, narrowly ellipsoid to broadly ellipsoid; corolla tube length 6.5–10.0 mm; leaf length at midstem 30–65 mm **Diodia virginiana**
- 1. Capsule length 4.0–6.0 (–6.5) mm, rotund to broadly ellipsoid; corolla tube length 4.0–7.5 mm; leaf length at midstem 15–36 mm **Diodia harperi**

Diodia harperi Small, Man. S.E. Fl. 1264. 1933. **TYPE: USA. Georgia.** [Tift Co.]: Protologue: "Pond margins, Coastal Plain, S. Ga." Label: Berrien Co.: Margin of shallow cypress pond S of Tifton, 350 ft, 26 Sep 1902, *R.M. Harper 1682* (holotype: NY!, Fig. 2; isotype: NCU!).

Small (1933) cited type specimens for new species and new combinations, beginning on page 1503. *Diodia harperi*, however, does not appear on this list, apparently an inadvertent omission. The city of Tifton and surrounding portions of Berrien County were transferred into the newly created Tift County in 1905.

Perennial creeping herbs with multiple branches that are prostrate to ascending and up to 20 cm long (occasionally longer), glabrous to moderately hirsute. Leaves opposite, relatively crowded (4–8 pairs per 10 cm of midstem vs. 3–5 pairs in *D. virginiana*), elliptical to narrowly lanceolate, 15–36 mm long and 3.5–10 mm wide at midstem (vs. 30–65 mm long and 6–16 mm wide in *D. virginiana*). Flowers axillary, sepals 2, corolla salverform, white to pale lavender, the tube 4.0–7.5 mm (vs. 6.5–10.0 mm). Fruit a capsule, glabrous to hirsute, broadly ellipsoid to rotund (vs. narrowly ellipsoid to broadly ellipsoid), 4.5–6.0 mm long (vs. 6.5–8.0 mm), black to dark brown, ribbed. Variation in leaf morphology is illustrated in Figure 1.

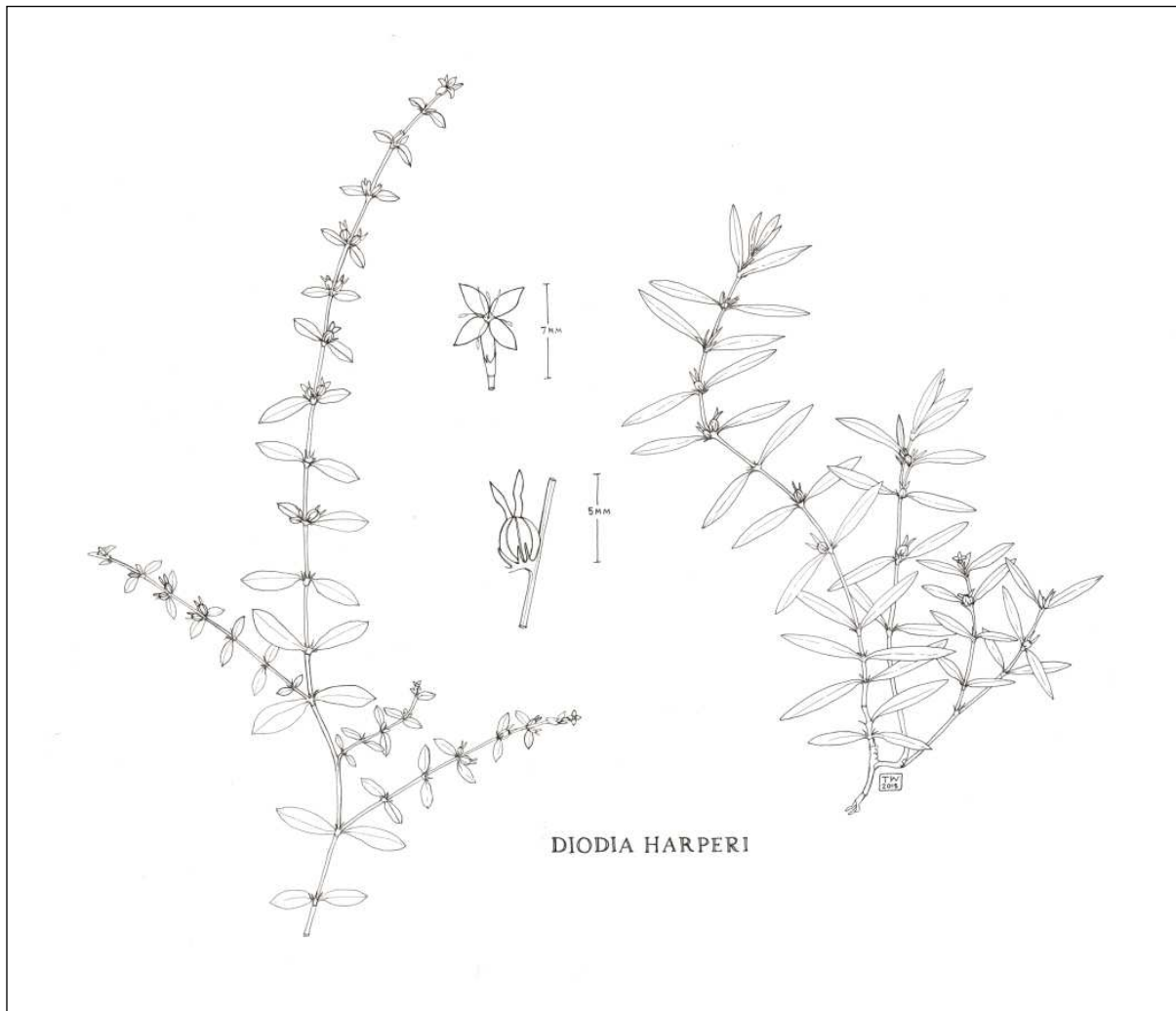


Figure 1. Portions of two plants of *Diodia harperi*, showing close-ups of a flower and a fruit. Scale bars are 7 mm long (flower) and 5 mm long (fruit). Drawing by Tori Wahlstrom.



Figure 2. Holotype of *Diodia harperi* Small (Harper 1682, NY).

Distribution. *Diodia harperi* ranges from eastern North Carolina to southwest Florida and west to southeastern Texas, southeastern Oklahoma, and central Arkansas (Figure 2). It is virtually endemic to the Coastal Plain Floristic Province. It is widespread within this range and no doubt occurs in other counties and parishes. Several specimens from the Ouachita Mountain region of Arkansas were all collected from low elevations — less than 500 feet — and likely represent local incursions from the adjacent coastal plain or from the Arkansas Valley. The range of *D. virginiana* extends from Connecticut, Illinois, and Kansas south to southern Florida and southeastern Texas.

