

## **Some Rare or Otherwise Interesting Vascular Plants from the Delta Region of Mississippi**

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### ABSTRACT

Floristically, the Yazoo-Mississippi Delta region is one of the poorest known areas in Mississippi. Recent field studies have yielded several state records, numerous Yazoo-Mississippi Delta region records, and other noteworthy collections that are reported herein. The flora of the rare ridge bottom forest is reported on, and certain species that are restricted to ridge sites and are rare in the Delta region are also discussed.

### INTRODUCTION

The area commonly referred to as the Yazoo-Mississippi Delta is located in northwestern Mississippi. This region of Mississippi is technically not a delta but is actually the alluvial floodplain of the Mississippi River and certain of its tributaries. It is centered approximately 350 miles inland from the true delta of the Mississippi River. The Yazoo-Mississippi Delta is bounded by the Mississippi River on the West and the Loess Bluff Hills on the East. The entire Yazoo-Mississippi Delta region is a relatively flat plain that slopes downward, generally from north to south and west to east. It is broken occasionally by natural levee ridges of extant or ancient streams, which rise only a few feet above the surrounding terrain. Soils are alluvial and range from fine clays in lower slack-water zones away from streams to sandy loams on the natural levees adjacent to stream channels. Historically, most of the area was subject to periodic spring flooding by the Mississippi River and its tributaries. However, construction of a consolidated levee system has nearly eliminated severe spring floods.

Much of the Yazoo-Mississippi Delta region is suitable for agriculture and most of its bottomland hardwood forest has been cleared and the land converted to agriculture. Thus, most of this region is now in farmland, except for a few large tracts, including Delta National Forest and Yazoo National Wildlife Refuge. Soybeans, cotton, rice, and catfish are the major agricultural products.

According to Braun (1950), the bottomland hardwood forest of the alluvial floodplain of the Mississippi River consists of three divisions: swamp forest, hardwood bottom forest, and ridge bottom forest. Swamp forests and hardwood bottom forests are the lowest and most poorly drained sites. Thus, they are the least desirable for agriculture and have been least affected by man's activities. Most of that bottomland hardwood forest remaining is of these two types. The ridge bottom forest is the least common forest type in the

Yazoo-Mississippi Delta due to its exploitation for agricultural purposes. Ridge bottom forest is restricted to natural levees, both old and recent, is slightly higher and much better drained than either swamp forest or hardwood bottom forest, is not prone to floods of long duration, and is generally characterized by sandy loam soils. Presently, only isolated remnants of ridge bottom forest occur in the Yazoo-Mississippi Delta. Prior to this study the flora of extant ridge bottom forest sites had not been examined extensively. An interesting assemblage of plants has been found on several of these ridge bottom sites. A number of the plant species associated with ridge bottom forests are rare in the Yazoo-Mississippi Delta, and several species are restricted to ridge bottom forests.

The flora of the Yazoo-Mississippi Delta is poorly known. Previous works which have dealt exclusively with the flora of the Yazoo-Mississippi Delta region are few and include: Watson (1968), Carter (1978), Webster (1978), Gunn et al (1980), and Wiseman (1982). General works on the flora of Mississippi, which have some bearing on the flora of the Yazoo-Mississippi Delta region are: Lowe (1921), Pullen et al (1968), Jones et al (1969), Jones (1974a, 1974b, 1975a, 1975b, 1976a, 1976b), and Evans (1978).

#### NOTEWORTHY SPECIES

Below is a list of species from the Yazoo-Mississippi Delta region. Most are new records for the Delta region, and several are new to the state. Voucher specimens are cited by standard IAPT herbarium acronyms except for CTB, which designates the private herbarium of Charles T. Bryson located at Southern Weed Science Laboratory, USDA Agricultural Research Station in Stoneville, Mississippi.

#### APIACEAE

*Cynosciadium pinnatum* DC. GRENADA COUNTY: ca. 3 mi. W of Leflore, wet ditch near greentree area, 27 June 1981, *Lipe s.n.* (IBE); ca. 8 mi. SW of Holcomb, in a roadside ditch at the edge of a bottomland hardwood forest, locally common, 23 May 1987, *Morris 2852* (IBE). SHARKEY COUNTY: Delta National Forest, 6.6 miles SW of Spanish Fort (R5W, T10N, Sec. 22), locally abundant along levee of Yazoo River, 17 May 1977, *Carter 699* (IBE, MISSA). Lowe (1921) reported *C. pinnatum* on "dry hillslopes" in "Meridian," which is in east-central Mississippi. However, we have been unable to find specimens at MISS or MISSA, upon which this report might have been based. Since *Cynosciadium pinnatum* is a bottomland species ranging from eastern Texas through Louisiana and northward through Arkansas and Missouri and into Oklahoma, Kansas, and Iowa (Steyermark 1963, Correll and Johnston 1970), it seems likely that Lowe confused it with another umbellifer. Thus, the specimens cited herein are probably the first collections of *C. pinnatum* from Mississippi. These stations represent the southeasternmost limit of distribution of *Cynosciadium pinnatum*.

*Eryngium hookeri* Walp. WASHINGTON COUNTY: 3.5 mi. SW of Hollandale, small opening in typical Delta region hardwood forest, 28 July 1986, *Lockley s.n.* (IBE); 29 July 1986, *Bryson & Lockley 4643* (GA, IBE, MICH, MMNS, MO, NLU, SWSL, TENN, VSC). These specimens are the

first records of *Eryngium hookeri* from Mississippi. Because of the large size of the population at this site and the subsequent discovery of other populations in Washington County, we believe this species has been established in the state for some time.

