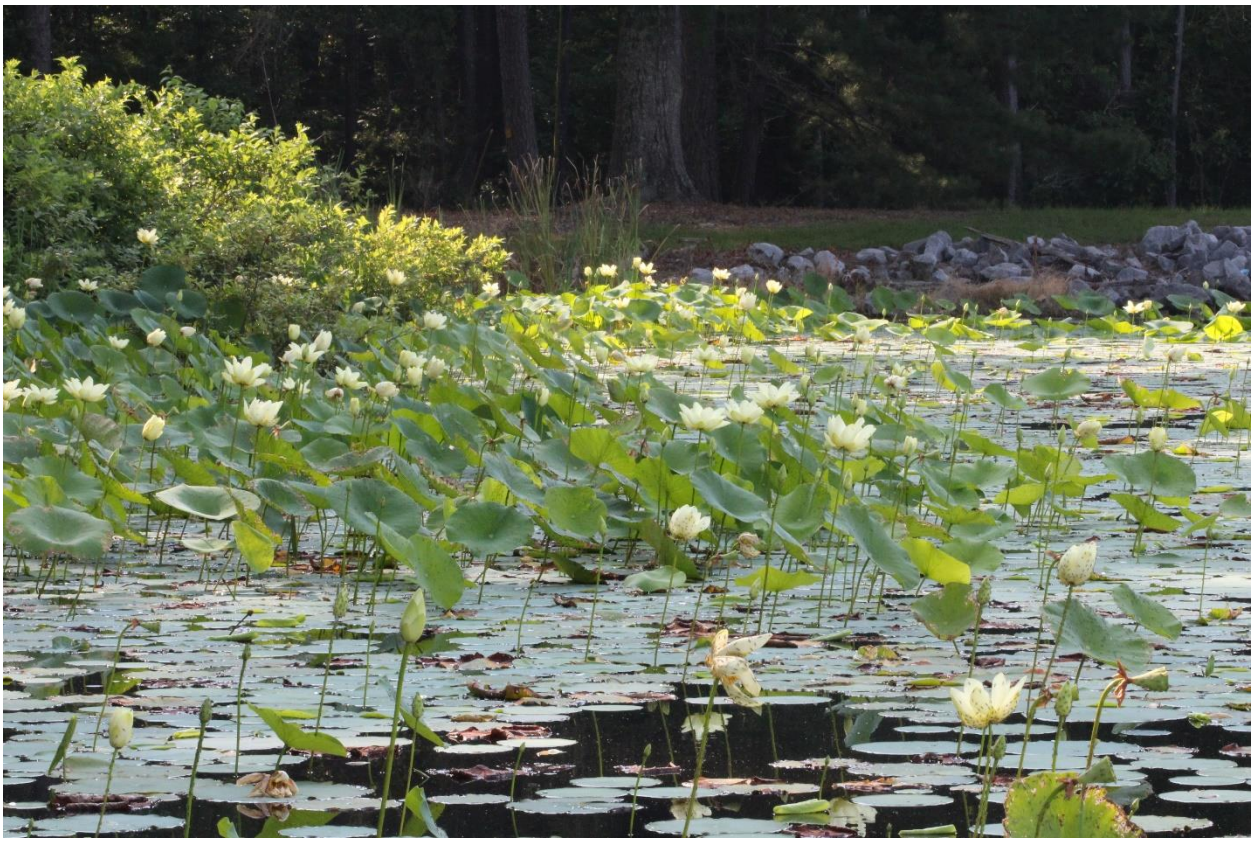
2023 Survey of Aquatic Plant Species in Mississippi Waterbodies



A report submitted to the Mississippi Aquatic Invasive Species Council

Samuel A. Schmid and Gray Turnage

Mississippi State University, Geosystems Research Institute

Mississippi State, MS 39762

GRI Report #5103

November 2023

2023 Survey of Aquatic Plant Species in Mississippi Waterbodies

Samuel A. Schmid and Gray Turnage

Mississippi State University, Geosystems Research Institute.

Executive Summary

Conclusions

- Of waterbodies surveyed (23 lakes and 6 rivers, 29 total), none had communities that consisted entirely of native species.
- Generally, macrophyte communities in rivers were more rich and diverse than those in lakes during this survey effort.
- Overall, 123 species were observed during the survey effort; of which, 17 were non-native and 36 were not previously observed.
- The three most widespread species were *Alternanthera philoxeroides*, *Panicum repens*, and *Triadica sebifera*. While *P. repens* (27 waterbodies) was present at more sites than *A. philoxeroides* (26 waterbodies), *A. philoxeroides* was on average more frequent within sites (41.4%) than *P. repens* (26.7%). *Triadica sebifera* was present at 21 waterbodies.
- *Alternanthera philoxeroides* and *Panicum repens* were each present in 21 lakes while *Triadica sebifera* was present in 16 lakes.
- *Alternanthera philoxeroides* was present in 5 rivers, *Panicum repens* was present in 6 rivers, and *Triadica sebifera* was present in 5 rivers.

Recommendations

- Continue monitoring waterbodies within Mississippi for the presence of non-native aquatic plant species.
- Implement early detection, rapid response (EDRR) management options on populations of those non-native aquatic plant species known to be in Mississippi; specifically small, isolated populations before they colonize other sites.
- Determine suitable goals for management of large populations of non-native aquatic plant species.
- Implement management strategies on those populations of native species that have grown to nuisance levels in Mississippi waterbodies.

Cite as:

Schmid, S. A. and G. Turnage. 2023. 2023 survey of aquatic plant species in Mississippi waterbodies. Geosystems Research Institute., Mississippi State University. Mississippi State, MS. August 2023. GRI Report #5103. 51 pp.

Introduction

The state of Mississippi (MS) has significant water resources that, many times, are impaired by invasive aquatic and wetland plant species. Impaired waterbodies can then act as source populations to introduce non-native vegetation to other waterbodies in the region. The likelihood of being a source population increases if the waterbody in question has a high frequency of boat traffic. Many times, small waterbodies that have significant amounts of boat traffic are overlooked due to the size of the waterbody. The world's surface waters are dominated by small waterbodies (<250 acres; Downing et al. 2006). In the state of Mississippi, 192,050 acres are covered by small waterbodies (<100 acres; Neal and Willis 2012) which is greater than the five largest reservoirs (117,840 acres; Ross Barnett, Sardis, Grenada, Enid, and Arkabutla reservoirs) in the state combined (USACE 2023). The state has more small waterbodies (> 160,000) and a greater density (1 per 0.51 mi^2) of small waterbodies than any other state in the MidSouth (MS, AL, AR, TN, LA, and GA) region of the United States (Neal and Willis 2012).

Many waterbodies in the state that receive the highest amount of traffic are those owned and managed by the state of MS. The Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) and the Pat Harrison Waterway District are two state agencies that are responsible for managing state owned waterbodies in Mississippi. Other lakes that receive a significant amount of traffic are federal lakes operated by the US Fish and Wildlife Service (USFWS), the US Forest Service (USFS), or the US Army Corps of Engineers (USACE). Aside from state and federally operated waterbodies, there are also waterbodies operated by homeowner associations within the state. Many of these waterbodies are known to have problematic vegetation while others have never been surveyed.

Two federally listed noxious weeds have been found within the state: *Hydrilla verticillata* (Hydrilla or Waterthyme) and *Salvinia molesta* (giant salvinia). Additionally, torpedo grass (*Panicum repens*) and tallowtree (*Triadica sebifera*) are invasive species listed on the MS noxious weed but not the federal list; both species are known to cause localized problems in the waterbodies they infest.

This annual survey effort is the only to have been conducted on small to medium sized (100-7,500 acres) in Mississippi. Ongoing surveys will allow management bodies to annually track the spread of invasive species and provide information to resource managers for decision making purposes. Objective of this effort was to conduct surveys of aquatic vegetation targeted at rivers and small to medium size lakes in the southern half of Mississippi during the 2023 growing season.

Methodology

Survey methods

Water bodies were selected based on a combination of size, frequency of boat traffic, location within the state, and previous survey status. All waterbodies surveyed were within the geographic boundaries of the state of Mississippi. A total of 23 lakes and 6 rivers from five river basins were surveyed during June 2023 (Table 1; Loshbaugh et al. 2013). Surveyed waterbodies were located in the southern half of the state (Fig 1). Of the 29 waterbodies surveyed in 2023,

three had not been visited during previous survey efforts (Appendix 1; Turnage and Shoemaker 2018, Turnage et al. 2019, 2020).

Lakes were surveyed using point surveys of the littoral zone. Points were placed on a path that followed the shoreline. Survey points were taken by boat at intervals ranging from 100-1,000 m, depending on overall lake shoreline length. Similarly, rivers were surveyed by placing points a set channel distance (200-500m) apart with points alternating between right and left stream banks. In general, increased length of shoreline or stream bank resulted in increased distances between sampling points. Survey points were taken in the littoral zone of each waterbody, which was determined through Secchi readings (3 times the average secchi depth). At each survey point the GPS location and water depth were recorded. Macrophytes at each point were documented via species presence for all aquatic plants (angiosperms, ferns, lycophytes, marchantiophytes, and mosses) and charophytes (Wetzel 2001). All visible macrophytes within 3.05 m (10 ft) of any part of the boat were recorded. At each survey point, a plant rake was deployed to determine the presence and identity of submersed macrophytes. Macrophytes that were observed on a waterbody but not within a sampling point were noted. Macrophytes were primarily identified *in situ*, but when *in situ* identification was difficult, specimens were collected for later identification with a taxonomic key. Plant identification and naming convention followed Weakley et al. (2023) and charophyte naming convention followed Wehr et al. (2015). Most observations were identified to species, but in instances of cryptic species with inadequate diagnostic characteristics observations were reported at the genus level. Sixty-eight species were collected, pressed, dried, and deposited in the Mississippi State University Herbarium (MISSA) as voucher specimens.

Macrophyte community statistics

Species lists for each waterbody were compiled, including total points surveyed, percent of littoral zone vegetated, points present, and the native/non-native status of each species. Species frequency and proportion were calculated for each species at each site and mean species richness, Shannon-Weiner Index, and Shannon Evenness were calculated for each waterbody as descriptive statistics of macrophyte communities. Species frequency and proportion both represent the prevalence of individual species in each community. Species frequencies were reported in species lists whereas species proportions were used to calculate Shannon-Weiner Indices. Mean species richness represents a measure of central tendency for number of different species at sample points in the same waterbody. Shannon-Weiner Index and Shannon Evenness correspond to species diversity and species evenness respectively. Said metrics were calculated using the following formulae:

Species Frequency[1] (F_i):

$$F_i = \frac{n_i}{t}$$

Mean Species Richness[2] ($\bar{x}_s$):

$$\bar{x}_s = \frac{N}{t}$$

Species Proportion[3] (p_i):

$$p_i = \frac{n_i}{N}$$

Shannon-Weiner Index[3] (H'):

$$H' = -\sum_{i=1}^{s} p_i \ln p_i$$

Shannon Evenness[3] (J):

$$J = \frac{H'}{\ln s}$$

Definition of symbols:

n_i = number of occurrences for species i

N = number of occurrences for all species

t = number of survey points

s = number of species in plant community (richness)

Notes:

[1]percent frequency = $F_i \bullet 100$

[2]$\bar{x}_s$ refers to mean species richness of entire community whereas $\bar{x}_{ns}$ and $\bar{x}_{nns}$ refer to mean richness of native and non-native species respectively.