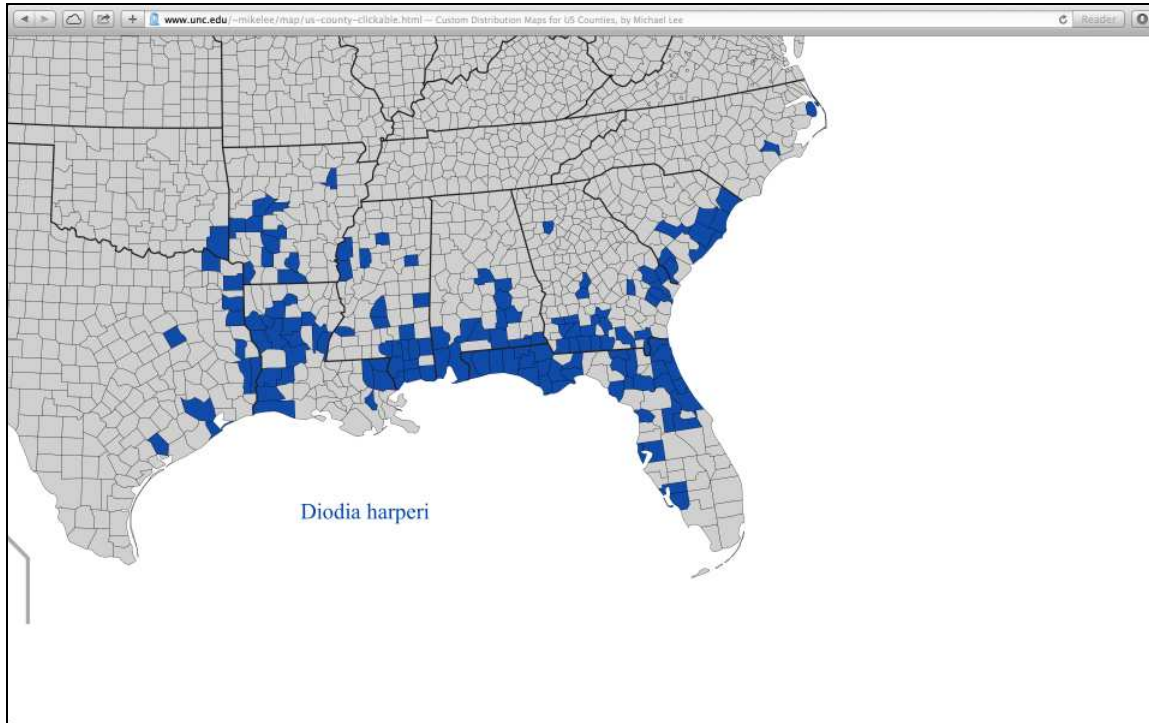


Figure 3. Distribution of *Diodia harperi*.

Habitat. *Diodia harperi* occurs in natural depression ponds, cypress-gum ponds, pitcher plant seepage bogs, moist to wet pine flatwoods, shores of blackwater streams, shores of brownwater rivers, interdune swales, roadside ditches, borrow ponds, and various disturbed areas. These habitats center on permanently moist to wet acidic soils, open sun to light shade, and little competition. This relatively broad range of habitat types supports a correspondingly broad range of associated species. The specimen label for **Crenshaw County, Alabama** (Hansen & Goertzen 1,644), lists the following associates at a wet streamside: *Hedyotis* sp., *Lobelia cardinalis*, *Sagittaria latifolia*, *Onoclea sensibilis*, *Sida rhombifolia*, and *Glandularia pulchella*. The specimen label for **Covington County, Alabama** (Sorrie & Stowell 8,602), lists the following associated species at a wet pine savanna: *Muhlenbergia expansa*, *Aristida beyrichiana*, *Schizachyrium tenerum*, *Rhynchospora plumosa*, *Xyris caroliniana*, *Ludwigia hirtella*, *Ludwigia virgata*, *Rhexia alifanus*, *Pycnanthemum nudum*, *Agalinis obtusifolia*, and *Chaptalia tomentosa*. Another wet savanna in **Hancock Co., Mississippi**, supported members of *Sarracenia*, *Drosera*, *Dichromena*, and *Xyris* (Jones & Jones 12,637). The specimen label for **Suwannee County, Florida** (Abbott 22,179), lists the following at a blackwater river bank: *Betula nigra*, *Diospyros virginiana*, *Nyssa biflora*, *Taxodium distichum*, *Sebastiania fruticosa*, *Cyrilla racemiflora*, *Cyperus* spp., *Clematis crispa*, *Trachelospermum difforme*, *Hedyotis procumbens*, and *Pentodon pentandrus*. The specimen label for **Calhoun County, Georgia** (Carter 19,309), lists the following at a flatwoods pond margin: *Taxodium ascendens*, *Nyssa biflora*, *Quercus laurifolia*, *Lyonia lucida*, *Cephalanthus occidentalis*, *Clethra alnifolia*, *Hypericum* spp., and *Woodwardia virginica*. The specimen label for **Baker County, Georgia** (Gholson & Jackson 11,702), lists the following at a

depression pond: *Axonopus furcatus*, *Euthamia tenuifolia*, *Helianthus angustifolius*, *Panicum hians*, *Croton elliotii*, and "typical form of *Diodia virginiana*." The specimen label for **Bryan County, Georgia** (Zebryk 0438), lists the following at a pine flatwoods: *Pinus palustris*, *Xyris caroliniana*, *X. brevifolia*, *Linum floridanum*, *Rhexia alifanus*, *Rhexia mariana*, *Lycopodiella alopecuroides*, and *Lachnanthes caroliniana*. The specimen label for **Galveston County, Texas** (Rosen & Winzer 5,296), lists the following from a wet flat on a barrier island: *Spartina patens*, *Leptochloa nealleyi*, *Cynanchum angustifolium*, *Mimosa strigillosa*, and *Schoenoplectus pungens*.

Phenology. *Diodia harperi* has been documented in flower from 16 May to 25 August (sporadically to 11 October) and in fruit from 27 May to 22 November.

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Appendix 1. *Diodia harperi* collections examined (275 total).

Alabama. Baldwin Co.: 3 mi N of Foley, open ground along railroad, 21 Oct 1950, *Whitehouse 24,285* (BRIT); damp situation of otherwise dry pine land about Elberta, 25 Aug 1925, *Wolf 2,392* (AUA); recently cleared pineland bog by Ala. 112, 21.5 mi SE of Bay Minette, 18 Aug 1968, *Kral 32,551* (BRIT). **Chilton Co. [Baker Co. as written on label; Baker was renamed in 1874]:** damp soil and cultivated grounds, Aug 1873, *Smith s.n.* (UNA). **Conecuh Co.:** locally common around farm pond on county road 42, 0.9 mi W of Covington county line, 3 Oct 1981, *Lynch 43* (UNA); on county road 42 at Covington County line, ca. 5 mi SE of Brooklyn, common in wet ditch, 8 Aug 1979, *Davenport 1511* (UNA). **Covington Co.:** longleaf pine sandhills and bog by US 331, 3 mi N of Florala, 26 Jul 1968, *Kral 32,085* (AUA, BRIT); ca. 2 mi W of Wing on county road 4, sandy pineland, 18 Sep 1971, *Kral 44,293* (BRIT); sandy peat of swale in site-prepped hills by county road 20, just E of county road 4, 26 Jul 1990, *Kral 78,108* (BRIT); S side of county road 4, 3.0