#### ARACEAE

*Arisaema quinatum* (Nutt.) Schott. SUNFLOWER COUNTY: 7 mi. NW of Indianola, high bottomland hardwood forest, 14 July 1987, *Bryson & Morris 6575* (IBE, SWSL, VSC). This species is reported for the first time in the Yazoo-Mississippi Delta, where it is apparently much rarer than *A. dracontium* that is frequently found on ridge bottom sites. Elsewhere in the state, *A. quinatum* occurs in habitats ranging from hardwood bottoms to somewhat xeric upland pine-oak-hickory woods and is more common than *A. dracontium*.

#### ARISTOLOCHIACEAE

*Aristolochia serpentaria* L. BOLIVAR COUNTY: ca. 1 mi. NE of Cleveland, in relatively high and well-drained part of bottomland hardwood forest remnant, local, 29 May 1988, *Morris 3119* (SWSL). WASHINGTON COUNTY: 3.5 mi. E of Helm, 27 May 1987, *Bryson & Morris 5800* (SWSL). *Aristolochia serpentaria* is frequently encountered over much of Mississippi, where it is usually found on slopes or in small stream bottoms in mesophytic forest or upland oak-hickory woods. However, it is rarely collected in the Yazoo-Mississippi Delta, where it is an indicator of ridge bottom habitats. In the Yazoo-Mississippi Delta associated herbaceous species are *Arisaema dracontium*, *Galium circaeazans*, *Hymenocallis occidentalis*, *Ruellia strepens*, and *Sanicula canadensis*.

#### ASCLEPIADACEAE

*Asclepias purpurascens* L. WASHINGTON COUNTY: 4 mi. E of Helm, S of Co. Rd. 380, delta woods, dry, May 1985, *Saucier 40* (SWSL). This species is rare in the Yazoo-Mississippi Delta, where it occurs in ridge bottom forests. Furthermore, the few known stations in Mississippi are in the northern part of the state: DeSoto County (Lowe 1921), Grenada County (*Morris 1988*), and Tippah County (S. McDaniel, pers. comm.).

#### ASTERACEAE

*Boltonia asteroides* (L.) L'Her. GRENADA COUNTY: ca. 6 mi. W of Holcomb, plants rhizomatous and appearing clonal in a fallowed field with *Andropogon*, *Erianthus*, and *Aster*, infrequent, 4 October 1987, *Morris 3059* (IBE). HUMPHREYS COUNTY: Belzoni, disturbed area near Yazoo River, 30 July 1969, *Pullen 69958* (MISS). LEFLORE COUNTY: along Yazoo River just W of Greenwood on hwy US 82 at junction of hwy 49E, 10 October 1970, *Temple 13600* (MISS). *Boltonia asteroides* is much less common than the sometimes abundant *B. diffusa*. The above are the only known collections of this species from the Yazoo-Mississippi Delta region, and they constitute the majority of collections for the State. *Boltonia asteroides* is also known from the adjacent Loess Bluff region (S. McDaniel, pers. comm.).

*Cichorium intybus* L. QUITMAN COUNTY: 1.0 mi. N of Darling, hwy MS 3 right-of-way, 6 June 1967, *Temple 5163* (MISS). WASHINGTON

COUNTY: 2.5 mi. N of Leland, just N of Bogue Phalia River, open roadside of hwy US 61, 22 May 1987, *Bryson & Morris 5727* (IBE, SWSL); 25 May 1987, *Bryson 5787* (IBE, NLU, VDB). These are the only records from the Yazoo-Mississippi Delta region of this introduced species that is sparingly collected in Mississippi.

*Eupatorium semiserratum* DC. GRENADA COUNTY: ca. 6 mi. W of Holcomb, at edge of bottomland hardwood forest, locally common, 8 August 1987, *Morris 2965* (IBE). This is the first record of *E. semiserratum* from the Yazoo-Mississippi Delta region. It is primarily a species of hardwood bottoms in southern Mississippi and of the Interior Flatwoods region about 50 miles eastward in the northern part of the state.

*Melanthera nivea* (L.) Small. WASHINGTON COUNTY: Yazoo National Wildlife Refuge, natural levee, under hardwood forest, in small openings and along old logging road, 8 August 1985, *Bryson, Morris & Saucier 4049* (IBE, MMNS, SWSL). This is the first report of this species from the Yazoo-Mississippi Delta. It is most common in alluvial habitats in the southern half of the state.

*Verbesina alternifolia* (L.) Britt. BOLIVAR COUNTY: ca. 7 mi. WSW of Beulah, Indian Point, near Mississippi River, rich well-drained bottomland hardwood forest, local, associated with *Cornus drummondii*, *Cryptotaenia canadensis*, *Equisetum hyemale*, *Hackelia virginiana*, *Laportea canadensis*, *Lindera benzoin*, and *Scrophularia marilandica*, 28 July 1988, *Morris & Stewart 3315* (SWSL); *Stewart & Morris 3442* (DSC). *Verbesina alternifolia* is reported herein for the first time from the Yazoo-Mississippi Delta region. However, it is occasional in low rich woods and creek bottoms in other regions of northern Mississippi (Meeks 1984, Morris 1987).

#### CAPRIFOLIACEAE

*Lonicera mackii* Maxim. WASHINGTON COUNTY: 3.5 mi. NNE of Stoneville, Delta Experimental Forest, shrub 3 m tall along floodway ditch, 7 April 1986, *Bryson & Saucier 4110* (IBE, MMNS, SWSL, VDB (duplicate determined by Dr. Robert Kral)). This is the first report of this naturalized species from the Yazoo-Mississippi Delta.

#### CELASTRACEAE

*Euonymus americanus* L. BOLIVAR COUNTY: ca. 2.75 mi. ENE of Cleveland, in rich hardwoods on high sloping banks of the Sunflower River, shrubs 2 m high, local, associated with *Asimina triloba*, *Cornus drummondii*, *Lindera benzoin*, *Menispermum canadense*, and *Prunus mexicana*, 25 June 1988, *Morris 3175* (SWSL). *Euonymus americanus* is frequent in mesic to moist habitats in every other physiographic region of Mississippi. This is the first collection of *E. americanus* from the Yazoo-Mississippi Delta.