[3]formula retrieved from Gurevitch et al. (2002).

Notable taxonomic inconsistencies

Eichhornia crassipes (Mart.) Solms is the authority we use to refer to the plant commonly known as common waterhyacinth. Recent cladistic studies have rearranged Pontederiaceae and have lumped *Eichhornia* and other genera in with *Pontederia* (Pellegrini et al. 2018). For sake of consistency with previous reports, and since *Eichhornia crassipes* is more broadly cited in reputable sources, we continue to use this authority (Godfrey and Wooten 1979, Gleason and Cronquist 1991)

Hypericum walteri J.F.Gmel is the scientific name we use to refer to the plant commonly known as marsh St. Johnswort. Previous iterations of these reports refer to this species by the outdated name: *Triadenum walteri*.

Oxycaryum cubense Palla is the scientific name we use to refer to the plant commonly known as Cuban bulrush; an accepted synonym is *Scirpus cubensis*.

Persicaria Mill. is the scientific name we use to refer to the genus of plants commonly called knotweeds. Previous iterations of these reports refer to these plants by their outdated generic name: *Polygonum*.

Triadica sebifera (L.) Small is the scientific name we use to refer to the plant commonly known as tallowtree, popcorn tree, and Chinese tallow. This species is referred to as *Sapium sebiferum* in the Mississippi Noxious Weed List (Bureau of Plant Industry 2018).

Results and Discussion

Statewide

In total, 123 species were observed across all waterbodies in 2023. Of the 123 species, 36 of them were not observed in previous iterations of this survey (Appendix 2; Turnage and Shoemaker 2018, Turnage et al. 2019, 2020). The Pearl River delta had the most robust macrophyte community of rivers surveyed (s=36, $\bar{x}_s$=8.64, H'=3.19, J=0.89; Table 2). Archusa Creek Lake had the most robust macrophyte community of lakes surveyed (s=42, $\bar{x}_s$=7.06, H'=3.25, J=0.87; Table 2). Wolf River was the most depauperate river surveyed (s=24, $\bar{x}_s$=4.44, H'=2.65, J=0.83; Table 2). Lake Natchez was drawn down at time of survey which left its littoral zone functionally barren (Table 2). Aside from Lake Natchez, Dry Creek Lake was the most depauperate lake surveyed (s=15, $\bar{x}_s$=2.00, H'=1.54, J=0.57; Table 2). Of the 123 species observed in 2023, 17 were non-native. All waterbodies surveyed had non-native species present. The Pearl River delta (s_{nn}=10, $\bar{x}_{nns}$=2.96; Table 2) and Lake Tangipahoa (s_{nn}=8, $\bar{x}_{nns}$=2.90; Table 2) had the greatest prevalence of non-native species. Jourdan River (s_{nn}=6, $\bar{x}_{nns}$=0.56; Table 2) had the lowest non-native prevalence of rivers surveyed and Geiger Lake (s_{nn}=2, $\bar{x}_{nns}$=0.11; Table 2) had the lowest non-native prevalence of lakes surveyed. The three most common species surveyed were *Panicum repens*, *Alternanthera philoxeroides*, and *Triadica sebifera* which were found in 27 (93.1%), 26 (89.7%), and 21 (72.4%) waterbodies respectively. Notably, *P. repens* and *T. sebifera* are both listed as MS state noxious weeds. While *P. repens* was observed at more sites, its frequency (26.7%) was on average, lower than *A. philoxeroides* (41.4%). The most common native species were *Hypericum walteri* and *Zizaniopsis miliacea* which were both found at 20 (69.0%) waterbodies.

Coastal Streams Basin

Biloxi River

Biloxi River (30.4425, -89.0089) was surveyed June 19-20, 2023. Biloxi River ranked 4th in species richness (s=36) and 9th in mean species richness ($\bar{x}_s$=5.69) (Table 2). It ranked 7th in species diversity (H'=2.95) and 20th in species evenness (J=0.82) (Table 2). The most frequent species were *Juncus roemerianus* (76.9%), *Sagittaria lancifolia* (61.5%), *Baccharis halimifolia* (53.8%), and *Pontederia cordata* (53.8%) (Table 3). There were no federal noxious weeds present in Biloxi River. Mississippi state noxious weeds present in Biloxi River were *Panicum repens* (26.9%) and *Triadica sebifera* (7.7%). Other non-native species included *Myriophyllum spicatum* (38.5%), *Alternanthera philoxeroides* (3.8%), and *Phragmites australis* (3.8%).

Jourdan River

Jourdan River (30.3521, -89.4013) was surveyed June 22, 2023. Jourdan River ranked 15th in species richness (*s*=27) and 11th in mean species richness ($\bar{x}_s$=5.52) (Table 2). It ranked 20th in species diversity (*H'*=2.70) and species evenness (*J*=0.82) (Table 2). The most frequent species were *Juncus roemerianus* (80.0%), *Vallisneria americana* (64.0%), and *Sagittaria lancifolia* (56.0%) (Table 4). There were no federal noxious weeds present in Jourdan River. Mississippi state noxious weeds present in Jourdan River were *Panicum repens* (8.0%) and *Triadica sebifera* (8.0%) (Table 4). Other non-native species included *Alternanthera philoxeroides* (16.0%), *Myriophyllum spicatum* (12.0%), *Phragmites australis* (8.0%), and *Myriophyllum aquaticum* (4.0%) (Table 4).

Tchoutacabouffa River

Tchoutacabouffa River (30.4510, -88.9579) was surveyed June 21, 2023. Tchoutacabouffa River ranked 6th in species richness (*s*=35) and mean species richness ($\bar{x}_s$=6.14) (Table 2). It ranked 6th in species diversity (*H'*=3.06) and 10th in species evenness (*J*=0.86) (Table 2). The most frequent species were *Juncus roemerianus* (68.6%), *Sagittaria lancifolia* (60.0%), and *Panicum repens* (54.3%) (Table 5). There were no federal noxious weeds present in Tchoutacabouffa River. Mississippi state noxious weeds present in Tchoutacabouffa River were *P. repens* and *Triadica sebifera* (2.9%) (Table 5). Other non-native species included *Alternanthera philoxeroides* (25.7%), *Myriophyllum spicatum* (25.7%), *Eichhornia crassipes* (5.7%), and *Ludwigia hexapetala* (2.9%) (Table 5).

Wolf River

Wolf River (30.3673, -89.2558) was surveyed June 22, 2023. Wolf River ranked 22nd in species richness (*s*=24) and 17th in mean species richness ($\bar{x}_s$=4.44) (Table 2). It ranked 24th in species diversity (*H'*=2.65) and 17th in species evenness (*J*=0.83) (Table 2). The most frequent species were *Sagittaria lancifolia* (56.3%), *Salvinia minima* (50.0%), and *Juncus roemerianus* (43.8%) (Table 6). There were no federal noxious weeds present in Wolf River. Mississippi state noxious weeds present in Wolf River were *Panicum repens* (31.3%) and *Triadica sebifera* (9.4%) (Table 6). Other non-native species included *S. minima* and *Phragmites australis* (21.9%) (Table 6).

Pascagoula River Basin

Archusa Creek Lake

Archusa Creek Lake (32.0338, -88.7137) was surveyed June 15, 2023. Archusa Creek Lake ranked 1st in species richness (*s*=42) and 2nd in mean species richness ($\bar{x}_s$=7.06) (Table 2). It ranked 1st in species diversity (*H'*=3.25) and 8th in species evenness (*J*=0.87) (Table 2). The most frequent species were *Nymphaea odorata* (58.8%), *Arundinaria gigantea* (50.0%), *Saururus cernuus* (50.0%), and *Hydrocotyle umbellata* (47.1%) (Table 7). There were no federal noxious weeds present in Archusa Creek Lake. Mississippi state noxious weeds present in Archusa Creek Lake were *Panicum repens* (23.5%) and *Triadica sebifera* (5.9%) (Table 7). Other non-native species included *Myriophyllum aquaticum* (17.6%), *Alternanthera philoxeroides* (14.7%), and *Colocasia esculenta* (5.9%) (Table 7).

Dry Creek Lake

Dry Creek Lake (31.7507, -89.7327) was surveyed June 14, 2023. Dry Creek Lake ranked 27th in species richness (*s*=15) and 28th in mean species richness ($\bar{x}_s$=2.00) (Table 2). It ranked 28th in species diversity (*H'*=1.54) and species evenness (*J*=0.57) (Table 2). The most frequent species were *Alternanthera philoxeroides* (70.6%), *Cephalanthus occidentalis* (70.6%), and *Eleocharis vivipara* (29.4%) (Table 8). There were no federal noxious weeds present in Dry Creek Lake. Mississippi state noxious weeds present in Dry Creek Lake were *Panicum repens* (0.0%) and *Triadica sebifera* (0.0%) (Table 8). Other non-native species included *A. philoxeroides* (Table 8).

Flint Creek Reservoir

Flint Creek Reservoir (30.8847, -89.1297) was surveyed June 27, 2023. Flint Creek Reservoir ranked 8th in species richness (*s*=31) and 19th in mean species richness ($\bar{x}_s$=4.25) (Table 2). It ranked 22nd in species diversity (*H'*=2.69) and 27th in species evenness (*J*=0.78) (Table 2). The most frequent species were *Bacopa caroliniana* (83.9%), *Juncus repens* (62.5%), *Eleocharis vivipara* (41.1%), and *Panicum hemitomon* (41.1%) (Table 9). There were no federal noxious weeds present in Flint Creek Reservoir. Mississippi state noxious weeds present in Flint Creek Reservoir were *Panicum repens* (8.9%) and *Triadica sebifera* (7.1%) (Table 9). Other non-native species included *Alternanthera philoxeroides* (12.5%), *Ludwigia peploides* (8.9%), and *Colocasia esculenta* (5.4%) (Table 9).

Geiger Lake

Geiger Lake (31.1417, -89.2417) was surveyed June 27, 2023. Geiger Lake ranked 12th in species richness (*s*=28) and 22nd in mean species richness ($\bar{x}_s$=4.06) (Table 2). It ranked 22nd in species diversity (*H'*=2.69) and 24th in species evenness (*J*=0.81) (Table 2). The most frequent species were *Eleocharis vivipara* (88.6%), *Utricularia radiata* (48.6%), and *Brasenia schreberi* (45.7%) (Table 10). There were no federal noxious weeds present in Gieger Lake. Mississippi state noxious weeds present in Geiger Lake were *Panicum repens* (11.4%) and *Triadica sebifera* (0.0%) (Table 10). There were no other non-native species present in Geiger Lake.