mi E of Ala. 54, moist pine savanna with scattered longleaf and slash pines, frequent in wet portions, 13 Sep 1995, *Sorrie & Stowell 8,602* (NCU); Solon Dixon Forestry Education Center, swampy pond along main entrance road, dominated by *Nyssa*, 20 Jun 2008, *Hansen & Goertzen 3,339* (AUA); unnumbered dirt road 0.3 mi N of county road 82, dry sandy cutover pine woods, 17 Sep 2005, *Diamond 15,779* (BRIT). **Crenshaw Co.:** dirt road between East Fork Bradley Branch and Indian Creek, wet sandy pine woods, 13 Aug 2005, *Diamond 15,646* (AUA, BRIT); along highway 10 ca. 1 mi W of Rutledge at Patsaliga Creek, wet sandy soil, 9 Sep 2004, *Hansen & Goertzen 1,644* (AUA); county highway 59 ca. 0.3 mi N of Dry Creek, moist sandy roadside, 13 Aug 2004, *Diamond 14,606* (AUA, BRIT). **Elmore Co.:** low sandy pasture by AL 9, 5 mi N of Wetumpka, 31 Aug 1969, *Kral 36,626* (BRIT, GA). **Geneva Co.:** borrow pits along dirt road from Pea River to Liberty Chapel, 25 Aug 1966, *Clark 7697* (NCU); savanna, sandy peat, by county 4, ca. 10 mi E of Florala, 2 Aug 1971, *Kral 43,450* (BRIT, GA); longleaf pine sandhills, W side of Geneva, sphagnous bog, 25 Jul 1968, *Kral 32,021* (AUA, BRIT, UNA); sand and peat of shore of drying pond, S side Ala. 52, 8 mi NE of Geneva, 10 Sep 2000, *Kral 90,259* (BRIT). **Houston Co.:** nearly dry depression pond just NE of Indigo Pond, 11 Sep 1995, *Sorrie & Stowell 8,579* (NCU); Dothan southside along St. Andrews Bay railroad, 6 Sep 1992, *MacDonald 5,395* (BRIT). **Lee Co.:** Auburn University Dairy Research Unit Lake, 7 mi N of Auburn, 13 Aug 1969, *Ellis 173* (BRIT). **Mobile Co.:** roadside of N-S road to Bellingrath Gardens, ca. 1 mi N of junction with AL 188, 23 Jun 1966, *Clark 3,584* (NCU); 11 1/2 mi S of Mobile, sandy ditch flat pine land, 29 Jul 1950, *Shinners 12,752* (BRIT); Dauphin Island, roadside near pine forest and dunes, 26 Jun 1964, *Deramus D143* (BRIT); Dauphin Island, ca. 1 mi SE of Bienville Square, common behind first low dune from Gulf, 8 Oct 1967, *McDaniel 9,930* (BRIT, GA); Dauphin Island, E end, 17 Oct 1973, *Taylor & Taylor 15,218* (BRIT, NLU); Dauphin Island, freshwater swamp in Audubon Bird Sanctuary, 25 May 1973, *Taylor & Taylor 13,350* (BRIT, NLU); spoilage in swampy bottom, Chickasaw Creek, N of Mobile on US 43, 20 Aug 1968, *Kral 32,698* and *32,699* (BRIT, GA); Alabama Port, pine savannah, 23 Aug 1951, *Chermock s.n.* (UNA). **Monroe Co.:** 0.6 mi E of county road 59 from state rte. 41, edges of stream and roadside, 1 Jul 1972, *Hybart 105* (AUA); sandy peaty edge of gum bay by U.S. 84, 5.3 mi E of jct. Ala. 21, 18 Jul 1995, *Kral 85,350* (BRIT). **Montgomery Co.:** by loop bypass just N of U.S. 80, WSW side of Montgomery, disturbed low area, 10 Oct 1970, *Kral 41,592* (BRIT). **Pike Co.:** dirt parking lot of Troy State University Arboretum, sandy disturbed soil, 28 Jun 1988, *Diamond 5,098* (AUA). **Washington Co.:** on U.S. 43 at Clarke Co. line (Tombigbee River), ca. 3 mi NE of Leroy, common at edge of backwater, 6 Aug 1979, *Davenport 1,448* (UNA); county road 3, ca. 7 mi W of Millray, abundant in wet mud of road ditch, 5 Aug 1980, *Haynes 8,096* (UNA); 4.3 mi N of Citronelle, moist bank along railroad through pine-turkey oak, 5 Sep 1965, *Kral 25,984* (AUA, BRIT); 5 mi S of Chatom, sandy peat of pineland bog, 14 Jul 1969, *Kral 35,534* (BRIT); longleaf pineland bog 3.1 mi S of St. Stevens, 21 Sep 1969, *Kral 37,217* (BRIT); alluvium of Tombigbee River bottoms where crossed by U.S. 43 S of Jackson, 14 Jul 1969, *Kral 35,591* (BRIT).

Arkansas. Calhoun Co.: edge of woods beside Locust Bayou, S of rte. 4, 12 Sep 1993, *Thomas 137,423* (NLU). **Clark Co.:** Amity, clearing 150 yards E of railroad, soil wet from seepage, 7 Aug 1985, *Brooks & Kuhn 17,600* (NLU); gravel bars of Caddo River, P.O. Amity, 25 Oct 1969, *Demaree 61,364* (BRIT). **Hot Spring Co.:** low wet areas, P.O. Malvern, 10 Oct 1953, *Demaree 34,479* (BRIT). **Jackson Co.:** beside rte. 18 at Village Creek, 8 Jul 1968, *Thomas 10,252* (NLU). **Miller Co.:** moist banks of Red River at bridge to Fulton, 14 Oct 1963, *Demaree 49,130* (BRIT). **Montgomery Co.:** moist bottom, very common, P.O. Mount Ida, 11 Oct 1952, *Demaree 33,144* (BRIT, MISS); gravel bars of Caddo River, 7 Oct 1958, *Demaree 40,609* (BRIT). **Nevada Co.:** bottoms of Little Missouri River, 19 Jun 1963, *Demaree 48,154* (BRIT). **Perry Co.:** above mud flats to high water line, Nimrod reservoir, 15 Jul 1949, *Wolff s.n.* (BRIT); banks of cold stream below Nimrod Dam, 31 Aug 1958, *Demaree 40,374* (BRIT). **Polk Co.:** Mena, along railroad between 8th and 9th Street, 4 Oct 1992, *Thomas & Thomas 131,986* (NLU). **Union Co.:** Just N of Junction City, Cornie Creek bottoms, 29 Oct 1964, *Kral 23,257* (BRIT); along railroad E of rte. 129 in Huttig, 1 Sep 1989, *Thomas 112,410* (NLU); same place 11 Oct 1987, *Thomas 102,616* (NLU); bottomland

hardwood forest along W bank of Ouachita River, 0.5 mi N of Louisiana line, 26 Sep 1991, *Thomas et al.* 125,353 (NLU). **Yell Co.:** low wet areas above Nimrod Lake, 17 Sep 1970, *Demaree* 62,874 (BRIT).