#### CLUSIACEAE

*Triadenum virginicum* (L.) Raf. GRENADA COUNTY: ca. 6 mi. SW of Holcomb, along the margin of a slough in a bottomland hardwood forest, local, *Morris 2391*, 29 July 1986 (IBE). This pink-flowered St. John's-wort is more common southward. It is infrequent to rare in northern Mississippi. However,

it may be overlooked because of its similarity to the much more common and widely distributed *T. walteri* that is locally abundant in bald cypress-water tupelo swamps in the eastern half of the Yazoo-Mississippi Delta. This is the first documentation of *T. virginicum* from the Yazoo-Mississippi Delta region.

#### CORNACEAE

*Cornus florida* L. COAHOMA COUNTY: 13 mi. SSE of Clarksdale, well-drained bottomland hardwood forest, 5 m high, rare, 19 June 1988, *Morris 3158* (SWSL). Although *C. florida* is common throughout most of Mississippi, it is rare in the Yazoo-Mississippi Delta, where it is apparently restricted to well-drained ridge bottoms.

#### CYPERACEAE

*Carex abscondita* Mackenzie. WASHINGTON COUNTY: 3.5 mi. E of Helm, oak-hickory-elm ridge in Delta region forest, associated with *Aesculus pavia*, 10 May 1984, *Bryson & Saucier 3634* (CTB, IBE, MICH, SWSL); Yazoo National Wildlife Refuge, under *Asimina triloba*, ridge, 10 April 1986, *Bryson & Newton 4125* (CTB, IBE, MICH, MMNS, NLU, SWSL, VDB, VSC). This species previously was not known from the Yazoo-Mississippi Delta region and is thought to be uncommon there. However, *C. abscondita* is frequently encountered in the well-drained bottomland hardwood forests and in rich woods along streams elsewhere in Mississippi.

*Carex bromoides* Schkuhr. BOLIVAR COUNTY: 1.2 mi. SW of Boyle, low Delta region hardwood forest, 15 April 1984, *Bryson 3593* (CTB, IBE, SWSL, VSC). SUNFLOWER COUNTY: 3 mi. SW of Frazier, low Delta region hardwood forest, 24 April 1984, *Bryson 3619* (CTB, IBE, SWSL). WASHINGTON COUNTY: 5 mi. E of Helm, 28 March 1982, *McDaniel & Hayes 24939* (CTB, IBE); 3.2 mi. E of Helm, swampy woods, silty clay soil, 24 April 1984, *Bryson 3604* (CTB, IBE, MICH). *Carex bromoides* is known from the Delta under low hardwood forest on heavy clay or silty clay soils in association with *Sabal minor*. It is a predominate understory herb at the Washington County site and at the other two stations is restricted to isolated, low, wet areas.

*Carex decomposita* Muhl. BOLIVAR COUNTY: NW of Scott on W side of Lake Bolivar, on floating cypress log, 6 May 1986, *Bryson 4258* (CTB, IBE, MICH, MMNS, VSC). CARROLL COUNTY: N of Carroll-Leflore County line, on cypress log, 8 May 1988, *Bryson 7626* (CTB). WASHINGTON COUNTY: 4 mi. W of Hollandale, Leroy Percy State Park, 14 May 1983, *Bryson 3502* (CTB, GA, IBE, MICH, MMNS, NLU, TENN, VSC); 4 May 1986, *Bryson 4246* (CTB, IBE, VSC). *C. decomposita* was previously known from the Yazoo-Mississippi Delta in Leflore County (*McDaniel 1864* (IBE)), and Grenada County (*Morris 1988*). Each collection reported herein represents a new county record for this sedge that is sparingly collected because of its affinity for growing on the bases of cypress trees, cypress knees, or rotten cypress stumps and logs.

*Carex intumescens* Rudge. COAHOMA COUNTY: ca. 4 mi. SSW of Clarksdale, low bottomland hardwood forest remnant, on slightly higher ground near margins of habitat, infrequent, associated with *C. lupuliformis*, 26 June 1988, *Morris 3185* (SWSL). LEFLORE COUNTY: 0.8 mi. W of jct hws

US 49 and MS 8, bottomland gumbo, oak-elm-pecan, common, 2 May 1971, *McDaniel 15019* (IBE). SHARKEY COUNTY: 9.5 mi. E of Rolling Fork, Delta National Forest, 11 June 1987, *Bryson & Morris 5951* (CTB, VSC); *5967* (VSC). SUNFLOWER COUNTY: 3 mi. SW of Frazier, ridge in bottomland hardwood forest, 23 April 1986, *Bryson 4243* (CTB, IBE). WASHINGTON COUNTY: 3 mi. E of Helm, ridge in bottomland hardwood forest, 22 April 1986, *Bryson & Newton 4240* (CTB, IBE, SWSL). YAZOO COUNTY: ca. 2.5 mi. SW of jct of hwy US 49 and western bypass, Yazoo City, locally common on willow oak-sweetgum "ridge," 3 May 1970, *McDaniel 13243* (IBE). This is the first report of *C. intumescens* from the Yazoo-Mississippi Delta. *Carex intumescens* is easily overlooked because of its similarity to the more common *C. louisianica* Bailey, and it is probably more common in the Yazoo-Mississippi Delta than collections indicate. The cespitose habit of *C. intumescens* readily distinguishes it from *C. louisianica*. The culms of *C. louisianica* are isolated from one another, since they arise at intervals from an elongate rhizome.

*Carex jorii* Bailey. GRENADA COUNTY: ca. 6 mi. W of Holcomb, local in wet depressions in bottomland hardwood forest, *Morris 2380a*, 29 July 1986 (CTB, IBE). SHARKEY COUNTY: SW of Ten Mile Bayou (T11N, R5W, Sec. 1), 4 September 1987, *Bryson 7065* (CTB, IBE, MICH). These collections are the first records of this sedge from the Yazoo-Mississippi Delta region. *Carex jorii* is more common in southern Mississippi, where it occurs most commonly in bottomlands near bald cypress-water tupelo swamps and occasionally in bay swamps.