Ivy Lake

Ivy Lake (32.1013, -88.6927) was surveyed June 15, 2023. Ivy Lake ranked 17th in species richness (*s*=26) and 14th in mean species richness ($\bar{x}_s$=5.13) (Table 2). It ranked 7th in species diversity (*H'*=2.95) and 2nd in species evenness (*J*=0.91) (Table 2). The most frequent species were *Eleocharis vivipara* (73.3%), *Hydrocotyle umbellata* (60.0%), and *Potamogeton diversifolius* (33.3%) (Table 11). There were no federal noxious weeds present in Ivy Lake. The only Mississippi state noxious weed present in Ivy Lake was *Panicum repens* (20.0%) (Table 11). Other non-native species included *Alternanthera philoxeroides* (26.7%), *Myriophyllum aquaticum* (26.7%), and *Ludwigia peploides* (13.3%) (Table 11).

Lake Claude Bennett

Lake Claude Bennett (32.1018, -89.0359) was surveyed June 14, 2023. Lake Claude Bennett ranked 19th in species richness (*s*=25) and 25th in mean species richness ($\bar{x}_s$=3.64) (Table 2). It ranked 19th in species diversity (*H'*=2.71) and 13th in species evenness (*J*=0.84) (Table 2). The

most frequent species were *Alternanthera philoxeroides* (90.9%), *Hypericum walteri* (40.9%), *Ludwigia peploides* (31.8%), and *Panicum repens* (31.8%) (Table 12). There were no federal noxious weeds present in Lake Claude Bennett. The only Mississippi state noxious weed present in Lake Claude Bennett was *P. repens* (Table 12). Other non-native species included *Alternanthera philoxeroides* and *Ludwigia peploides* (Table 12).

Lake Eddins

Lake Eddins (32.0478, -88.9624) was surveyed June 13, 2023. Lake Eddins ranked 24th in species richness (s=23) and 18th in mean species richness ($\bar{x}_s$=4.31) (Table 2). It ranked 14th in species diversity (H'=2.75) and 6th in species evenness (J=0.88) (Table 2). The most frequent species were *Colocasia esculenta* (73.1%), *Panicum repens* (57.7%), and *Triadica sebifera* (38.5%) (Table 13). There were no federal noxious weeds present in Lake Eddins. Mississippi state noxious weeds present in Lake Eddins were *P. repens* and *T. sebifera* (Table 13). Other non-native species included *C. esculenta*, *Alternanthera philoxeroides* (30.8%), *Ludwigia hexapetala* (19.2%), *Ludwigia peploides* (7.7%), *Mentha aquatica* (7.7%), and *Pontederia crassipes* (7.7%) (Table 13).

Lake Mike Conner

Lake Mike Conner (31.5753, -89.6489) was surveyed June 14, 2023. Lake Mike Conner ranked 25th in species richness (s=23) and 24th in mean species richness ($\bar{x}_s$=3.88) (Table 2). It ranked 14th in species diversity (H'=2.75) and 6th in species evenness (J=0.88) (Table 2). The most frequent species were *Hydrocotyle umbellata* (57.7%), *Panicum repens* (53.8%), and *Saururus cernuus* (46.2%) (Table 14). There were no federal noxious weeds present in Lake Mike Conner. Mississippi state noxious weeds present in Lake Mike Conner were *P. repens* and *Triadica sebifera* (19.2%) (Table 14). Other non-native species included *Alternanthera philoxeroides* (34.6%) and *Ludwigia peploides* (7.7%) (Table 14).

Lake Perry

Lake Perry (31.1323, -88.9039) was surveyed June 28, 2023. Lake Perry ranked 9th in species richness (s=31) and 13th in mean species richness ($\bar{x}_s$=5.36) (Table 2). It ranked 9th in species diversity (H'=2.94) and 10th in species evenness (J=0.86) (Table 2). The most frequent species were *Eleocharis vivipara* (90.9%), *Cyrilla racemiflora* (54.5%), and *Sparganium americanum* (45.5%) (Table 15). There were no federal noxious weeds present in Lake Perry. The only Mississippi state noxious weed present in Lake Perry was *Panicum repens* (18.2%). Other non-native species included *Alternanthera philoxeroides* (22.7%), *Ludwigia peploides* (9.1%), and *Oxycaryum cubense* (4.5%) (Table 15).

Maynor Creek Lake

Maynor Creek Lake (31.6542, -88.7161) was surveyed June 12, 2023. Maynor Creek Lake ranked 20th in species richness (s=25) and 16th in mean species richness ($\bar{x}_s$=3.88) (Table 2). It ranked 25th in species diversity (H'=2.54) and 26th in species evenness (J=0.79) (Table 2). The most frequent species were *Eleocharis vivipara* (75.0%), *Nymphaea odorata* (66.7%), and *Brasenia schreberi* (63.9%) (Table 16). There were no federal noxious weeds present in Maynor Creek Lake. The only Mississippi state noxious weed present in Maynor Creek Lake was

Panicum repens (55.6%) (Table 16). Other non-native species included *Ludwigia hexapetala* (47.2%) and *Alternanthera philoxeroides* (16.7%) (Table 16).

Pascagoula River Delta

The Pascagoula River Delta (30.4129, --88.5838) was surveyed June 23, 2023. Pascagoula River Delta ranked 3rd in species richness (*s*=40) and 4th in mean species richness ($\bar{x}_s$=6.74) (Table 2). It ranked 5th in species diversity (*H'*=3.11) and 13th in species evenness (*J*=0.84) (Table 2). The most frequent species were *Juncus roemerianus* (62.8%), *Salvinia minima* (60.5%), *Salvinia molesta* (60.5%) and *Zizania aquatica* (46.5%) (Table 17). The only federal noxious weed present in the Pascagoula River Delta was *S. molesta* (Table 17). Mississippi state noxious weeds present in Pascagoula River Delta were *Panicum repens* (14.0%) and *Triadica sebifera* (2.3%) (Table 17). Other non-native species included *S. minima, Alternanthera philoxeroides* (37.2%), *Oxycaryum cubense* (27.9%), *Eichhornia crassipes* (27.9%), *Phragmites australis* (25.6%), *Myriophyllum spicatum* (18.6%), *Ludwigia peploides* (4.7%), and *Myriophyllum aquaticum* (4.7%) (Table 17).

Prentiss Walker Lake (formerly Lake Ross Barnett)

Prentiss Walker Lake (31.8298, -89.5919) was surveyed June 14, 2023. Prentiss Walker Lake ranked 23rd in species richness (*s*=24) and 23rd in mean species richness ($\bar{x}_s$=4.00) (Table 2). It ranked 13th in species diversity (*H'*=2.76) and 8th in species evenness (*J*=0.87) (Table 2). The most frequent species were *Alternanthera philoxeroides* (78.3%), *Hydrocotyle umbellata* (39.1%), and *Sparganium americanum* (34.8%) (Table 18). There were no federal noxious weeds present in Prentiss Walker Lake. Mississippi state noxious weeds present in Prentiss Walker Lake were *Panicum repens* (4.3%) and *Triadica sebifera* (4.3%) (Table 18). Other non-native species included *A. philoxeroides,* and *Ludwigia peploides* (8.7%) (Table 18).

Turkey Fork Reservoir

Turkey Fork Reservoir (31.3449, -88.7023) was surveyed June 28, 2023. Turkey Fork Reservoir ranked 2nd in species richness (*s*=41) and 3rd in mean species richness ($\bar{x}_s$=6.86) (Table 2). It ranked 2nd in species diversity (*H'*=3.24) and 1st in species evenness (*J*=0.97) (Table 2). The most frequent species were *Panicum repens* (95.5%), *Eleocharis vivipara* (68.2%), *Alternanthera philoxeroides* (40.9%), and *Nymphaea odorata* (40.9%) (Table 19). There were no federal noxious weeds present in Turkey Fork Reservoir. Mississippi state noxious weeds present in Turkey Fork Reservoir were *P. repens* and *Triadica sebifera* (4.5%) (Table 19). Other non-native species included *A. philoxeroides*, *Eichhornia crassipes* (22.7%), *Ludwigia peploides* (4.5%), and *Salvinia minima* (0.0%; was observed *in situ* but not present at survey points) (Table 19).

Pearl River Basin

Lake Bill Waller

Lake Bill Waller (31.1953, -89.7187) was surveyed June 26, 2023. Lake Bill Waller ranked 13th in species richness (*s*=28) and 5th in mean species richness ($\bar{x}_s$=6.59) (Table 2). It ranked 12th in species diversity (*H'*=2.79) and 13th in species evenness (*J*=0.84) (Table 2). The most frequent

species were *Nymphaea odorata* (90.9%), *Brasenia schreberi* (77.3%), *Eleocharis vivipara* (68.2%), and *Myriophyllum heterophyllum* (68.2%) (Table 20). The only federal noxious weed present in Lake Bill Waller was *Salvinia molesta* (0.0%; was observed *in situ* but not present at survey points) (Table 20). Mississippi state noxious weeds present in Lake Bill Waller was *Panicum repens* (59.1%) (Table 20). Other non-native species included *Alternanthera philoxeroides* (27.3%) and *Typha angustifolia* (4.5%) (Table 20).

Lake Columbia

Lake Columbia (31.1868, -89.7360) was surveyed June 26, 2023. Lake Columbia ranked 14th in species richness (s=28) and 12th in mean species richness ($\bar{x}_s$=5.41) (Table 2). It ranked 18th in species diversity (H'=2.72) and 20th in species evenness (J=0.82) (Table 2). The most frequent species were *Brasenia schreberi* (90.9%), *Myriophyllum heterophyllum* (90.9%), *Typha latifolia* (59.1%), *Eleocharis vivipara* (45.5%), and *Nymphaea odorata* (45.5%) (Table 21). There were no federal noxious weeds present in Lake Columbia. Mississippi state noxious weeds present in Lake Columbia were *Panicum repens* (9.1%) and *Triadica sebifera* (4.5%) (Table 21). Other non-native species included *Alternanthera philoxeroides* (18.2%) and *Ludwigia peploides* (4.5%) (Table 21).

Lake Lincoln

Lake Lincoln (31.6831, -90.3565) was surveyed June 7, 2023. Lake Lincoln ranked 11th in species richness (s=30) and 8th in mean species richness ($\bar{x}_s$=6.08) (Table 2). It ranked 11th in species diversity (H'=2.88) and 12th in species evenness (J=0.85) (Table 2). The most frequent species were *Hypericum walteri* (81.1%), *Juncus effusus* (62.2%), and *Alternanthera philoxeroides* (59.5%) (Table 22). There were no federal noxious weeds present in Lake Lincoln. Mississippi state noxious weeds present in Lake Lincoln were *Triadica sebifera* (18.9%) and *Panicum repens* (13.5%) (Table 22). Other non-native species included *A. philoxeroides*, *Colocasia esculenta* (43.2%), *Eichhornia crassipes* (16.2%), and *Ludwigia peploides* (8.1%) (Table 22).