Florida. Alachua Co.: peaty bottom of dried up pond, 3 mi SE of Hawthorne, 25 Jul 1961, *Godfrey & Reinert* 61,097b (BRIT, FSU); O'Leno State Park, Pareners Branch Loop Trail through mesic woods, 12 Aug 1989, *Tan* 41 (NLU). **Bay Co.:** shallow water of roadside ditch, NW side of North Bay, 13 Jun 1957, *Williams s.n.* (FSU); low area in clay pineland, 3 mi SE of Youngstown, 12 Aug 1954, *Ford* 4589 (FLAS). **Calhoun Co.:** bordering route 73, 0.5 mi S of Clarksville, frequent in dry sand of cutover pine woods, 18 Oct 1982, *Anderson* 6257 (FSU). **Charlotte Co.:** Webb Wildlife Area, pine-palmetto flatwoods with *Panicum tenerum* and *Pluchea foetida*, 22 Nov 1963, *Lewis* 117 (GA). **Citrus Co.:** near Hernando, wet margin of Lake Tsala Apopka, 2 May 1961, *Cooley et al.* 8,225 (BRIT). **Clay Co.:** swampy pasture land mile S of Penney Farms. 7 Sep 1945, *Totten s.n.* (NCU). **Columbia Co.:** O'Leno State Park, along Wire Road in path, 1 Sep 1989, *Amoroso & Tan* 28 (FSU). **Dixie Co.:** flatwoods, 1.5 mi S of Steinhatchee River on FL 19, 21 Aug 1937, *no name s.n.* (FLAS). **Duval Co.:** low rich places near Jacksonville, Jul (no year), *Curtiss* 1115 (GA, MISSA, USF); moist pine barrens near Jacksonville, 5 Oct 1894, *Curtiss* 5035 (GA); same place, 29 Aug 1898, *Curtiss* 6219 (FLAS, NCU). **Escambia Co.:** sandy open field in Pensacola, 21 Jun 1941, *Brinker* 41 (FSU). **Flagler Co.:** flatwoods, 5 mi E of county line, near FL 28, Andalusia, 10 Oct 1940, *West & Arnold s.n.* (FLAS); Bunnell, sandy edge of pond off rte. 1, 3 mi S of town, 8 May 1969, *Churchill s.n.* (BRIT); 2.5 mi ESE of Bunnell, moist sandy peat of palmetto flatwoods bog, 10 Aug 1963, *Kral* 18,538 (BRIT). **Franklin Co.:** in shallow water forming extensive thick mats, margin of cypress-gum pond, 7 mi N of East Point, 24 Jul 1957, *Godfrey* 55725a (NCU); frequent with *D. teres* in moist sandy loam in wooded floodplain of Apalachicola River at Bloody Bluff Landing, 4 Sep 1985, *Anderson* 8730 (FSU); Tates Hell Swamp, just NW of first road going W of Tucker Road along Double Bridge Road, 24 Aug 1995, *Lindholm s.n.* (GA); open clearing on U.S. 98, 6.4 mi E of Gulf County line, 7 Jun 1971, *Browne & Browne* 71G9.2 (NLU). **Gilchrist Co.:** Suwannee River Water Management District, 47 Bridge Tract, degraded bottomland forest, 6 Sep 2005, *Abbott* 20594 (FLAS). **Gulf Co.:** Cape San Blas, ca. 6 mi NW of lighthouse, open white sandy area in slash pine-sand pine-myrtle oak, 21 Jul 1967, *McDaniel* 9,501 (BRIT). **Hamilton Co.:** scattered plants in bare sand, bank of Suwannee River, 5 mi S of Georgia line, 8 Oct 1966, *D'Arcy* 1,220 (FSU, GA); dry bank of Suwannee River, White Springs, 30 Sep 1941, *West & Arnold s.n.* (FLAS). **Hendry Co.:** Okaloochee Slough State Forest, 6.2 km E of route 29, marshy wet flatwoods, 3 Sep 2011, *Franck* 2725 (USF). **Hillsborough Co.:** proposed Cone Ranch wellfield, edge of marsh, 25 Aug 1991, *Bailey* 56 (FLAS). **Holmes Co.:** 4.1 mi W of Ponce de Leon, low swampy area surrounded by moist pine woods, 9 Jul 1964, *McDaniel* 4,851 (FSU); disturbed land about Choctawhatchee River bridge, route 2, 21 Jul 1954, *Ford* 3,494 (FLAS). **Jackson Co.:** moist pineland, 11 mi W of Chattahoochee, 9 Aug 1947, *Thorne* 5,957 (GA); marshy shore of lake 1 mi E of Marianna, 27 Sep 1957, *Godfrey & Kral* 5,925 (BRIT); Lake Seminole Wildlife Refuge, scattered plants amongst grasses and sedges in wet mucky areas along marshy shore, sometimes forming thick mats, 15 Oct 1958, *Monoson* 33 (FSU); Apalachee Game Management Area, along Lake Seminole, 4 mi N of Sneads, 11 Sep 1982, *Knight* 781 (FSU); moist sands of pond bottom, Race Pond, W of Lake Seminole, 1 Oct 1977, *Godfrey* 76,046 (FSU). **Lake Co.:** 7 mi SW of Okahumpka, frequent on moist sandy peat of savanna, 5 Aug 1958, *Kral* 7,620 (FSU). **Lee Co.:** North Fort Myers, sandy peat of clearing in slash pine-palmetto flats, 24 Jul 1963, *Kral* 18,013 (BRIT). **Leon Co.:** abundant on bottom of dried-up pond, N side of Tram Road, SE of Tallahassee, 8 Jul 1976, *Leonard* 6332 (FSU). **Nassau Co.:** pine flatwoods W along Quail Road, White Oak Plantation, 17 Aug 2000, *Rider* 316 (FLAS). **Okaloosa Co.:** frequent amongst grasses and *Ludwigia* along N edge of Karick Lake, Blackwater State Forest, 11 Oct 1996, *Anderson* 17,180 (BRIT, FSU, NCU, USCH); Fred Gannon Rocky Bayou State Recreation Area, frequent in sand bordering outlet to Puddin Head Lake, 20 Jun 1994, *Anderson* 14985 (FSU); narrow swamp along Shoal River, S of Dorcas, 2 Aug 1954, *Ford* 3923 (FLAS). **Orange Co.:** ca. 3 mi S of Oakland, frequent in moist sand of lakeshore, 7 Aug 1958, *Kral*