*Carex physorhyncha* Liebmann. SUNFLOWER COUNTY: 3 mi. SW of Frazier and W of Indian Bayou, high Delta region hardwood forest, 3 April 1984, *Bryson & Saucier 3587* (CTB, IBE, MICH). WASHINGTON COUNTY: 3 mi. N of Stoneville, Delta Experimental Forest on natural levee along slough, 24 April 1983, *Bryson 3459* (CTB); 3.5 mi. E of Helm, ridge in hardwood forest, 3 April 1984, *Bryson & Saucier 3586* (CTB, IBE, MICH, VSC). *Carex physorhyncha* is reported for the first time from the Yazoo-Mississippi Delta, where it occurs in ridge bottom forests in association with *Aesculus pavia*, *Carya leioderms*, *Quercus alba*, and *Q. velutina*.

*Carex socialis* Mohlenbrock & Schwegman. CARROLL COUNTY: 1 mi. E of Carroll-Leflore County line, under hardwood forest, 8 May 1985, *Bryson 3850* (CTB, IBE, SWSL). *Carex socialis* was first reported in Mississippi by Webber and Ball (1984) based upon a specimen, *S.M. Tracy 21* (NY), collected in Oktibbeha County in 1888, which was originally identified as *C. rosea* Willd. Since the publication of this record, several herbarium specimens previously identified as *C. rosea* have been reexamined and found to be *C. socialis*. Previously, all sites in Mississippi for *C. socialis* have been in the calcareous Black Belt and Jackson Prairie regions. At the locality reported herein *Carex socialis* was found associated with *Iris fulva* in wet woods at the edge of the Yazoo-Mississippi Delta Region.

*Carex squarrosa* L. GRENADA COUNTY: ca. 6.5 mi. W of Holcomb, in bottomland hardwood forest, rare, associated with *C. typhina* and *C. intumescens*, *Morris 2877a*, 7 June 1987, (IBE). HUMPHREYS COUNTY: 2.6 mi. NW of Holmes-Humphreys County line, bottomland hardwood forest, 30

July 1969, Pullen 69993 (MISS). These collections are the only known records of this sedge from the Yazoo-Mississippi Delta region. Elsewhere in the state, *Carex squarrosa* is found at scattered localities in alluvial woods mostly in northern Mississippi.

*Carex willdenowii* Schkuhr. SHARKEY COUNTY: ca. 6.5 mi. SE of Rolling Fork, Delta National Forest (T11N, R6W, Sec. 11), 26 March 1987, Bryson & Carter 5188 (CTB, SWSL, VSC); 9.5 mi. E of Rolling Fork, Delta National Forest (T12N, R5W, Sec. 2), 26 March 1987, Bryson & Carter 5177 (CTB, SWSL, VSC). These collections are the first of *C. willdenowii* in the Yazoo-Mississippi Delta region, where it occurs in ridge bottom forests and is associated with another species, *Ranunculus recurvatus*, which is also uncommon. *Carex willdenowii* occurs in mesic deciduous woods, particularly in rich ravines, in other physiographic provinces of northern Mississippi.

*Cyperus virens* Michaux. HUMPHREYS COUNTY: 1.5 mi. SW of Isola, open ditch on heavy clay soil, 23 June 1988, Bryson & Morris 8141 (CTB, SWSL); Morris & Bryson 3165 (SWSL). SHARKEY COUNTY: 9 mi. E of Anguilla, S of hwy MS 14, 14 August 1988, Bryson 8348 (SWSL, VSC). Although *C. virens* is frequent in southern Mississippi, this is the first record from the Yazoo-Mississippi Delta and the first from north of Newton County, Mississippi. Thus, it represents a range extension of about 50 miles northward in the state.

*Hemicarpha micrantha* (Vahl) Britton. WASHINGTON COUNTY: 0.6 mi. W of Wayside along sandy shore of Lake Lee, 17 September 1988, Bryson 7207 (CTB, SWSL, VSC). This species is easily overlooked, especially when growing with *Fimbristylis vahlii* and *Cyperus aristatus*. This collection represents the first report of *Hemicarpha micrantha* from the Yazoo-Mississippi Delta region; however, it likely will be found along the Yazoo and Mississippi rivers and elsewhere along shorelines of sloughs and lakes in the region.

*Scirpus cyperinus* (L.) Kunth. QUITMAN COUNTY: 1.5 mi. E of Marks, N of hwy MS 6, above beaver dam in standing water, locally common, 6 August 1988, Bryson 8249 (CTB, IBE, SWSL, VSC). *Scirpus cyperinus* is common in most wetland habitats throughout Mississippi but is apparently absent from all but the eastern edge of the Yazoo-Mississippi Delta region. This is the first record of this sedge from the Yazoo-Mississippi Delta region.

*Scirpus koilolepis* (Steudel) Gleason. SUNFLOWER COUNTY: 7.5 mi. NW of Indianola and W of West Prong Bayou, under mixed hardwoods, 29 April 1988, Bryson 7410 (CTB, SWSL). This sedge is often an invader of disturbed soil and burned areas. This collection was made in a hardwood forest that burned during the winter of 1987-88. Although *S. koilolepis* is common in the Loess Bluff and the North Central Plateau regions of northern Mississippi; collections indicate that it is uncommon in the Yazoo-Mississippi Delta.

*Scleria oligantha* Michaux. WASHINGTON COUNTY: 3.5 mi. E of Helm, ridge in bottomland hardwood forest, 22 May 1987, Bryson, Morris, & Stewart 5725 (CTB, IBE, MICH). This is the first record of *Scleria* from the Delta region other than the extreme eastern areas near the edge of the Loess Bluff region. *Scleria oligantha* and a number of its associates, including *Aesculus pavia*, *Carex abscondita*, *C. physorhyncha*, *Carya leiodermis*, *Prunus*

*mexicana*, *Quercus alba*, *Q. velutina*, and *Viburnum rufidulum*, are rare or infrequent and restricted to ridge bottom forests in the Yazoo-Mississippi Delta region.