Lake Mary Crawford

Lake Mary Crawford (31.5771, -90.1583) was surveyed June 9, 2023. Lake Mary Crawford ranked 26th in species richness (s=21) and mean species richness ($\bar{x}_s$=3.53) (Table 2). It ranked 26th in species diversity (H'=2.49) and 20th in species evenness (J=0.82) (Table 2). The most frequent species were *Nelumbo lutea* (52.6%), *Cephalanthus occidentalis* (47.4%), and *Alternanthera philoxeroides* (42.1%) (Table 23). There were no federal noxious weeds present in Lake Mary Crawford. Mississippi state noxious weeds present in Lake Mary Crawford were *Panicum repens* (36.8%) and *Triadica sebifera* (0.0%) (Table 23). Other non-native species included *A. philoxeroides*, *Ludwigia peploides* (36.8%), and *Eichhornia crassipes* (0.0%) (Table 23).

Lake Walthall

Lake Walthall (31.0626, -90.1322) was surveyed June 6, 2023. Lake Walthall ranked 28th in species richness (s=14) and 21st in mean species richness ($\bar{x}_s$=4.13) (Table 2). It ranked 27th in species diversity (H'=2.19) and 17th in species evenness (J=0.83) (Table 2). The most frequent

species were *Cephalanthus occidentalis* (80%), *Eleocharis vivipara* (73.3%), and *Taxodium distichum* (60.0%) (Table 24). There were no federal noxious weeds present in Lake Walthall. There were no Mississippi state noxious weeds present in Lake Walthall. The only non-native species in Lake Walthall was *Alternanthera philoxeroides* (53.3%) (Table 24).

Pearl River Delta

Pearl River Delta (30.2591, -89.6251) was surveyed June 20, 2023. Pearl River Delta ranked 5th in species richness (s=36) and 1st in mean species richness ($\bar{x}_s$=8.64) (Table 2). It ranked 3rd in species diversity (H'=3.19) and 5th in species evenness (J=0.89) (Table 2). The most frequent species were *Nuphar advena* (78.6%), *Ceratophyllum demersum* (60.7%), *Ludwigia peploides* (60.7%), *Alternanthera philoxeroides* (57.1%), *Cabomba caroliniana* (57.1%), and *Salvinia minima* (57.1%) (Table 25). There were no federal noxious weeds present in Pearl River Delta. Mississippi state noxious weeds present in Pearl River Delta were *Panicum repens* (14.3%) and *Triadica sebifera* (3.6%) (Table 25). Other non-native species included *L. peploides*, *A. philoxeroides*, *S. minima*, *Phragmites australis* (46.4%), *Eichhornia crassipes* (42.9%), *Oxycaryum cubense* (10.7%), *Myriophyllum spicatum* (3.6%), and *Colocasia esculenta* (0.0%) (Table 25).

Simpson County Lake

Simpson County Lake (31.9123, -89.7900) was surveyed June 9, 2023. Simpson County Lake ranked 16th in species richness (s=27) and 10th in mean species richness ($\bar{x}_s$=5.63) (Table 2). It ranked 16th in species diversity (H'=2.74) and 17th in species evenness (J=0.83) (Table 2). The most frequent species were *Alternanthera philoxeroides* (95.8%), *Eleocharis vivipara* (75.0%), and *Juncus effusus* (70.8%) (Table 26). There were no federal noxious weeds present in Simpson County Lake. The only Mississippi state noxious weed present in Simpson County Lake was *Panicum repens* (54.2%) (Table 26). Other non-native species included *A. philoxeroides*, and *Ludwigia peploides* (4.2%) (Table 26).

<u>Southwest Mississippi Basin</u>

Calling Panther Lake

Calling Panther Lake (31.9814, -90.4737) was surveyed June 7, 2023. Calling Panther Lake ranked 21st in species richness (s=25) and 27th in mean species richness ($\bar{x}_s$=3.42) (Table 2). It ranked 20th in species diversity (H'=2.70) and 13th in species evenness (J=0.84) (Table 2). The most frequent species were *Hypericum walteri* (63.2%), *Juncus effusus* (44.7%), and *Zizaniopsis miliacea* (34.2%) (Table 27). There were no federal noxious weeds present in Calling Panther Lake. Mississippi state noxious weeds present in Calling Panther Lake were *Panicum repens* (2.6%) and *Triadica sebifera* (0.0%) (Table 27). Other non-native species included *Ludwigia peploides* (26.3%), and *Alternanthera philoxeroides* (5.3%) (Table 27).

Lake Natchez

Lake Natchez (31.5938, -91.2082) was surveyed on June 8, 2023. Lake Natchez was undergoing management that included an active drawdown. With the historical littoral zone exposed and high turbidity as result of the drawdown, the littoral zone was void of species (Table 28). Species

richness was 2 but all sample points had no species which rendered zero for all other macrophyte community metrics. Natchez lake ranks 29th for all macrophyte community metrics (Table 2). There were no non-native species observed at Lake Natchez.

Lake Tangipahoa

Lake Tangipahoa (31.1852, -90.5237) was surveyed June 6, 2023. Lake Tangipahoa ranked 10th in species richness (s=31) and 7th in mean species richness ($\bar{x}_s$=6.10) (Table 2). It ranked 16th in species diversity (H'=2.74) and 25th in species evenness (J=0.80) (Table 2). The most frequent species were *Eichhornia crassipes* (95.0%), *Alternanthera philoxeroides* (92.5%), *Bacopa caroliniana* (47.5%), and *Nuphar advena* (47.5%) (Table 29). Federal noxious weeds present in Lake Tangipahoa was *Salvinia molesta* (2.5%) (Table 29). Mississippi state noxious weeds present in Lake Tangipahoa were *Panicum repens* (2.5%) and *Triadica sebifera* (0.0%) (Table 29). Other non-native species included *P. crassipes*, *A. philoxeroides*, *Salvinia minima* (57.5%), *Oxycaryum cubense* (27.5%), and *Ludwigia peploides* (12.5%) (Table 29).

Okhissa Lake

Okhissa Lake (31.4187, -90.8311) was surveyed June 5, 2023. Okhissa Lake ranked 18th in species richness (s=26) and 20th in mean species richness ($\bar{x}_s$=4.21) (Table 2). It ranked 10th in species diversity (H'=2.93) and 3rd in species evenness (J=0.90) (Table 2). The most frequent species were *Zizaniopsis miliacea* (58.3%), *Salvinia molesta* (45.8%), and *Juncus effusus* (37.5%) (Table 30). Federal noxious weeds present in Okhissa Lake were *S. molesta* and *Hydrilla verticillata* (12.5%) (Table 30). Mississippi state noxious weeds present in Okhissa Lake were *Panicum repens* (8.3%) and *Triadica sebifera* (8.3%) (Table 30). Other non-native species included *Alternanthera philoxeroides* (29.2%), *Myriophyllum aquaticum* (16.7%), *Ludwigia peploides* (8.3%), and *Najas minor* (4.2%) (Table 30).

Tombigbee River Basin

Lake Tom Bailey

Lake Tom Bailey (32.4240, -88.5211) was surveyed June 16, 2023. Lake Tom Bailey ranked 7th in species richness (s=34) and 15th in mean species richness ($\bar{x}_s$=5.12) (Table 2). It ranked 3rd in species diversity (H'=3.19) and species evenness (J=0.90) (Table 2). The most frequent species were *Alternanthera philoxeroides* (64.0%), *Alnus serrulata* (36.0%), *Hypericum walteri* (36.0%), and *Hydrocotyle umbellata* (32.0%) (Table 31). The only federal noxious weeds present in Lake Tom Bailey was *Salvinia molesta* (8.0%) (Table 31). Mississippi state noxious weeds present in Lake Tom Bailey were *Panicum repens* (20.0%) and *Triadica sebifera* (20.0%) (Table 31). Other non-native species included *A. philoxeroides* and *Ludwigia peploides* (16.0%) (Table 31).

Acknowledgements

We thank Joseph Kauppi for assistance with surveys and collections and Dr. Ryan Folk and his team at the Mississippi State University Herbarium (MISSA) for help processing and storing voucher specimens collected from this survey effort. This work was funded by the Mississippi Aquatic Invasive Species Council through Mississippi Department of Environmental Quality from a grant provided by the US Fish and Wildlife Service.

Literature Cited

Bureau of Plant Industry. 2018. Plant Diseases, Insects, and Weeds. Pages 42–43 Mississippi Code - Title 69.

Downing, J. A., Y. T. Prairie, J. J. Cole, C. M. Duarte, L. J. Tranvik, R. G. Striegl, W. H. McDowell, P. Kortelainen, N. F. Caraco, J. M. Melack, and J. J. Middelburg. 2006. The global abundance and size distribution of lakes, ponds, and impoundments. Limnology and Oceanography 51:2388–2397.

Gleason, H. A., and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Second edition. New York Botanical Garden, Bronx, NY, USA.

Godfrey, R. K., and J. W. Wooten. 1979. Aquatic and Wetland Plants of Southeastern United States: Monocotyledons. University of Georgia Press, Athens, Georgia, USA.

Gurevitch, J., S. Scheiner, and G. Fox. 2002. The Ecology of Plants. Sinauer Associates, Sunderland, MA, USA.

Loshbaugh, A. K., R. Campanella, S. Meaux, and Members of Mississippi Aquatic Invasive Species Task Force. 2013. Mississippi state management plan for aquatic invasive species. Page 161. Management Plan, Mississippi Department of Environmental Quality.

Neal, J. W., and D. W. Willis. 2012. Small Impoundment Management in North America. American Fisheries Society, Bethesda, MD, USA.

Pellegrini, M. O. O., C. N. Horn, and R. F. Almeida. 2018. Total evidence phylogeny of Pontederiaceae (Commelinales) sheds light on the necessity of its recircumscription and synopsis of *Pontederia* L. PhytoKeys:25–83.

Turnage, G., A. Lazaro-Lobo, S. L. Sanders, and M. Thomas. 2019. 2019 survey of aquatic plant species in Mississippi waterbodies. Page 35. Technical report, Mississippi State University, Geosystems Research Institute, Starkville, MS, USA.

Turnage, G., A. Sample, and C. McLeod. 2020. 2020 survey of aquatic plant species in Mississippi waterbodies. Page 72. Technical report, Mississippi State University, Geosystems Research Institute, Starkville, Mississippi, USA.

Turnage, G., and C. Shoemaker. 2018. 2017 Survey of aquatic plant speices in Mississippi waterbodies. Page 69. Technical report, Mississippi State University, Geosystems Research Institute, Starkville, MS, USA.

USACE. 2023. United States Army Corps of Engineers. https://www.mvk.usace.army.mil/.

Weakley, A. S. and Southeastern Flora Team. 2023. Flora of the southeastern United States. University of North Carolina Herbarium, Chapel Hill, NC, USA.