7,722 (GA); Moss Park, W shore of Lake Mary Jane, sandy open disturbed lake shore grading into *Typha* marsh, 25 Aug 1981, *Hansen & Lindsey* 8,734 (USF); wet place S of Winter Garden, 6 March 1957, *Schallert* 26,690 (BRIT). **Pinellas Co.:** Clearwater, edge of palmetto scrub, 6 May 1970, *Genelle & Fleming* 227 (NLU); Braidentown, 7 Jul 1900, *Tracy* 7,086 (BRIT). **Putnam Co.:** open fields and margins of mixed hardwood/pine forest next to hwy. 100, W of Palatka, 6 Jun 1998, *Slaughter* 10,093 (NLU). **Santa Rosa Co.:** 16 mi N of Navarre, sparse slash pine savanna N of Yellow River, 9 Jul 1964, *McDaniel* 4,891 (BRIT, FSU). **Sarasota Co.:** edge of scrubby flatwoods, Deer Creek Prairie Preserve, 29 Sep 2007, *Franck* 383 (FLAS). **St. Johns Co.:** clearcut wet pine flatwoods/bayhead, Cowan Swamp, 12 Jul 2006, *Slaughter* 14,919 (BRIT). **Suwannee Co.:** W of White Springs, sandy riverbank along Suwannee River, Blue Sink Tract, creeping plant, 14 Aug 2006, *Abbott* 22179 (FLAS). **Volusia Co.:** Daytona Beach, Road 600 W of Halifax Hospital, flatwoods, 31 Aug 1947, *Hume s.n.* (GA). **Wakulla Co.:** moist sandy banks of roadside ditch just E of Panacea, 22 Jul 1957, *Godfrey* 55,616 (FSU); 2.5 mi NW of Newport, pine flatwoods, 25 Jul 1964, *McDaniel* 4,940 (BRIT); along sandy road between highways 365 and 367, N of Spring Creek, wet cut and bulldozed slash pine area, 27 Jul 1970, *Lazor* 4,562 (FSU). **Walton Co.:** moist grassy road leading to junction of Alaqua Creek and Little Alaqua Creek, 20 Jun 1967, *Smith* 1,526 (FLAS); wet place SE of jct. U.S. 331 and U.S. 98, ditch by road, 19 Oct 1973, *Sutherland* 114 (AUA); sparse woods on N side U.S. 98, 10.9 mi SE of jct with U.S. 331, 20 Oct 1973, *Kratzer* 00135 (UNA). **Washington Co.:** Falling Waters State Park, lower slope of seepage bog near sinkhole trailhead, 28 Sep 2000, *Carr* 6671 (FLAS); abundant in mucky soil between railroad and U.S. 90, Caryville, 5 Aug 1960, *McArthur s.n.* (NLU). **no county named:** "Florida", no date, *Chapman s.n.* (NCU).

Georgia. Baker Co.: Ichauway Plantation, NW of Richardson Flat, small depression pond dry due to severe drought, plant with upright growth habit, 4 Aug 1986, *Gholson, Jr. & Jackson* 11702 (GA). **Berrien Co.:** low wet pinelands and adjacent water-filled borrow pit along highway 64, 2 miles NNE of Ray City, 29 Jun 1965, *Faircloth* 1950 (GA, NCU). **Brooks Co.:** low pineland, 3 miles NE of Pavo, 6 Jun 1955, *Adams* 42 (GA); low wet alluvial area beneath highway bridge over Little River, 2.5 mi NNE of Barney, 1 Jul 1966, *Faircloth* 3251 (GA, NCU); 2.5 mi W of Dixie Crossroads along U.S. 84, pine flatwoods, 27 Jul 1967, *Kral* 28,696 (BRIT); sand terraces on W side of old highway 84, at abandoned Blue Springs resort area, 22 Oct 1976, *Dixon* 74 (GA, NCU, NLU). **Bryan Co.:** Fort Stewart Military Reservation, Training Area B-17, mesic ditch adjacent to longleaf pine flatwoods, 7 Jul 1992, *Zebryk* 0438 (GA). **Bulloch Co.:** 3 3/4 mi SE of Statesboro, sandy roadside, 19 Aug 1961, *Boole, Jr.* 1,172 (BRIT). **Calhoun Co.:** Georgia 216, 0.3-0.5 mi S of Edison, sandy silty openings in oak-spruce pine flats, 6 Sep 2002, *Kral* 93170 (BRIT); 6.63 air mi N of Leary, E side C.R. 136, extensive flat and pond margin with *Taxodium ascendens*, 6 Aug 2009, *Carter & Baker* 19,309 (GA). **Charlton Co.:** 1.5 mi W of St. George on highway 94, low ditch, 11 Jul 1979, *Jones & Loew* 23,348 (GA); Waycross State Forest, N of Big Creek, 1/2 mi below Walker Dam, open pine palmetto forest, 6 Aug 1960, *Kuns* 32 (BRIT). **Clinch Co.:** disturbed low area along rte. 441, ca. 12 mi SE of Homerville, 18 Aug 1998, *McNeilus* 98-783 (BRIT, NLU). **Cobb Co.:** along Rotten Wood Creek at bridge on North Expressway beside I-275, Atlanta, 30 Sep 2000, *Thomas* 167,687 (NLU). **Colquitt Co.:** low open pitcher-plant bog alongside US 319, 9.7 mi NE of Moultrie, 10 Jun 1964, *Faircloth* 1,129 (GA). **Decatur Co.:** shallow muddy pond 12 mi SW of West Bainbridge, 17 Jun 1947, *Thorne* 4,738 (GA); sandy peaty slough along railroad 5 mi W of Whigham, 5 Jul 1964, *Kral* 20,552 (BRIT). **Dooly Co.:** partially drained cypress pond, 2.7 mi SSE of Unadilla on W side of railroad, 31 Jul 1953, *Duncan, Harper, & Humphrey* 16,837 (GA); longleaf pine-black gum flat 3 mi S of Pitts Junction, 22 Aug 1972, *Kral* 48,139 (BRIT). **Dougherty Co.:** *Kral* 91,728 (BRIT). **Echols Co.:** waste area around sand and borrow pits on SW side of Little River, 6.9 mi E of Lake Park, 16 Jul 1965, *Faircloth* 2,312 (GA). **Effingham Co.:** flat damp pine barrens a little N of Eden, 2 Sep 1961, *Harper* 4,486 (UNA). **Grady Co.:** wet open woods along head of Maxwell Creek, 6.5 miles S of Quitman, 27 Aug 1963, *Faircloth* 537 (GA, NCU); sandy peat at edge of cypress by US 84, 3.5 mi E of Cairo, 3 Aug 2000, *Kral* 90,238 (BRIT, GA); sandy peat of transition pine flatwoods to titi, Hadley Ferry Road, 8 Jun 2002, *Kral* 92,706 (BRIT); seep area, powerline clearing through longleaf pine

hillside, E off of rte. 112 W of Cairo, 26 Aug 2002, *Kral 93,109* (BRIT). **Houston Co.:** mixed hardwoods between Scout Lake and Luna Lake, Robins Air Force Base, 16 Jun 1979, *Dixon 1436* (NLU). **Irwin Co.:** moist pine-cypress savanna, intersection of Irwin and Ben Hill Counties at US 129, 15 Jun 1962, *Plummer & Pullen s.n.* (GA); same place, 5 Jul 1962, *Plummer & Pullen s.n.* (GA). **Liberty Co.:** Fort Stewart Military Reservation, Training Area D-8, poorly drained flatwoods, common, 24 Jun 1992, *Carter & Lusk 9914* (GA). **Long Co.:** three year old pine stand in deep sand, 5 mi W on route 261 from US 301 at Beard's Creek, 6 Oct 1963, *Bozeman 1722* (GA); Griffin Ridge Wildlife Management Area, second entrance off 301S, abundant in flatwoods, 25 Jul 1999, *Holland & Luber 128* (GA). **Lowndes Co.:** 4.6 mi E of Valdosta on sandy peat of pine flatwoods, 13 Sep 1973, *Kral 51,660* (BRIT). **Mitchell Co.:** roadside ditch along edge of *Taxodium-Nyssa* pond, 2 mi E of Pelham, 24 Jul 1964, *Faircloth 1353-A* (NCU). **Screven Co.:** fine sandy soil at edge of bay, 9 mi E of Millen, 7 Aug 1942, *Duncan 5551* (GA). **Thomas Co.:** Thomasville, just E of jct. U.S. 319 and state rte. 35 in pinelandswale, sandy peat, 12 Jul 2004, *Kral 95,428* (BRIT). **Tift Co.:** drain of pine-barren pond near Tifton, 26 Sep 1902, *Harper 1682* (NCU, NY), [Note: the collection label says Berrien County, but part of Berrien was later excised to form Tift County]. **Toombs Co.:** moist pine barren, 3 mi E of railroad depot in Lyons, 19 May 1962, *Plummer & Pullen s.n.* (GA).