#### ERICACEAE

*Monotropa uniflora* L. SHARKEY COUNTY: Delta National Forest, ca. 4 mi. W of Holly Bluff and 1/2 mi. S of Big Sunflower River (T11N, R6W, Sec. 11), local on relatively well-drained site under water oak, willow oak, American elm and sweetgum, 15 November 1975, *Carter 13* (IBE). Indian pipe occurs on mesic ravine slopes throughout much of the rest of the state; however, this collection is the first of the Ericaceae from the bottomland hardwood forest of the Yazoo-Mississippi Delta region.

*Vaccinium arboreum* Marshall. WASHINGTON COUNTY: 3.5 mi. E of Helm, Delta region hardwood forest, sandy ridge, 22 May 1987, *Bryson, Morris & Stewart 5692* (CTB, IBE, MMNS, VSC). This species is reported new to the Yazoo-Mississippi Delta region, where it occurs infrequently in sandy ridge bottom woods with *Aesculus pavia*, *Carya leioderms*, *Quercus alba*, and *Q. velutina*, which also are infrequent in the Yazoo-Mississippi Delta. *Monotropa uniflora* and *Vaccinium arboreum* are the only two ericads known from the Yazoo-Mississippi Delta region.

#### FABACEAE

*Sesbania drummondii* (Rydb.) Cory. WASHINGTON COUNTY: E Greenville, at intersection of Raceway and Reed Roads across from O'Bannon School, in soybean field, 8 Sept 1986, *Bryson 5007* (SWSL, IBE); 29 September 1986, *Bryson 5064* (IBE, SWSL, VDB). This potentially pernicious weed of row-crop agriculture is apparently a recent introduction to the Yazoo-Mississippi Delta. It was brought to our attention by Dr. C.D. Elmore, USDA, Stoneville, Mississippi.

#### FAGACEAE

*Quercus velutina* Lam. SUNFLOWER COUNTY: 7 mi. NW of Indianola, bottomland hardwood forest, 14 July 1987, *Bryson & Morris 6585* (SWSL). WASHINGTON COUNTY: 3.5 mi. E of Helm, ridge in bottomland hardwood forest, 4 September 1986, *Bryson & Newton 4997* (IBE, MMNS, SWSL). This is the first report of *Q. velutina* from the Yazoo-Mississippi Delta region. It occurs in sandy ridge bottom woods with *Carya leioderms*, *C. ovata*, *Quercus alba*, *Q. michauxii*, and *Q. similis*.

#### JUGLANDACEAE

*Carya myristicaeformis* Michaux f. COAHOMA COUNTY: 11 mi. SSW of Clarksdale, well-drained bottomland hardwood forest near Sunflower River, tree about 20 m high, locally common, 19 June 1988, *Morris 3150* (SWSL) LEFLORE COUNTY: ca. 4 mi. W of jct of hwy US 49 and MS 8, oak-hickory-pecan woods, common 12 m tree, 23 May 1970, *McDaniel 13400* (IBE). Prior to the discovery of the Coahoma County site, nutmeg hickory was known in the Yazoo-Mississippi Delta from only a cluster of sites in Leflore County. At the Coahoma County site it is associated with *Asimina triloba*, *Bumelia lyciodes*, *Carya ovata*, *Dioscorea villosa*, *Hymenocallis occidentalis*, *Prunus mexicana*,

*Quercus michauxii*, *Q. pagoda*, *Q. shumardii*, *Q. similis*, and *Ruellia strepens*. Nutmeg hickory also occurs in bottomlands and on rich bluffs along streams near chalk outcrops in the calcareous Black Belt and Jackson Prairie regions, which are in the northeastern and central parts of the state, respectively.

#### LAMIACEAE

*Scutellaria parvula* Michaux. GRENADA COUNTY: ca. 6 WNW of Holcomb, local along the margin of fairly well-drained bottomland hardwoods, 11 April 1986, *Morris 709* (IBE). This is the first collection of *S. parvula* from the Yazoo-Mississippi Delta. Otherwise, it is occasionally encountered, primarily in northern Mississippi, in habitats ranging from ridge-bottom woodland margins to clearings in upland pine-oak-hickory woods.

#### LAURACEAE

*Lindera melissifolia* (Walter) Blume. BOLIVAR COUNTY: ca. 1 mi. NE of Cleveland, in bottomland hardwood forest remnant near the Sunflower River, poorly drained with standing water during part of the year, 29 May 1988, *Morris 3114* (DSC, IBE, MISSA, MMNS, SWSL). *Lindera melissifolia* is present at this site as one group of about 100-150 aerial stems, most about 1 m high. In Mississippi, this federally endangered shrub is known only from the following three counties, all of which are in the Yazoo-Mississippi Delta: Bolivar, Sharkey (Carter 1978) and Sunflower (Morris 1986).

Pondberry is usually in or at the edges of low, wet depressions that are usually within or near more extensive ridge-bottom forest characterized by *Carya illinoensis*, *C. ovata*, *Celtis laevigata*, *Liquidambar styraciflua*, *Quercus michauxii*, *Q. pagoda*, *Q. phellos*, and *Ulmus alata* in the overstory. The understorey in these forests, or in most cases forest remnants, includes *Arundinaria gigantea*, *Arisaema dracontium*, *Aristolochia serpentaria*, *Asimina triloba*, *Bumelia lycioides*, *Galium circaeazans*, *Geum canadense*, *Hymenocallis occidentalis*, *Ruellia strepens*, *Sabal minor*, and *Sanicula canadensis*. Tree and shrub species in close association with *Lindera melissifolia* in the wet depressions are *Acer rubrum* var. *drummondii*, *Carya aquatica*, *Cephalanthus occidentalis*, *Cornus stricta*, *Crataegus viridis*, *Diospyros virginiana*, *Fraxinus pennsylvanica*, *F. profunda*, *Gleditsia aquatica*, *Planera aquatica*, *Populus heterophylla*, *Quercus lyrata*, *Q. nigra*, *Q. texana*, *Salix nigra*, *Styrax americana*, and *Taxodium distichum*. Associated herbaceous species in the depressions are *Asclepias perennis*, *Iris fulva*, *Justicia lanceolata*, *Penthorum sedoides*, *Rhynchospora corniculata*, and *Saururus cernuus*.