Wehr, J. D., R. G. Sheath, and J. P. Kociolek. 2015. Freshwater Algae of North America: Ecology and Classification. Elsevier.

Wetzel, R. G. 2001. Limnology. Academic Press, San Diego, CA, USA.

Tables and Figures

Table 1. Geographic characteristics of water bodies surveyed during June 2023.

Site Name	Area (ac)	Latitude	Longitude	Sample Points (*t*)	River/Streams Basin	Lentic/Lotic
Biloxi River		30.4425	-89.0089	26	Coastal Streams	Lotic
Jourdan River		30.3521	-89.4013	25	Coastal Streams	Lotic
Tchoutacabouffa River		30.4510	-88.9579	35	Coastal Streams	Lotic
Wolf River		30.3673	-89.2558	32	Coastal Streams	Lotic
Archusa Creek Lake	2167	32.0338	-88.7137	34	Pascagoula River	Lentic
Dry Creek Lake	33	31.7507	-89.7327	17	Pascagoula River	Lentic
Flint Creek Reservoir	555	30.8847	-89.1297	58	Pascagoula River	Lentic
Geiger Lake	274	31.1417	-89.2417	35	Pascagoula River	Lentic
Ivy Lake	48	32.1013	-88.6927	15	Pascagoula River	Lentic
Lake Claude Bennett	74	32.1018	-89.0359	22	Pascagoula River	Lentic
Lake Eddins	654	32.0478	-88.9624	27	Pascagoula River	Lentic
Lake Mike Conner	82	31.5753	-89.6489	27	Pascagoula River	Lentic
Lake Perry	73	31.1323	-88.9039	22	Pascagoula River	Lentic
Maynor Creek Lake	450	31.6542	-88.7161	36	Pascagoula River	Lentic
Pascagoula River Delta		30.4129	-88.5838	43	Pascagoula River	Lotic
Prentiss Walker Lake	81	31.8298	-89.5919	25	Pascagoula River	Lentic
Turkey Fork Reservoir	250	31.3449	-88.7023	23	Pascagoula River	Lentic
Lake Bill Waller	166	31.1953	-89.7187	23	Pearl River	Lentic
Lake Columbia	95	31.1868	-89.7360	22	Pearl River	Lentic
Lake Lincoln	450	31.6831	-90.3565	40	Pearl River	Lentic
Lake Mary Crawford	136	31.5771	-90.1583	19	Pearl River	Lentic
Lake Walthall	48	31.0626	-90.1322	15	Pearl River	Lentic
Pearl River Delta		30.2591	-89.6251	28	Pearl River	Lotic
Simpson County Lake	76	31.9163	-89.7900	24	Pearl River	Lentic
Calling Panther Lake	399	31.9814	-90.4737	39	Southwest Mississippi	Lentic
Lake Natchez	198	31.5938	-91.2082	17	Southwest Mississippi	Lentic
Lake Tangipahoa	493	31.1852	-90.5237	40	Southwest Mississippi	Lentic
Okhissa Lake	999	31.4187	-90.8311	25	Southwest Mississippi	Lentic
Lake Tom Bailey	179	32.4240	-88.5211	25	Tombigbee River	Lentic

Table 2. Macrophyte community metrics of water bodies surveyed during June 2023.

	Richness			Mean Richness			Diversity	Evenness
Site Name	Total (s)	Non-Native (s_{nn})	Native (s_n)	Total ($\bar{x}_s$)	Non-Native ($\bar{x}_{nns}$)	Native ($\bar{x}_{ns}$)	Shannon-Weiner Index (H')	Shannon Evenness (J)
Biloxi River	36	5	31	5.69	0.81	4.88	2.95	0.82
Jourdan River	27	6	21	5.52	0.56	4.96	2.70	0.82
Tchoutacabouffa River	35	6	29	6.14	1.17	4.97	3.06	0.86
Wolf River	24	4	20	4.44	1.13	3.31	2.65	0.83
Archusa Creek Lake	42	5	37	7.06	0.68	6.38	3.25	0.87
Dry Creek Lake	15	3	12	2.00	0.71	1.29	1.54	0.57
Flint Creek Reservoir	31	4	27	4.25	0.34	3.91	2.69	0.78
Geiger Lake	28	2	26	4.06	0.11	3.94	2.69	0.81
Ivy Lake	26	3	23	5.13	0.73	4.40	2.95	0.91
Lake Claude Bennett	25	2	23	3.64	1.23	2.41	2.71	0.84
Lake Eddins	23	7	16	4.31	2.35	1.96	2.75	0.88
Lake Mike Conner	23	3	20	3.88	1.08	2.81	2.75	0.88
Lake Perry	31	3	28	5.36	0.45	4.91	2.94	0.86
Maynor Creek Lake	25	3	22	4.97	1.19	3.78	2.54	0.79
Pascagoula River Delta	40	10	30	6.74	2.14	4.60	3.11	0.84
Prentiss Walker Lake	24	3	21	4.00	0.87	3.13	2.76	0.87
Turkey Fork Reservoir	41	5	36	6.86	0.91	5.95	3.24	0.97
Lake Bill Waller	28	4	24	6.59	0.91	5.68	2.79	0.84
Lake Columbia	28	3	25	5.41	0.32	5.09	2.72	0.82
Lake Lincoln	30	5	25	6.08	1.35	4.73	2.88	0.85
Lake Mary Crawford	21	4	17	3.53	0.58	2.95	2.49	0.82
Lake Walthall	14	1	13	4.13	0.53	3.60	2.19	0.83
Pearl River Delta	36	9	27	8.64	2.00	6.64	3.19	0.89
Simpson County Lake	27	2	25	5.63	1.50	4.13	2.74	0.83
Calling Panther Lake	25	3	22	3.42	0.34	3.08	2.70	0.84
Lake Natchez	2	0	2	0.00	0.00	0.00	0.00	0.00
Lake Tangipahoa	31	7	24	6.10	1.95	4.15	2.74	0.80
Okhissa Lake	26	7	19	4.21	1.25	2.96	2.93	0.90
Lake Tom Bailey	34	4	30	5.12	1.12	4.00	3.19	0.90

Table 3. Macrophyte community of the Biloxi River. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Biloxi River			
Species Richness	36	**Date Surveyed**	Jun 19-20, 2023
Native Species Richness	31	**Total Pts. Sur**	26
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	1	3.8
Arundinaria gigantea	river cane	1	3.8
Baccharis halimifolia	groundseltree	14	53.8
Bolboschoenus robustus	sturdy bulrush	1	3.8
Cabomba caroliniana	carolina fanwort	2	7.7
Ceratophyllum demersum	coontail	2	7.7
Cicuta maculata	water hemlock	0	0.0
Cladium mariscus	swamp sawgrass	10	38.5
Crinum americanum	southern swamp crinum	0	0.0
Cyperus sp.	nutsedge	1	3.8
Eleocharis sp.	spikerush	1	3.8
Hydrocotyle umbellata	marsh pennywort	1	3.8
Hypericum sp.	St. Johnswort	2	7.7
Itea virginica	Virginia sweetspire	0	0.0
Juncus roemerianus	black needlerush	20	76.9
Lythrum lineare	saltmarsh loosestrife	0	0.0
Myriophyllum spicatum	Eurasian watermilfoil	10	38.5
Najas guadalupensis	southern naiad	3	11.5
Nuphar advena	spatterdock	6	23.1
Nyssa biflora	swamp tupelo	0	0.0
Panicum repens	**torpedograss**	7	26.9
Peltandra virginica	green arrow arum	5	19.2
Phragmites australis	common reed	1	3.8
Pontederia cordata	pickerelweed	14	53.8
Sabal minor	dwarf palmetto	3	11.5
Sagittaria lancifolia	bulltongue arrowhead	16	61.5
Salix nigra	black willow	0	0.0
Samolus parviflorus	water pimpernel	1	3.8
Schoenoplectus tabernaemontani	softstem bulrush	2	7.7
Sporobolus sp.	dropseed	4	15.4
Taxodium distichum	baldcypress	4	15.4
Triadica sebifera	**tallowtree**	2	7.7

Typha latifolia	broadleaf cattail	1	3.8
Vallisneria americana	eelgrass	8	30.8
Zizania aquatica	southern wild rice	4	15.4
Zizaniopsis miliacea	giant cutgrass	1	3.8

Table 4. Macrophyte community of the Jourdan River. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Jourdan River			
Species Richness	27	**Date Surveyed**	June 22, 2023
Native Species Richness	21	**Total Pts. Sur**	25
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	4	16.0
Baccharis halimifolia	groundseltree	9	36.0
Bolboschoenus robustus	sturdy bulrush	1	4.0
Cabomba caroliniana	carolina fanwort	6	24.0
Ceratophyllum demersum	coontail	1	4.0
Cicuta maculata	water hemlock	1	4.0
Cladium mariscus	swamp sawgrass	4	16.0
Crinum americanum	southern swamp crinum	0	0.0
Juncus roemerianus	black needlerush	20	80.0
Lythrum lineare	saltmarsh loosestrife	0	0.0
Myriophyllum aquaticum	parrotfeather	1	4.0
Myriophyllum spicatum	Eurasian watermilfoil	3	12.0
Najas guadalupensis	southern naiad	1	4.0
Nymphaea odorata	white waterlily	0	0.0
Panicum repens	**torpedograss**	2	8.0
Phragmites australis	common reed	2	8.0
Pontederia cordata	pickerelweed	5	20.0
Sabal minor	dwarf palmetto	2	8.0
Sagittaria lancifolia	bulltongue arrowhead	14	56.0
Salvinia minima	waterspangles	2	8.0
Schoenoplectus tabernaemontani	softstem bulrush	13	52.0
Sporobolus sp.	dropseed	18	72.0
Triadica sebifera	**tallowtree**	2	8.0
Typha domingensis	southern cattail	2	8.0
Typha latifolia	broadleaf cattail	0	0.0
Vallisneria americana	eelgrass	16	64.0
Zizania aquatica	southern wild rice	9	36.0