Louisiana. Allen Par.: roadside prairie between U.S. 165 and railroad, 1.8 mi S of U.S. 190, 24 Oct 1981, *Thomas & Allen 79,393* (NLU); cleared sandy area beside oil well in pine woods, S of U.S. 190, E of LeBlanc, 5 Aug 1983, *Thomas 84,698* (NLU). **Beauregard Par.:** along railroad and rte 27 between Juanita and Singer, flat pine land, 22 Aug 1971, *Thomas 24,630* (NLU); flat pine woods 5.9 mi SW of Singer on rte. 110, 5 Jun 1986, *Thomas, Allen, & Bordelon 96,660* (NLU). **Bienville Par.:** 11 mi SE of Minden, ditch, 26 Jul 1950, *Shinners 12,598* (BRIT). **Caldwell Par.:** 7.7 mi N of Riverton, damp clay bank above stream, 7 Oct 1955, *Shinners 21,842* (BRIT); behind levee in woods 1 mi W of rte. 165 in Columbia, 23 Jun 1968, *Scarborough 516* (NLU). **Calcasieu Par.:** pineland savannah-prairie, Starks, 22 Jul 1964, *Kral 20,969* (BRIT); cleared woods at gas well beside rte. 12 W of Starks, 5 Jun 1992, *Thomas 129,664* (NLU). **Cameron Par.:** field aslong Parish Road 104, 3.1 mi S of rte. 14, SE of Lake Arthur, 13 May 1984, *Thomas & Dutton 88,619* (NLU); roadsides and ditches along rte. 127, 3.7 mi S of Calcasieu Parish line, 3 Sep 1983, *Dutton & Taylor 187* (NLU). **Catahoula Par.:** waste area 0.3 mi W of headquarters of Delta Plantation, 21 Aug 1974, *Thomas & French 41,190* (NLU); disturbed area along W bank of Bayou Louis on S side of La. 8, 3 mi E of Harrisonburg, 21 Nov 1989, *Thomas 114,616* (NLU). **Concordia Par.:** 2 mi W of Ferriday, silty clay ditch bank, 30 Jul 1950, *Shinners 12,786* (BRIT); W bank of Mississippi River E of La. 15, 3.0 mi S of La. 131, NE of Deer Park, 7 Aug 1988, *Thomas 106,770* (NLU). **De Soto Par.:** pasture at proposed Cajun Electric's lignite powerplant site SE of Evelyn and La. 177, 28 Sep 1978, *Thomas & Dixon 61,169* (NLU). **Grant Par.:** Kisatchie National Forest, pastured open area beside experimental pine woods W of FS road 146, E of Bentley, 30 Jul 1981, *Thomas & Carroll 77,629* (NLU). **Lincoln Par.:** 4.5 mi E of Ruston on moist sandy clay of streambank, 4 Sep 1962, *Kral 15,724* (BRIT). **Natchitoches Par.:** Kisatchie National Forest, bog on Strange Road, N of La. 479 and W of Goldonna near Ragan Creek, 17 Oct 1986, *Thomas & Gilmore 98,857* (NLU); Kisatchie National Forest, "Fixit" pitcher plant bog, Bayou L'Ivrogne headwaters, 28 Jul 1989, *MacRoberts & MacRoberts 863* (BRIT); Kisatchie National Forest, "360B" grass-sedge hillside bog, 0.25 mi E of FR 360, 14 Jul 1990, *MacRoberts & MacRoberts 1059* (BRIT); Kisatchie National Forest, planted longleaf pine woods in flat area on SE side of FS road 605, S of Reidheimer, 26 Sep 2001, *Thomas et al. 171,929* (NLU). **Rapides Par.:** pine woods beside La. 112, 0.5 mi N of Allen Parish, 5 Nov 1978, *Thomas & Schutz 62,339* (NLU). **Red River Par.:** cut-over area in swampy woods near rte. 7, 4 mi N of Coushatta, 3 Oct 1967, *Thomas 5771* (NLU). **Sabine Par.:** Boise Southern holdings along Wolf Prong road W of rte. 118, 28 Jun 1980, *Carroll 1705* (NLU); along main road and within pitcher plant bog, Pearson Ridge WMA, 6 mi NE of Hornbeck, 31 Aug 1980, *Carroll 2003* (NLU). **St. Charles Par.:** common weedy species in damp sand alluvium, overflow of Bonnet Carre Spillway, 12 Oct 1947, *Ewan 17,437* (GA); same place, 27 May 1948, *Ewan 17,699* (GA). **St. Tammany Par.:** moist pineland, 1 mi N of Abita Springs, 14 Aug 1912, *Pennell 4153* (GA); Covington, Sulphur Spring, Aug 1919, *Arsene*

11,647 (BRIT); Covington, low sandy ground at Delta Primate Center, 12 Jul 1969, *Churchill s.n.* (BRIT). **Tangipahoa Par.:** longleaf pine woods 1/2 mi W of I-59, W of Fluker and S of La. 10, 25 Oct 1974, *Thomas 42,166* (BRIT, NLU); pine woods beside La. 40 and La. 445, W of Uneedus, 25 Sep 1975, *Thomas & Allen 46951* (NLU). **Washington Par.:** low wet areas, Franklinton, 26 Oct 1962, *Demaree 46,885* (BRIT); large clear cut area on hill S of route 436, 8 mi E of Pine, 15 June 1983, *Thomas 84,332* (UNA); Choctaw Trail NW of Sheridan, wetter soils of margins of pine-oak woodlands, small clearings, 19 Sep 1958, *Ewan 19,437* (BRIT). **Winn Par.:** 1.7 mi W of Winnfield, low ground along highway, 8 Jun 1955, *Shinners 20,283* (BRIT).