#### MENISPERMACEAE

*Menispermum canadense* L. BOLIVAR COUNTY: ca. 2.75 mi. ENE of Cleveland, in rich hardwoods on high sloping banks of the Sunflower River, local, associated with *Asimina triloba*, *Cornus drummondii*, *Euonymus americanus*, *Lindera benzoin*, and *Prunus mexicana*, 25 June 1988, *Morris 3170* (SWSL). COAHOMA COUNTY: ca. 9 mi. S of Clarksdale, upper bank of Hopson Bayou, associated with *Quercus similis*, 19 September 1987, *Stewart 3239* (DSC). SUNFLOWER COUNTY: ca. 2.8 mi. SW of Ruleville, climbing vine on trees on upper bank of Sunflower River, locally abundant, flowers white, pis-

tillate, 9 May 1987, *Stewart 2830* (DSC, IBE). *Menispermum canadense* is considered rare in Mississippi and was first collected from the Yazoo-Mississippi Delta region in Tunica County (*K.E. Rogers 46120*, 4 October 1978).

## MORACEAE

*Fatoua villosa* (Thunb.) Nakai. WASHINGTON COUNTY: Leland, weed in flower beds with pine-bark mulch, recent introduction, 1 October 1987, *Bryson 7239* (SWSL). This species was first reported in North America from New Orleans, Louisiana, by Thieret (1964) and is cited as a potentially economically important weed in North America by Reed (1977). It has been reported now from several southeastern states and in the past decade has been found as far north as Memphis, Tennessee (Dr. Arlyn W. Evans, retired, Dupont Company, Memphis, pers. comm.). This collection is the first record of *F. villosa* in the Yazoo-Mississippi Delta region.

## OPHIOGLOSSACEAE

*Botrychium biternatum* (Sav.) Underw. SHARKEY COUNTY: Delta National Forest, ca. 4 mi. W of Holly Bluff and 1/2 mi. W of Big Sunflower River (T11N, R6W, Sec. 11), plants local and scattered in relatively well-drained bottomland hardwood forest, 17 September 1977, *Carter 1101* (IBE, MISSA). The woods on this site have been cleared, and the site has been converted into an agricultural field for cultivation of soybeans and cotton. *Botrychium biternatum* was also observed growing at another Sharkey County location about 9.5 miles east of Rolling Fork in a ridge bottom forest in the Redgum Natural Area of Delta National Forest. However, no voucher specimens were taken there. Previously, this grape fern was known throughout the state from all physiographic regions except the Yazoo-Mississippi Delta and Coastal Pine Meadows (Jones et al 1969, Evans 1978). Thus, this is the first collection of it from the Yazoo-Mississippi Delta region, where it is apparently restricted to ridge bottom forests.

*Ophioglossum pycnostichum* (Fern.) Löve & Löve. HUMPHREYS COUNTY: 5.8 mi. NW of Milestone, bottomland hardwood forest remnant along hwy MS 12, locally abundant in clay soil on slightly elevated sites, 28 March 1987, *Carter 5361* (IBE, MISSA, SWSL, VSC). SHARKEY COUNTY: 3 mi. N of Loch Lomond and ca. 1 mi. W of FS 706 (T12N, R5W, Sec. 4), 18 June 1977, *Carter 869*, (IBE, sterile specimen); ca. 9.5 mi. ENE of Rolling Fork, Delta National Forest (T13N, R5W, Sec. 27), under hardwood forest, on heavy clay soil, 26 March 1987, *Bryson & Carter 5170* (IBE, MICH (duplicate determined by Dr. W.H. Wagner, Jr.), NLU, SWSL, VSC); ca. 6.5 mi. SE of Rolling Fork, Delta National Forest (T11N, R6W, Sec. 11), under hardwood forest, 26 March 1987, *Bryson & Carter 5185* (IBE, MICH (duplicate determined by Dr. W.H. Wagner, Jr.), NLU, SWSL, VSC). SUNFLOWER COUNTY: 7 mi. NW of Indianola, high Delta region hardwood forest, 29 April 1988, *Bryson 7400* (SWSL). WASHINGTON COUNTY: 4 mi. E of Helm, May 1985, *Saucier 36* (SWSL) and *Saucier 41* (SWSL); 3.5 mi. E of Helm, Delta region hardwood forest, 29 April 1988, *Bryson 7374* (SWSL). This easily overlooked fern is scattered throughout much of the state but was previously known from only Leflore County in the Yazoo-Mississippi Delta region (Jones et al 1969, Evans 1978).

## ORCHIDACEAE

*Listera australis* Lindl. SHARKEY COUNTY: Delta National Forest (R6W, T11N, Sec. 11), 5.5 mi. W of Holly Bluff, bank of slough, in clay soil, rare, 19 March 1977, *Carter 425* (IBE). This is the first record of this easily overlooked orchid from the Yazoo-Mississippi Delta region. *Listera australis* occurs on stream terraces and in ravines in the adjacent Loess Bluff region and elsewhere in the state.