Table 5. Macrophyte community of the Tchoutacabouffa River. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Tchoutacabouffa River			
Species Richness	35	**Date Surveyed**	June 21, 2023
Native Species Richness	29	**Total Pts. Sur**	35
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	9	25.7
Baccharis halimifolia	groundseltree	10	28.6
Bacopa monnieri	herb-of-grace	1	2.9
Bolboschoenus robustus	sturdy bulrush	1	2.9
Cabomba caroliniana	carolina fanwort	4	11.4
Ceratophyllum demersum	coontail	9	25.7
Cicuta maculata	water hemlock	3	8.6
Cladium mariscus	swamp sawgrass	8	22.9
Crinum americanum	southern swamp crinum	5	14.3
Eichhornia crassipes	water hyacinth	2	5.7
Hydrocotyle umbellata	marsh pennywort	1	2.9
Juncus roemerianus	black needlerush	24	68.6
Juncus sp.	rush	1	2.9
Liquidambar styraciflau	sweetgum	0	0.0
Ludwigia hexapetala	six-petal waterprimrose	1	2.9
Lythrum lineare	saltmarsh loosestrife	0	0.0
Myriophyllum spicatum	Eurasian watermilfoil	9	25.7
Najas guadalupensis	southern naiad	11	31.4
Nitella sp.	nitella	11	31.4
Panicum repens	**torpedograss**	19	54.3
Peltandra virginica	green arrow arum	3	8.6
Persicaria sp.	knotweed	1	2.9
Phragmites australis	common reed	1	2.9
Pontederia cordata	pickerelweed	15	42.9
Sabal minor	dwarf palmetto	4	11.4
Sabatia calycina	coastal rosegentian	3	8.6
Sagittaria lancifolia	bulltongue arrowhead	21	60.0
Schoenoplectus tabernaemontani	softstem bulrush	9	25.7
Sporobolus sp.	dropseed	3	8.6
Stuckenia pectinata	sago pondweed	2	5.7
Taxodium distichum	baldcypress	0	0.0
Triadica sebifera	**tallowtree**	1	2.9
Typha domingensis	southern cattail	1	2.9
Vallisneria americana	eelgrass	9	25.7
Zizania aquatica	southern wild rice	13	37.1

Table 6. Macrophyte community of the Wolf River. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Wolf River			
Species Richness	24	**Date Surveyed**	June 22, 2023
Native Species Richness	20	**Total Pts. Sur**	32
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Baccharis halimifolia	groundseltree	8	25.0
Cephalanthus occidentalis	buttonbush	0	0.0
Cicuta maculata	water hemlock	1	3.1
Cladium mariscus	swamp sawgrass	8	25.0
Crinum americanum	southern swamp crinum	1	3.1
Itea virginica	Virginia sweetspire	0	0.0
Juncus roemerianus	black needlerush	14	43.8
Juncus sp.	rush	1	3.1
Lemna minor	lesser duckweed	0	0.0
Nuphar advena	spatterdock	3	9.4
Panicum repens	**torpedograss**	10	31.3
Phragmites australis	common reed	7	21.9
Pontederia cordata	pickerelweed	10	31.3
Sabal minor	dwarf palmetto	2	6.3
Sagittaria lancifolia	bulltongue arrowhead	18	56.3
Salvinia minima	waterspangles	16	50.0
Schoenoplectus tabernaemontani	softstem bulrush	7	21.9
Sporobolus sp.	dropseed	13	40.6
Taxodium ascendens	pondcypress	0	0.0
Taxodium distichum	baldcypress	0	0.0
Triadica sebifera	**tallowtree**	3	9.4
Typha domingensis	southern cattail	4	12.5
Vallisneria americana	eelgrass	1	3.1
Zizania aquatica	southern wild rice	15	46.9

Table 7. Macrophyte community of Archusa Creek Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Archusa Creek Lake			
Littoral Depth	13.2'	**Date Surveyed**	June 15, 2023
Species Richness	42	**Total Pts. Sur**	34
Native Species Richness	37	**Total Pts. Veg**	34
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alnus serrulata	smooth alder	12	35.3
Alternanthera philoxeroides	alligator weed	5	14.7
Arundinaria gigantea	river cane	17	50.0
Brasenia schreberi	watershield	8	23.5
Cabomba caroliniana	carolina fanwort	1	2.9
Cephalanthus occidentalis	buttonbush	3	8.8
Chara sp.	muskgrass	11	32.4
Colocasia esculenta	taro	2	5.9
Cyrilla racemiflora	swamp titi	5	14.7
Eleocharis obtusa	blunt spikerush	1	2.9
Eleocharis quadrangulata	square-stem spikerush	1	2.9
Eleocharis vivipara	hairgrass	6	17.6
Hydrocotyle umbellata	marsh pennywort	16	47.1
Hydrolea uniflora	oneflower false fiddleleaf	1	2.9
Hypericum mutillum	dwarf St. Johnswort	1	2.9
Hypericum sp.	St. Johnswort	1	2.9
Hypericum walteri	marsh St. Johnswort	15	44.1
Itea virginica	Virginia sweetspire	0	0.0
Juncus effusus	soft rush	14	41.2
Juncus repens	creeping rush	1	2.9
Liquidambar styraciflau	sweetgum	0	0.0
Ludwigia sp.	waterprimrose	2	5.9
Myriophyllum aquaticum	parrotfeather	6	17.6
Najas guadalupensis	southern naiad	2	5.9
Nymphaea odorata	white waterlily	20	58.8
Nyssa biflora	swamp tupelo	0	0.0
Panicum repens	**torpedograss**	8	23.5
Peltandra virginica	green arrow arum	15	44.1
Potamogeton diversifolius	waterthread pondweed	4	11.8
Potamogeton nodosus	American pondweed	8	23.5
Rhynchospora sp.	beaksedge	3	8.8

Rotala sp.	rotala	1	2.9
Sagittaria latifolia	broadleaf arrowhead	4	11.8
Saururus cernuus	lizard's tail	17	50.0
Scirpus cyperinus	woolgrass	1	2.9
Taxodium distichum	baldcypress	5	14.7
Triadica sebifera	**tallowtree**	2	5.9
Tripsacum dactyloides	eastern gamagrass	1	2.9
Typha latifolia	broadleaf cattail	2	5.9
Utricularia gibba	humped bladderwort	0	0.0
Utricularia sp.	bladderwort	12	35.3
Zizaniopsis miliacea	giant cutgrass	6	17.6

Table 8. Macrophyte community of Dry Creek Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Dry Creek Lake			
Littoral Depth	19.8'	**Date Surveyed**	June 14, 2023
Species Richness	15	**Total Pts. Sur**	17
Native Species Richness	12	**Total Pts. Veg**	17
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	12	70.6
Arundinaria gigantea	river cane	0	0.0
Cephalanthus occidentalis	buttonbush	12	70.6
Dulichium arundinaceum	threeway sedge	0	0.0
Echinodorus cordifolius	creeping burhead	1	5.9
Eleocharis vivipara	hairgrass	5	29.4
Hypericum walteri	marsh St. Johnswort	0	0.0
Juncus repens	creeping rush	1	5.9
Liquidambar styraciflau	sweetgum	1	5.9
Lychnothamnus barbatus		1	5.9
Orontium aquaticum	goldenclub	0	0.0
Panicum repens	**torpedograss**	0	0.0
Salix nigra	black willow	1	5.9
Triadica sebifera	**tallowtree**	0	0.0
Typha latifolia	broadleaf cattail	0	0.0

Table 9. Macrophyte community of Flint Creek Reservoir. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Flint Creek Reservoir			
Littoral Depth	15.0'	**Date Surveyed**	June 27, 2023
Species Richness	31	**Total Pts. Sur**	58
Native Species Richness	27	**Total Pts. Veg**	56
		%-Littoral Veg	96.6
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	7	12.5
Arundinaria gigantea	river cane	1	1.8
Bacopa caroliniana	waterhyssop	47	83.9
Brasenia schreberi	watershield	0	0.0
Carex sp.	sedge	1	1.8
Chara sp.	muskgrass	4	7.1
Colocasia esculenta	taro	3	5.4
Cyperus sp.	nutsedge	1	1.8
Cyrilla racemiflora	swamp titi	21	37.5
Echinodorus cordifolius	creeping burhead	1	1.8
Eleocharis vivipara	hairgrass	23	41.1
Hydrocotyle ranunculoides	floating pennywort	1	1.8
Hydrocotyle umbellata	marsh pennywort	15	26.8
Hypericum walteri	marsh St. Johnswort	3	5.4
Juncus effusus	soft rush	9	16.1
Juncus repens	creeping rush	35	62.5
Juncus sp.	rush	1	1.8
Ludwigia peploides	floating waterprimrose	5	8.9
Mayaca fluviatilis	bog moss	7	12.5
Nitella sp.	nitella	6	10.7
Nyssa biflora	swamp tupelo	0	0.0
Panicum hemitomon	maiden cane	23	41.1
Panicum repens	**torpedograss**	5	8.9
Peltandra virginica	green arrow arum	4	7.1
Rhynchospora corniculata	shortbristle horned beaksedge	2	3.6
Sagittaria papillosa	nipplebract arrowhead	1	1.8
Scirpus cyperinus	woolgrass	0	0.0
Taxodium distichum	baldcypress	3	5.4
Triadica sebifera	**tallowtree**	4	7.1
Xyris difformis	bog yelloweyed grass	4	7.1
Zizaniopsis miliacea	giant cutgrass	1	1.8

Table 10. Macrophyte community of Geiger Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Geiger Lake			
Littoral Depth	13.8'	**Date Surveyed**	June 27, 2023
Species Richness	28	**Total Pts. Sur**	35
Native Species Richness	26	**Total Pts. Veg**	35
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Bacopa sp.	bacopa	1	2.9
Brasenia schreberi	watershield	16	45.7
Chara sp.	muskgrass	1	2.9
Cicuta maculata	water hemlock	1	2.9
Cyrilla racemiflora	swamp titi	6	17.1
Cyperus sp.	nutsedge	1	2.9
Eleocharis quadrangulata	square-stem spikerush	1	2.9
Eleocharis vivipara	hairgrass	31	88.6
Hydrocotyle umbellata	marsh pennywort	6	17.1
Hypericum sp.	St. Johnswort	1	2.9
Hypericum walteri	marsh St. Johnswort	3	8.6
Juncus effusus	soft rush	1	2.9
Juncus repens	creeping rush	13	37.1
Ludwigia sp.	waterprimrose	2	5.7
Myriophyllum heterophyllum	broadleaf watermilfoil	5	14.3
Nuphar advena	spatterdock	1	2.9
Nymphaea odorata	white waterlily	12	34.3
Panicum repens	**torpedograss**	4	11.4
Peltandra virginica	green arrow arum	1	2.9
Persicaria sp.	knotweed	3	8.6
Potamogeton diversifolius	waterthread pondweed	3	8.6
Rhynchospora corniculata	shortbristle horned beaksedge	1	2.9
Rhynchospora sp.	beaksedge	3	8.6
Saururus cernuus	lizard's tail	5	14.3
Scirpus cyperinus	woolgrass	1	2.9
Triadica sebifera	**tallowtree**	0	0.0
Utricularia radiata	floating bladderwort	17	48.6
Zannichellia palustris	horned pondweed	2	5.7