Mississippi. Bolivar Co.: Cleveland, campus of Delta State University, NW of football stadium in regularly mowed shallow drainage way, 7 Sep 2000, *Stewart 7074* (MISS). **Forrest Co.:** Ragland Hills, 21 May 1970, *Rogers 3296* (MISS); low area 5.1 mi SW of jct. highway 13 and U.S. Forest Service road 238, 22 Aug 1964, *Jones 2356* (MISS); 3.5 mi SW of Hattiesburg, longleaf pine land at clover leaf of highways 49 and 11, 28 Jul 1964, *Cooper 190* (MISS). **Greene Co.:** 2 mi WSW of Leakesville, highway 57, edge of low woods, 18 Jul 1966, *Jones & Hudson 8402* (MISS); acid bog 2 mi SE of Leakesville, highway 63, 18 Jul 1966, *Jones & Hudson 8456* (MISS); 3.1 mi N of jct. of Miss. 57 and 63, dry to moist clearcut, originally pine-oak, 25 Jul 1988, *McDaniel & Nace 30,123* (BRIT). **Hancock Co.:** ditches in wet flat pine woods, P.O. Bay Saint Louis, 24 Aug 1952, *Demaree 32,991* (BRIT, MISS, NCU); sandy fill along road on inland side of sea wall, in full sun, 1 mi SW of Clermont Harbor, 24 Jul 1969, *Jones 17,513* (MISS); acid savannah with *Sarracenia*, *Drosera*, *Dichromena*, and *Xyris*, 1 mi N of Necaize, 30 May 1967, *Jones & Jones 12,637* (MISS); flat coastal savannah, acid soil, full sun, Waveland at highway 90, 26 Aug 1966, *Jones & Jones 9,431* (MISS); Waveland at jct. Waveland Ave. and Beach Road, 31 Jul 1984, *Hermann 391* (NLU); 6.2 mi ENE of Pearl River, hwy. 90, sandy loam dry bog, 4 Jun 1961, *Lewis 5,695* (BRIT). **Harrison Co.:** river bottoms, P.O. Biloxi, 20 Aug 1952, *Demaree 32,951* (BRIT, NCU); Biloxi, 6 Sep 1898, *Tracy 4957* (MISS); low wet areas, P.O. Lyman, 6 Jul 1952, *Demaree 32,106* (BRIT, NCU); DeSoto National Forest, Rifle Range, open longleaf pine stand, common, 14 Aug 1964, *Johnson 432* (GA); moist sand near the coast, Henderson Point, P.O. Pass Christian, 28 Jul 1952, *Demaree 32,339* (BRIT); moist sand dunes of Bay Saint Louis, Henderson Point, P.O. Pass Christian, 12 Aug 1952, *Demaree 32,747* (BRIT, NCU); sandy peat of pine flatwoods boggy savanna, 5 Jul 1963, *Kral 17,553* (BRIT). **Jackson Co.:** Ocean Springs, 22 Aug 1891, *Seymour & Earle 128* (BRIT, NCU); low wet areas, P.O. Ocean Springs, 11 Jul 1952, *Demaree 32,146* (BRIT); moist pine barrens, P.O. Ocean Springs, 13 Jul 1952, *Demaree 32,199* (NCU); moist sandy areas, P.O. Ocean Springs, 21 Jul 1952, *Demaree 32,273* (BRIT); low slash pine woods scattered with *Myrica*, *Cyrilla*, and *Ilex*, along Fort Bayou and highway 57 cut-off near highway 57 ENE of Ocean Springs, 22 Jul 1969, *Jones & Catchot s.n.* (MISS); moist ditch banks 9 mi N of Escatawpa, 19 Aug 1952, *Demaree 32,659* (BRIT, MISS); sandy soil of moist low place in pinelands, rte. 63 about 10 mi N of Escatawpa, 9 Aug 1952, *Channell 1,497* (AUA, BRIT); Vancleave, sandy bank of Bluff Creek, 20 Aug 1951, *Channel 451* (MISSA); Ocean Springs, 20 Jul 1955, *Chermock s.n.* (UNA); near the coast, Deer Island, 2 Jul 1952, *Demaree 32,098* (BRIT, NCU); Highway 59 N of Fountainbleau, 6 Jul 1952, *Diener 199* (MISSA); Horn Island, 22 Aug 1947, *Simmons s.n.* (MISS); roadside 1 mi S of county line on highway 57, 22 Jun 1966, *Lowe 196* (GA); 2 mi S of Greene Co. line, highway 63, creek bank, 20 Jun 1966, *Jones 6,803* (MISS); 17 mi S of Lucedale, highway 63, just S of George Co. line at first creek, edge of low slash pine woods, 21 Jul 1969, *Jones 17,147* (BRIT, MISS). **Jefferson Co.:** pasture at Church Hill, loess soil, hilly, weedy, 5 Sep 1966, *Jones & Noble 10248* (MISS). **J ones Co.:** 10 mi S of Laurel on highline right-of-way in disturbed sandy soil, 2 Jul 1963, *Teer s.n.* (BRIT, NCU); low longleaf pine woods, Forest Service road 201, 17 Jun 1966, *Jones & Jones 6720* (MISS). **Lamar Co.:** grassy moist cut-over pineland slope, 3 mi N of Purvis, 26 Jul 1956, *Ray, Jr. 7,187* (BRIT, NCU); near Little Black Creek, 15.5 mi WSW of Hattiesburg, bog area full sun, acid soil, 2 Sep 1964, *Jones 2473* (GA); along Black Creek, highway 589, NNW of Purvis, 11 Jul 1966, *Jones & Jones 7976* (MISS). **Lauderdale Co.:** U.S. 80 crossing of Chunky River, E of Chunky, sandy peaty clearing in loblolly bottom, 22 Aug 1964, *Kral 22,030* (AUA, BRIT). **Leflore Co.:** Greenwood, 9 Jun 1935, *Wenzer 314* (MISSA); NW

of Sidon between Sidon cutoff and old Yazoo River run, in no tillage soybean area, 22 Jun 1998, *Bryson 16426* (MISS). **Marion Co.:** Hugh White Game Management Area, longleaf pine woods, 15 Jun 1966, *Jones, Carter, & Hudson 6575* (MISS). **Oktibbeha Co.:** MAFES research center, low wet area in bermudagrass field, 29 Sep 2002, *Wright 14* (MISSA); **Pearl River Co.:** acid bog 6.5 mi ESE of Lumberton, 6 Jun 1966, *Jones & Jones 6153* (MISS); low roadside ca. 9 mi W of Poplarville, highway 26, 19 Jul 1966, *Jones 8638* (MISS). **Perry Co.:** moist grassy roadside 5 mi E of Runnelstown, 27 Aug 1966, *Jones 9610* (MISS); along Bonhomme & Hattiesburg Southern RR embankment near rich deciduous woods, ca. 11 mi SE of Hattiesburg, 20 Jun 1955, *Ray, Jr. 6243* (MISS, MISSA). **Rankin Co.:** grey sandy clay soil, full sun, well-drained roadside 2.3 mi W of Pelahatchie, highway 90, 13 Jul 1970, *Jones 18939* (MISS). **Simpson Co.:** along Sanders Creek and U.S. route 49, 4.1 mi S of Rankin Co. line, 29 Jul 1968, *Temple 10336* (MISS); low moist roadside, highway 49, 2 mi N of D'Lo, 5 Jul 1967, *Jones 14059* (MISS). **Stone Co.:** pitcher-plant bog, S of University of Mississippi Forest headquarters, 17 Jul 1964, *Pullen 64-1073* (GA, MISS, NCU); headquarters, University of Mississippi forest lands, longleaf pine woods, 18 Jul 1964, *Jones, Jr. 2,178* (NCU). **Washington Co.:** 2.5 mi N of Stoneville, Delta Branch Experiment Station, heavy clay soil, 18 Sep 1986, *Gasparini 38* (NLU). **Yalobusha Co.:** alongside Grenada Reservoir, near Bryant, frequently disturbed area, 21 Aug 1998, *Denley 203* (MISS).