*Spiranthes ovalis* Lindl. SHARKEY COUNTY: ca. 4 mi. W of Holly Bluff (R6W, T11N, Sec. 11), locally common in relatively well-drained bottomland hardwood forest, 23 September 1977, *Carter 1128* (IBE, MISSA); 3 mi. N of Loch Lomond in Redgum Natural Area of Delta National Forest, 23 September 1977, *Carter 1165* (IBE, MISSA). This wide-ranging, but apparently rare, orchid was not previously known from the Yazoo-Mississippi Delta. It is sporadically distributed over much of the state on natural levees in bottomland hardwood forests and on stream terraces and adjacent gentle slopes in rich deciduous woods (Morris 1989).

*Tipularia discolor* (Pursh) Nutt. SHARKEY COUNTY: ca. 7 mi. SW of Spanish Fort and 1 mi. N of Sharkey-Issaquena county line, 100 yards W of Yazoo River, bottomland hardwood forest, growing on rotten log on well-drained natural levee, 18 March 1978, *Carter 1308* (IBE, vegetative specimen). Although this wide-ranging species may be common in ravines of the adjacent Loess Bluff region, this specimen represents the first report of it from the Yazoo-Mississippi Delta region. It is one of the most common orchids in Mississippi and may be found in well-drained bottomland hardwood forests, upland mesophytic forests, and in pine-oak-hickory woods.

## PHRYMACEAE

*Phryma leptostachya* L. SUNFLOWER COUNTY: ca. 2.8 mi. SW of Ruleville, in rich hardwoods on high sloping banks of the Sunflower River, associated with *Aralia spinosa*, *Asimina triloba*, *Cornus drummondii*, *Cryptotaenia canadensis*, *Galium circaezans*, *Lindera benzoin*, *Menispermum canadense*, *Ruellia strepens*, *Sanicula canadensis*, and *Viburnum rufidulum*, locally common, 24 June 1987, *Bryson & Morris 6250* (IBE, MMNS, SWSL); *Morris & Bryson 2903a* (SWSL). This is the first collection of *P. leptostachya* from the Yazoo-Mississippi Delta region. It occurs primarily in mesophytic forests in northern Mississippi and is quite common in the Loess Bluff region.

## POACEAE

*Chasmanthium laxum* (L.) Yates. SHARKEY COUNTY: Delta National Forest, along 10 mi. Bayou, bottomland hardwood forest, 4 September 1987, *Bryson & Newton 7063* (SWSL). *Chasmanthium laxum* is distributed over much of the state; however, it previously has not been reported from the Yazoo-Mississippi Delta region. In the North Central Plateau region of northern Mississippi, it frequently occurs in springs, seeps, and bogs, where it is primarily associated with species that are not known to occur in the Yazoo-Mississippi Delta region, such as *Aronia arbutifolia*, *Calopogon tuberosus*, *Carex atlantica*, *C. leptalea*, *C. stricta*, *Gentiana saponaria*, *Ilex verticillata*, *Magnolia virginiana*, *Melanthium virginicum*, *Platanthera ciliaris*, *P. clavel-*

*lata*, *P. cristata*, *Rhexia virginica*, *Rhododendron canescens*, *Rhynchospora globularis*, *R. glomerata*, *Spiranthes cernua*, *Trisetum pensylvanicum*, *Viburnum nudum*, and *Xyris torta*.

*Sclerochloa dura* (L.) Beauv. WASHINGTON COUNTY: 2.5 mi. N of Stoneville, in and around cotton and soybean fields, especially no- or reduced-tillage systems, 26 April 1985, *Bryson 3739* (SWSL, IBE, VDB (duplicate determined by Dr. Robert Kral), VSC). This is the first report of this introduced Eurasian weed in Mississippi and only the second from east of the Mississippi River (Freckman 1988).

#### POLEMONIACEAE

*Phlox carolina* L. GRENADA COUNTY: ca. 3.3 mi. W of Holcomb, locally common in and at the edge of well-drained bottomland hardwoods, 23 May 1987, *Morris 2846* (IBE). Although *P. carolina* is relatively widely distributed over much of the state in low meadows, flatwoods, roadside ditches, and at woodland margins, this is the first report of it in the Yazoo-Mississippi Delta region.

#### RANUNCULACEAE

*Ranunculus flabellaris* Raf. SHARKEY COUNTY: Delta National Forest, submersed aquatic in shallow slough along F.S. road 706, 3.5 mi. N of Loch Lomond, 12 March 1977, *Carter 413* (IBE, sterile specimen determined by Dr. Sidney McDaniel). *Ranunculus flabellaris* ranges throughout much of North America south to North Carolina and Louisiana (Godfrey and Wooten 1981); however, it becomes less frequent southward. This is the first record of this species from Mississippi.

#### ROSACEAE

*Agrimonia parviflora*-Aiton. SHARKEY COUNTY: 9.5 mi. E of Rolling Fork, under typical Delta region hardwood forest, 11 June 1987, *Bryson & Morris 5475*; *Morris & Bryson 2884c* (SWSL, VSC); 6 August 1987, *Bryson 6944* (IBE, SWSL, VSC). *Agrimonia parviflora* is reported new to the Yazoo-Mississippi Delta. It is an occasional species in low meadows near the margins of deciduous woods in the adjacent Loess Bluff region. Intensive field work in the Yazoo-Mississippi Delta region may result in additional sites for this species.

*Crataegus marshallii* Eggl. BOLIVAR COUNTY: 3.5 mi. SSW of Cleveland, in well-drained oak-hickory Delta region hardwood forest, 22 June 1988, *Morris 3163* (SWSL). SUNFLOWER COUNTY: 7 mi. NW of Indianola, Delta region hardwood forest, 14 July 1987, *Bryson & Morris 6591* (IBE, SWSL). WASHINGTON COUNTY: 3.5 mi. E of Helm, ridge in Delta region hardwood forest, 22 May 1987, *Bryson, Morris & Stewart 5714* (IBE, SWSL).