Table 11. Macrophyte community of Ivy Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Ivy Lake			
Littoral Depth	15.6'	**Date Surveyed**	June 15, 2023
Species Richness	26	**Total Pts. Sur**	15
Native Species Richness	23	**Total Pts. Veg**	15
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alnus serrulata	smooth alder	1	6.7
Alternanthera philoxeroides	alligator weed	4	26.7
Arundinaria gigantea	river cane	4	26.7
Brasenia schreberi	watershield	3	20.0
Cyrilla racemiflora	swamp titi	1	6.7
Dulichium arundinaceum	threeway sedge	1	6.7
Eleocharis vivipara	hairgrass	11	73.3
Hydrocotyle umbellata	marsh pennywort	9	60.0
Hypericum walteri	marsh St. Johnswort	5	33.3
Iris sp.	iris	3	20.0
Itea virginica	Virginia sweetspire	2	13.3
Ludwigia peploides	floating waterprimrose	2	13.3
Myriophyllum aquaticum	parrotfeather	4	26.7
Nitella sp.	nitella	1	6.7
Nyssa biflora	swamp tupelo	3	20.0
Orontium aquaticum	goldenclub	2	13.3
Panicum repens	**torpedograss**	3	20.0
Potamogeton diversifolius	waterthread pondweed	5	33.3
Rhychospora sp.	beaksedge	2	13.3
Sagittaria latifolia	broadleaf arrowhead	2	13.3
Sagittaria platyphylla	delta arrowhead	2	13.3
Saururus cernuus	lizard's tail	2	13.3
Sparganium americanum	American burreed	4	26.7
Spirodela polyrhiza	greater duckweed	0	0.0
Taxodium distichum	baldcypress	0	0.0
Zizaniopsis miliacea	giant cutgrass	1	6.7

Table 12. Macrophyte community of Lake Claude Bennett. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Claude Bennett			
Littoral Depth	8.7'	**Date Surveyed**	June 14, 2023
Species Richness	25	**Total Pts. Sur**	22
Native Species Richness	23	**Total Pts. Veg**	22
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alnus serrulata	smooth alder	1	4.5
Alternanthera philoxeroides	alligator weed	20	90.9
Carex sp.	sedge	3	13.6
Carex vulpinoidea	foxtail sedge	1	4.5
Cephalanthus occidentalis	buttonbush	2	9.1
Chara sp.	muskgrass	1	4.5
Echinodorus cordifolius	creeping burhead	1	4.5
Eleocharis quadrangulata	square-stem spikerush	2	9.1
Eleocharis vivipara	hairgrass	3	13.6
Hypericum walteri	marsh St. Johnswort	9	40.9
Juncus canadensis	Canada rush	2	9.1
Juncus effusus	soft rush	3	13.6
Liquidambar styraciflau	sweetgum	0	0.0
Ludwigia peploides	floating waterprimrose	7	31.8
Ludwigia sp.	waterprimrose	1	4.5
Panicum hemitomon	maiden cane	2	9.1
Panicum repens	**torpedograss**	7	31.8
Persicaria sp.	knotweed	1	4.5
Potamogeton diversifolius	waterthread pondweed	1	4.5
Rhynchospora corniculata	shortbristle horned beaksedge	2	9.1
Sagittaria latifolia	broadleaf arrowhead	4	18.2
Sagittaria platyphylla	delta arrowhead	3	13.6
Taxodium distichum	baldcypress	1	4.5
Typha latifolia	broadleaf cattail	1	4.5
Zizaniopsis miliacea	giant cutgrass	2	9.1

Table 13. Macrophyte community of Lake Eddins. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Eddins			
Littoral Depth	17.1'	**Date Surveyed**	June 13, 2023
Species Richness	23	**Total Pts. Sur**	27
Native Species Richness	16	**Total Pts. Veg**	26
		%-Littoral Veg	96.3
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alnus serrulata	smooth alder	1	3.8
Alternanthera philoxeroides	alligator weed	8	30.8
Cephalanthus occidentalis	buttonbush	2	7.7
Chara sp.	muskgrass	2	7.7
Colocasia esculenta	taro	19	73.1
Cyperus sp.	nutsedge	2	7.7
Eichhornia crassipes	water hyacinth	2	7.7
Hydrocotyle umbellata	marsh pennywort	1	3.8
Hypericum walteri	marsh St. Johnswort	3	11.5
Iris sp.	iris	2	7.7
Juncus effusus	soft rush	7	26.9
Liquidambar styraciflau	sweetgum	2	7.7
Ludwigia hexapetala	six-petal waterprimrose	5	19.2
Ludwigia peploides	floating waterprimrose	2	7.7
Mentha aquatica	water mint	2	7.7
Panicum hemitomon	maiden cane	1	3.8
Panicum repens	**torpedograss**	15	57.7
Persicaria sp.	knotweed	8	30.8
Sagittaria platyphylla	delta arrowhead	1	3.8
Taxodium distichum	baldcypress	5	19.2
Triadica sebifera	**tallowtree**	10	38.5
Typha latifolia	broadleaf cattail	3	11.5
Zizaniopsis miliacea	giant cutgrass	9	34.6

Table 14. Macrophyte community of Lake Mike Conner. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Mike Conner			
Littoral Depth	17.1'	**Date Surveyed**	June 14, 2023
Species Richness	23	**Total Pts. Sur**	27
Native Species Richness	20	**Total Pts. Veg**	26
		%-Littoral Veg	96.3
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	9	34.6
Carex sp.	sedge	3	11.5
Carex vulpinoidea	foxtail sedge	1	3.8
Cephalanthus occidentalis	buttonbush	3	11.5
Commelina virginica	Virginia dayflower	1	3.8
Hydrocotyle umbellata	marsh pennywort	15	57.7
Hypericum walteri	marsh St. Johnswort	3	11.5
Juncus canadensis	Canada rush	1	3.8
Juncus effusus	soft rush	3	11.5
Justicia ovata	looseflower waterwillow	3	11.5
Ludwigia peploides	floating waterprimrose	2	7.7
Nuphar advena	spatterdock	1	3.8
Nyssa biflora	swamp tupelo	3	11.5
Panicum repens	**torpedograss**	14	53.8
Persicaria sp.	knotgrass	2	7.7
Potamogeton diversifolius	waterthread pondweed	1	3.8
Rhynchospora corniculata	shortbristle horned beaksedge	1	3.8
Rhynchospora glomerata	clustered beaksedge	4	15.4
Sagittaria platyphylla	delta arrowhead	1	3.8
Saururus cernuus	lizard's tail	12	46.2
Taxodium distichum	baldcypress	4	15.4
Triadica sebifera	**tallowtree**	5	19.2
Zizaniopsis miliacea	giant cutgrass	9	34.6

Table 15. Macrophyte community of Lake Perry. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Perry			
Littoral Depth	8.0'	**Date Surveyed**	June 28, 2023
Species Richness	31	**Total Pts. Sur**	22
Native Species Richness	28	**Total Pts. Veg**	22
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	5	22.7
Arundinaria gigantea	river cane	0	0.0
Brasenia schreberi	watershield	9	40.9
Carex vulpinoidea	foxtail sedge	1	4.5
Cyrilla racemiflora	swamp titi	12	54.5
Eleocharis quadrangulata	square-stem spikerush	1	4.5
Eleocharis vivipara	hairgrass	20	90.9
Hydrocotyle ranunculoides	floating pennywort	1	4.5
Hydrocotyle umbellata	marsh pennywort	5	22.7
Hydrolea uniflora	oneflower false fiddleleaf	7	31.8
Hypericum walteri	marsh St. Johnswort	7	31.8
Itea virginica	Virginia sweetspire	2	9.1
Juncus effusus	soft rush	1	4.5
Juncus repens	creeping rush	1	4.5
Ludwigia peploides	floating waterprimrose	2	9.1
Mayaca fluviatilis	bog moss	1	4.5
Myriophyllum heterophyllum	broadleaf watermilfoil	3	13.6
Nymphaea odorata	white waterlily	4	18.2
Nyssa biflora	swamp tupelo	3	13.6
Oxycaryum cubense	Cuban bulrush	1	4.5
Panicum hemitomon	maiden cane	2	9.1
Panicum repens	**torpedograss**	4	18.2
Persicaria sp.	knotweed	1	4.5
Potamogeton diversifolius	waterthread pondweed	5	22.7
Rhynchospora sp.	beaksedge	2	9.1
Sagittaria latifolia	broadleaf arrowhead	2	9.1
Saururus cernuus	lizard's tail	2	9.1
Sparganium americanum	American burreed	10	45.5
Utricularia gibba	humped bladderwort	4	18.2
Zannichellia paluistris	horned pondweed	0	0.0
Zizaniopsis miliacea	giant cutgrass	0	0.0

Table 16. Macrophyte community of Maynor Creek Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Maynor Creek Lake			
Littoral Depth	16.2'	**Date Surveyed**	June 12, 2023
Species Richness	25	**Total Pts. Sur**	36
Native Species Richness	22	**Total Pts. Veg**	36
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	6	16.7
Arundinaria gigantea	river cane	3	8.3
Bacopa caroliniana	waterhyssop	10	27.8
Brasenia schreberi	watershield	23	63.9
Cephalanthus occidentalis	buttonbush	6	16.7
Cyrilla racemiflora	swamp titi	1	2.8
Eleocharis vivipara	hairgrass	27	75.0
Hydrocotyle umbellata	marsh pennywort	2	5.6
Juncus repens	creeping rush	5	13.9
Liquidambar styraciflau	sweetgum	1	2.8
Ludwigia hexapetala	six-petal waterprimrose	17	47.2
Myriophyllum heterophyllum	broadleaf watermilfoil	18	50.0
Nelumbo lutea	American lotus	0	0.0
Nymphaea odorata	white waterlily	24	66.7
Nyssa biflora	swamp tupelo	0	0.0
Panicum hemitomon	maiden cane	0	0.0
Panicum repens	**torpedograss**	20	55.6
Peltandra virginica	green arrow arum	0	0.0
Persicaria sp.	knotweed	1	2.8
Potamogeton diversifolius	waterthread pondweed	7	19.4
Potamogeton illinoensis	Illinois pondweed	1	2.8
Rotala sp.	rotala	1	2.8
Sagittaria platyphylla	delta arrowhead	2	5.6
Saururus cernuus	lizard's tail	3	8.3
Zizaniopsis miliacea	giant cutgrass	1	2.8

Table 17. Macrophyte community of the Pascagoula River Delta. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Pascagoula River Delta			
Species Richness	40	**Date Surveyed**	June 23, 2023
Native Species Richness	30	**Total Pts. Sur**	43
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	16	37.2
Azolla caroliniana	Carolina mosquitofern	1	2.3
Baccharis halimifolia	groundseltree	14	32.6
Bacopa monnieri	herb-of-grace	1	2.3
Bolboschoenus robustus	sturdy bulrush	1	2.3
Ceratophyllum demersum	coontail	7	16.3
Cicuta maculata	water hemlock	6	14.0
Cladium mariscus	swamp sawgrass	3	7.0
Eichhornia crassipes	water hyacinth	12	27.9
Hydrocotyle ranunculoides	floating pennywort	2	4.7
Hydrocotyle umbellata	marsh pennywort	2	4.7
Juncus roemerianus	black needlerush	27	62.8
Lemna minor	lesser duckweed	2	4.7
Limnobium spongia	American frogsbit	3	7.0
Ludwigia peploides	floating waterprimrose	2	4.7
Lythrum lineare	saltmarsh loosestrife	0	0.0
Myriophyllum aquaticum	parrotfeather	2	4.7
Myriophyllum spicatum	Eurasian watermilfoil	8	18.6
Najas guadalupensis	southern naiad	1	2.3
Nitella sp.	nitella	1	2.3
Oxycaryum cubense	Cuban bulrush	12	27.9
Panicum repens	**torpedograss**	6	14.0
Persicaria sp.	knotweed	1	2.3
Phragmites australis	common reed	11	25.6
Pontederia cordata	pickerelweed	6	14.0
Potamogeton pusillus	small pondweed	1	2.3
Sabal minor	dwarf palmetto	2	4.7
Sagittaria lancifolia	bulltongue arrowhead	17	39.5
Salvinia minima	waterspangles	26	60.5
Salvinia molesta	**giant salvinia**	26	60.5
Saururus cernuus	lizard's tail	0	0.0
Schoenoplectus tabernaemontani	softstem bulrush	14	32.6
Sporobolus sp.	dropseed	22	51.2