North Carolina. Dare Co.: on coastline sand near Salvo, 5 Aug 1955, *Schallert 4007* (BRIT); beach near Manteo, Roanoke Island, 18 Aug 1957, *Schallert 4007* [sic!] (BRIT). **Jones Co.:** on side of county road 1004 near jct. with Island Creek, 5 mi NE of Pollocksville, 24 Jul 1965, *Sears C477* (NLU).

Oklahoma. McCurtain Co.: swamp 7 mi S of Eagletown, 13 Oct 1951, *Waterfall 10442* (BRIT).

South Carolina. Berkeley Co.: upper margin of gum pond, now quite dry, with *Pluchea odorata*, *Ilex myrtifolia*, 5 air mi NE of Honey Hill, 31 Aug 2012, *Nelson 31,310* (USCH); no locality, 22 Sep 1967, *Shriner s.n.* (USCH). **Charleston Co.:** Santee Coastal Reserve, roadside in disturbed wet sand, 6 Jun 1992, *Hill 23,251* (USCH). **Georgetown Co.:** East Bay Street parks facility baseball field and marsh across street, just south of downtown Georgetown near Sampit River, common in moist soil next to ball field, 12 Aug 1993, *Horn & Nelson 7450* (UNA); sprawling on damp sandy ground in pine woods near main gate, Prince George Tract, 3 Aug 1996, *Sekinger 262* (USCH). **Hampton Co.:** Belmont Plantation, grass plain, 11 Jul 1969, *Porcher 72* (USCH). **Horry Co.:** Myrtle Beach, wet sandy places, 2 Aug 1933, *Schallert 3982* (BRIT); Myrtle Beach, sandy soil, 3 Aug 1933, *Schallert 4007* [sic!] (BRIT). **Jasper Co.:** roadside ditch, 1.2 mi S of route 652 on county road S27-58, 9 Sep 1968, *Leonard & Radford 1911* (NLU); wet ground, Jasper State Park, 30 Aug 1988, *Batson s.n.* (USCH). **Orangeburg Co.:** moist bank of North Fork of Edisto River in East Memorial Garden, 14 Aug 1990, *Terrell & Terrell 5,554* (USCH). **Williamsburg Co.:** roadside ditch close to trio, 13 Aug 1978, *LaBorde s.n.* (USCH).

Texas. Cass Co.: 6.5 mi E of Hughes Springs near Black Cypress Creek, 1 Nov 1946, *Whitehouse 17,704* (BRIT). **Freestone Co.:** 14.5 mi S of Fairfield, ditch, 2 Oct 1949, *Turner 1,551* (BRIT). **Galveston Co.:** Galveston Island State Park, low-lying wet flat, 8 Jul 2011, *Rosen & Winzer 5,296* (BRIT). **Harris Co.:** Sheldon Reservoir Road, W side of Reservoir, roadside shell fill and gray clay, 11 Aug 1960, *Traverse 1,629* (BRIT). **Harrison Co.:** Bluebird Cafe lawn, Harleston, 9 Aug 1970, *Cory 57,749* (BRIT). **Jackson Co.:** highway 59 at Navidad River, upper bank of stream, 20 May 1961, *Traverse 2,302* (BRIT). **Jasper Co.:** savannah 2 mi N of Kirbyville, 9 Jun 1946, *Correll & Correll 12,520* (BRIT); roadside 3 mi S of Jasper, 8 Jul 1949, *Cory 56,592* (BRIT). **Newton Co.:** 12.2 mi NNW of Deweyville, 28 Jul 1964, *Shinners 30,309* (BRIT); 12 mi SE of Kirbyville, floodplain of Pecan Lake, 17 Oct 1977, *Ajilvsgi 5,468* (BRIT). **Panola Co.:** 8 mi NW of Carthage, Sabine River bottoms, 16 Aug 1953, *Shinners 15,665* (BRIT). **Red River Co.:** 7.9 mi S of Clarksville, roadside ditch, 30 Sep 1948, *Whitehouse 20,591* (BRIT). **San Augustine Co.:** margin of small lake in pine forest, Angelina National Forest, 19 Sep 1972, *Gould & Leinweber 6,553* (BRIT). **Smith Co.:** 5.5 mi E of Grand Saline, sandy open woods, 6 Jul 1949, *Cory 56,400* (BRIT).

Appendix 2. Collections (12 total) of plants appearing one or more morphological characters of *Diodia harperi* and *D. virginiana*.

ALABAMA. Barbour Co.: *Haynes 6010* (UNA). Leaves are small but fruits measure 6.5–7.5 mm long. **ARKANSAS.** Columbia Co.: electrical right-of-way at Rte. 98, *Thomas 172168* (NLU). Fruits measure 6–7.5 mm, broadly elliptical. **GEORGIA.** Tift Co.: edge of moist roadside ditch W of railroad, 1 mi S of Tifton, 3 Aug 1953, *Duncan, Harper, & Humphrey 17077* (GA). Leaves are short and crowded as in *D. harperi*, but the fruits are elliptical as in *D. virginiana*, and measure 6.0–7.0 mm, an intermediate length between the two species. **KENTUCKY.** Calloway Co.: waste ground part of seep area along Dalton Road E of SR 280, 5 Sep 1990, *McKinney 4564* (BRIT). Leaves are short and crowded, but fruits measure 6–7 mm. **LOUISIANA.** Acadia Par.: LSU Rice Experiment Station E of Rte. 1111, 18 Oct 1975, *Thomas & Allen 47800* (NLU). Leaves are short and crowded, but fruits measure 7–8 mm; edge of dirt road 1 mi. E of Egan, 3 Nov 1962, *Thieret 10127* (BRIT). Leaves are short and crowded, fruits measure 6.0–7.0 mm. Plaquemines Par.: Hebert Research Center, growing atop levee, common, 18 Aug 1991, *Garrison 166* (GA). Leaves match those of *D. harperi*, but fruits measure 6.0–7.0 mm. **MISSISSIPPI.** Clarke Co.: edge of low mixed woods, 2.3 mi NNE of Pachuta, 19 Jul 1967, *Jones & Jones 14567* (GA, MISS). Leaves and fruits are short as in *D. harperi*, but the corolla tubes measure 8.0–10.0 mm, a length matching that of *D. virginiana*. Yalobusha Co.: boat ramp of Grenada Reservoir, 2 Jun 1999, *Denley 752* (MISS). Leaves are shortish (maximum 34 mm), corolla tube is 7.5 mm, and fruit is 6.5 mm long. **SOUTH CAROLINA.** Barnwell Co.: Carolina bay, Station 84, Savannah River Ops. Area, *Batson s.n.* (USCH). Leaves are short and crowded, but fruits measure as much as 7 mm long. **TEXAS.** Harrison Co.: 10.4 mi. WSW of Marshall, 16 Aug 1953, *Shinners 15626* (BRIT). Leaves are short, but fruits measure 6.5–7 mm. Matagorda Co.: roadside ditch bordering rice field, 3 Aug 1956, *Gould 7192* (BRIT). Leaves are short and crowded, but fruits measure 6–7.5 mm.