*Prunus mexicana* Watson. SUNFLOWER COUNTY: 7 mi. W of Indianola, ridge in Delta region hardwood forest, 14 July 1987, *Bryson & Morris 6580* (SWSL). WASHINGTON COUNTY: 3.5 mi. E of Helm, ridge in Delta region hardwood forest, 22 May 1987, *Bryson, Morris & Stewart 5710* (IBE, MMNS, NLU, SWSL). Although Watson (1968) lists this and the previous

species for the Delta region, he indicates they are unusual there and are restricted to ridge sites.

*Prunus serotina* Ehrhart var. *serotina*. SUNFLOWER COUNTY: ca. 5 mi. NE of Cleveland, 5 m tree in a well-drained bottomland hardwood forest remnant, rare, 13 September 1986, *Morris 2598* (IBE). *Prunus serotina* is rare in the Yazoo-Mississippi Delta region and usually occurs only on well-drained sites such as natural levees and ridge bottoms.

#### SCROPHULARIACEAE

*Penstemon tenuis* Small. SHARKEY COUNTY: 3 mi. S of Big Sunflower River, Delta National Forest, locally common along F.S. road 715 and edge of woods, 20 May 1976, *Carter 73* (IBE, MISSA); 4.5 mi. W of Holly Bluff, Delta National Forest, along F.S. road 703 (R6W, T11N, Sec. 11), locally common along roadside and edge of bottomland hardwood forest, 23 September 1977, *Carter 1131* (IBE). This bottomland species ranges from eastern Texas through Louisiana and Arkansas (Correll and Johnston 1970) and reaches the eastern limit of its distribution in the Yazoo-Mississippi Delta region of Mississippi.

*Scrophularia marilandica* L. BOLIVAR COUNTY: Huntington Point, 8 mi. W of Lamont, sugarberry-elm-ash woods along north camp road, locally common, to 10 ft tall, 29 August 1980, *Wiseman 846* (IBE). SHARKEY COUNTY: Delta National Forest, ca. 7 mi. SE of Spanish Fort, high ground in vicinity of Clark Lake, local in disturbed loam of shaded logging trail in bottomland hardwood forest, 26 August 1977, *Carter 1029* (IBE, MISSA). TUNICA COUNTY: ca. 7 mi. W of Robinsonville, sandy open bank of Mississippi River and adjacent bottomland hardwood forest, 8 August 1968, *Pullen 68354* (MISS). The Sharkey County record reported herein represents the southernmost limit in Mississippi of *Scrophularia marilandica*, which is infrequent to rare in the state. This species is apparently restricted to ridge bottoms in the Yazoo-Mississippi Delta region.

#### SYMPLOCACEAE

*Symplocos tinctoria* (L.) L'Her. GRENADA COUNTY: ca. 6 mi. W of Holcomb, 3 m shrubs local in well-drained bottomland hardwoods, overstory with *Quercus michauxii*, *Q. similis* and *Carya leiodermis*, associated herbs include *Asclepias purpurascens* and *Tipularia discolor*, 8 September 1987, *Morris 3027* (IBE). Sweetleaf is distributed over much of Mississippi, except for the calcareous Black Prairie and Jackson Prairie regions. It is occasional on stream bluffs and ravine slopes in the Loess Bluff region; however, this represents the first collection of *S. tinctoria* from the Yazoo-Mississippi Delta region.

#### THELYPTERIDACEAE

*Thelypteris torresiana* (Gaud.) Copel. SHARKEY COUNTY: ca. 10 mi. ENE of Rolling Fork, Delta National Forest, under bottomland hardwood forest, 4 September 1987, *Bryson & Newton 7033* (IBE, MICH (duplicate determined by Dr. W.H. Wagner, Jr.), SWSL). *Thelypteris torresiana* is an introduction into southeastern United States and tropical America from the Old

World tropics and apparently has migrated northward from its point of introduction in central Florida (Leonard 1972). In the United States it is rare in wet woods and hammocks from South Carolina to Florida, west into Louisiana, Arkansas, and eastern Texas (Lellinger 1985). *Thelypteris torresiana* is scattered throughout much of Mississippi, where it has been found as far north as Marshall County (Leonard 1972). Since the Sharkey County population consists of about five plants located 0.5 mile from the nearest road and 1.5 miles from the nearest forest edge in a relatively undisturbed typical bottomland hardwood forest, we believe it has been naturally established here.

## TILIACEAE

*Corchorus siliquosus* L. ISSAQUENA COUNTY: W of Sharkey-Issaquena County line and N of hwy MS 16, in fallow field, 16 September 1985, *Elmore s.n.* (SWSL). SHARKEY COUNTY: Rolling Fork soybean field, 16 September 1985, *Elmore s.n.* (SWSL); N of Rolling Fork and E of hwy US 61, in and along edge of soybean field, locally common weed, 23 July 1986, *Bryson & Newton 4581* (IBE, SWSL, VSC). The occurrence of this potentially pernicious weed of row crops was brought to our attention by Drs. C.D. Elmore and William Barrentine of USDA and Mississippi Agricultural & Forestry Experiment Station, respectively, located at the Delta Branch Experiment Station in Stoneville, Mississippi. Since its discovery in the Yazoo-Mississippi Delta region in 1985, *C. siliquosus* populations have not significantly increased. This is the first report of this species in Mississippi.

## VERBENACEAE

*Callicarpa americana* L. SUNFLOWER COUNTY: 7 mi. NW of Indianola, ridge in Delta region hardwood forest, 14 July 1987, *Bryson & Morris 6584* (IBE, SWSL). WASHINGTON COUNTY: Yazoo National Wildlife Refuge, on natural levee ridge, 8 August 1985, *Bryson, Morris & Saucier 4051* (IBE, SWSL). Although *Callicarpa americana* is common in other parts of Mississippi, it is known only from Sunflower and Washington Counties in the Yazoo-Mississippi Delta region, where it is restricted to sandy soils of natural levees and ridge bottoms.

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