Taxodium distichum	baldcypress	0	0.0
Triadica sebifera	**tallowtree**	1	2.3
Typha latifolia	broadleaf cattail	1	2.3
Vallisneria americana	eelgrass	11	25.6
Wolffia sp.	watermeal	1	2.3
Zizania aquatica	southern wild rice	20	46.5
Zizaniopsis miliacea	giant cutgrass	1	2.3

Table 18. Macrophyte community of Prentiss Walker Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Prentiss Walker Lake			
Littoral Depth	7.2'	**Date Surveyed**	June 14, 2023
Species Richness	24	**Total Pts. Sur**	25
Native Species Richness	21	**Total Pts. Veg**	23
		%-Littoral Veg	92.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	18	78.3
Arundinaria gigantea	river cane	1	4.3
Cephalanthus occidentalis	buttonbush	1	4.3
Cyperus sp.	nutsedge	3	13.0
Hydrocotyle ranunculoides	floating pennywort	1	4.3
Hydrocotyle umbellata	marsh pennywort	9	39.1
Hypericum walteri	marsh St. Johnswort	5	21.7
Itea virginica	Virginia sweetspire	4	17.4
Juncus effusus	soft rush	5	21.7
Ludwigia peploides	floating waterprimrose	2	8.7
Ludwigia sp.	waterprimrose	2	8.7
Nyssa biflora	swamp tupelo	2	8.7
Panicum hemitomon	maiden cane	1	4.3
Panicum repens	**torpedograss**	1	4.3
Persicaria sp.	knotweed	10	43.5
Potamogeton diversifolius	waterthread pondweed	2	8.7
Sagittaria latifolia	broadleaf arrowhead	5	21.7
Sagittaria platyphylla	delta arrowhead	1	4.3
Saururus cernuus	lizard's tail	6	26.1
Scirpus cyperinus	woolgrass	1	4.3
Sparganium americanum	American burreed	8	34.8
Triadica sebifera	**tallowtree**	1	4.3
Typha latifolia	broadleaf cattail	1	4.3
Zizaniopsis miliacea	giant cutgrass	2	8.7

Table 19. Macrophyte community of Turkey Fork Reservoir. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Turkey Fork Reservoir			
Littoral Depth	9.6'	**Date Surveyed**	June 28, 2023
Species Richness	41	**Total Pts. Sur**	23
Native Species Richness	36	**Total Pts. Veg**	22
		%-Littoral Veg	95.7
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	9	40.9
Arundinaria gigantea	river cane	1	4.5
Brasenia schreberi	watershield	5	22.7
Cephalanthus occidentalis	buttonbush	1	4.5
Cyrilla racemiflora	swamp titi	5	22.7
Dulichium arundinaceum	threeway sedge	1	4.5
Eichhornia crassipes	water hyacinth	5	22.7
Eleocharis quadrangulata	square-stem spikerush	1	4.5
Eleocharis sp.	spikerush	3	13.6
Eleocharis vivipara	hairgrass	15	68.2
Habenaria repens	water spider orchid	2	9.1
Hydrocotyle umbellata	marsh pennywort	7	31.8
Hydrolea uniflora	oneflower false fiddleleaf	8	36.4
Hypericum sp.	St. Johnswort	2	9.1
Hypericum walteri	marsh St. Johnswort	7	31.8
Itea virginica	Virginia sweetspire	2	9.1
Juncus repens	creeping rush	5	22.7
Ludwigia peploides	floating waterprimrose	1	4.5
Mayaca fluviatilis	bog moss	1	4.5
Myriophyllum heterophyllum	broadleaf watermilfoil	0	0.0
Nitella sp.	nitella	2	9.1
Nymphaea odorata	white waterlily	9	40.9
Panicum hemitomon	maiden cane	5	22.7
Panicum repens	**torpedograss**	21	95.5
Peltandra virginica	green arrow arum	3	13.6
Persicaria sp.	knotweed	2	9.1
Pontederia cordata	pickerelweed	1	4.5
Potamogeton diversifolius	waterthread pondweed	1	4.5
Rhynchospora corniculata	shortbristle horned beaksedge	5	22.7
Rhynchospora sp.	beaksedge	2	9.1

Sagittaria latifolia	broadleaf arrowhead	2	9.1
Salvinia minima	waterspangles	0	0.0
Saururus cernuus	lizard's tail	1	4.5
Scirpus cyperinus	woolgrass	0	0.0
Sparganium americanum	American burreed	3	13.6
Taxodium distichum	baldcypress	2	9.1
Triadica sebifera	**tallowtree**	1	4.5
Typha sp.	cattail	1	4.5
Xyris difformis	bog yelloweyed grass	5	22.7
Zannichellia palustris	horned pondweed	1	4.5
Zizaniopsis miliacea	giant cutgrass	3	13.6

Table 20. Macrophyte community of Lake Bill Waller. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Bill Waller			
Littoral Depth	20.3'	**Date Surveyed**	June 26, 2023
Species Richness	28	**Total Pts. Sur**	23
Native Species Richness	24	**Total Pts. Veg**	22
		%-Littoral Veg	95.7
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	6	27.3
Brasenia schreberi	watershield	17	77.3
Carex sp.	sedge	1	4.5
Cephalanthus occidentalis	buttonbush	7	31.8
Chara sp.	muskgrass	2	9.1
Cyperus sp.	nutsedge	1	4.5
Eleocharis sp.	spikerush	1	4.5
Eleocharis vivipara	hairgrass	15	68.2
Hydrocotyle umbellata	marsh pennywort	5	22.7
Hypericum walteri	marsh St. Johnswort	11	50.0
Juncus sp.	rush	1	4.5
Myriophyllum heterophyllum	broadleaf watermilfoil	15	68.2
Nelumbo lutea	American lotus	0	0.0
Nymphaea odorata	white waterlily	20	90.9
Panicum repens	**torpedograss**	13	59.1
Potamogeton diversifolius	waterthread pondweed	2	9.1
Potamogeton pusillus	small pondweed	3	13.6
Rhynchospora corniculata	shortbristle horned beaksedge	2	9.1
Sagittaria latifolia	broadleaf arrowhead	2	9.1
Salvinia molesta	**giant salvinia**	0	0.0
Saururus cernuus	lizard's tail	7	31.8
Scirpus cyperinus	woolgrass	0	0.0
Typha angustifolia	narrowleaf cattail	1	4.5
Typha latifolia	broadleaf cattail	3	13.6
Utricularia biflora	longspur bladderwort	2	9.1
Utricularia gibba	humped bladderwort	4	18.2
Xyris difformis	bog yelloweyed grass	3	13.6
Zizaniopsis miliacea	giant cutgrass	1	4.5

Table 21. Macrophyte community of Lake Columbia. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Columbia			
Littoral Depth	18.8'	**Date Surveyed**	June 26, 2023
Species Richness	28	**Total Pts. Sur**	22
Native Species Richness	25	**Total Pts. Veg**	22
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	4	18.2
Arundinaria gigantea	river cane	0	0.0
Brasenia schreberi	watershield	20	90.9
Cephalanthus occidentalis	buttonbush	3	13.6
Ceratophyllum demersum	coontail	0	0.0
Chara sp.	muskgrass	1	4.5
Cyperus sp.	nutsedge	2	9.1
Eleocharis vivipara	hairgrass	10	45.5
Hypericum walteri	marsh St. Johnswort	1	4.5
Ludwigia peploides	floating waterprimrose	1	4.5
Ludwigia sp.	waterprimerose	1	4.5
Myriophyllum heterophyllum	broadleaf watermilfoil	20	90.9
Nelumbo lutea	American lotus	2	9.1
Nymphaea odorata	white waterlily	10	45.5
Panicum hemitomon	maiden cane	7	31.8
Panicum repens	**torpedograss**	2	9.1
Potamogeton diversifolius	waterthread pondweed	3	13.6
Proserpinaca pectinata	combleaf mermaidweed	3	13.6
Sagittaria platyphylla	delta arrowhead	1	4.5
Saururus cernuus	lizard's tail	5	22.7
Scirpus cyperinus	woolgrass	2	9.1
Triadica sebifera	**tallowtree**	1	4.5
Typha latifolia	broadleaf cattail	13	59.1
Typha sp.	cattail	1	4.5
Utricularia biflora	longspur bladderwort	2	9.1
Utricularia gibba	humped bladderwort	1	4.5
Vallisneria americana	eelgrass	2	9.1
Xyris difformis	bog yelloweyed grass	1	4.5

Table 22. Macrophyte community of Lake Lincoln. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Lincoln			
Littoral Depth	4.2'	**Date Surveyed**	June 7, 2023
Species Richness	30	**Total Pts. Sur**	40
Native Species Richness	25	**Total Pts. Veg**	37
		%-Littoral Veg	92.5
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	22	59.5
Bacopa caroliniana	waterhyssop	14	37.8
Carex sp.	sedge	2	5.4
Cephalanthus occidentalis	buttonbush	10	27.0
Colocasia esculenta	taro	16	43.2
Cyperus sp.	nutsedge	1	2.7
Echinodorus cordifolius	creeping burhead	6	16.2
Eichhornia crassipes	water hyacinth	6	16.2
Eleocharis quadrangulata	square-stem spikerush	1	2.7
Hydrocotyle umbellata	marsh pennywort	1	2.7
Hypericum lobocarpum	fivelobe St. Johnswort	9	24.3
Hypericum walteri	marsh St. Johnswort	30	81.1
Juncus effusus	soft rush	23	62.2
Juncus sp.	rush	2	5.4
Justicia ovata	looseflower waterwillow	14	37.8
Liquidambar styraciflau	sweetgum	0	0.0
Ludwigia peploides	floating waterprimrose	3	8.1
Ludwigia sp.	waterprimrose	3	8.1
Panicum repens	**torpedograss**	5	13.5
Persicaria sp.	knotweed	5	13.5
Rhynchospora corniculata	shortbristle horned beaksedge	4	10.8
Sagittaria latifolia	broadleaf arrowhead	4	10.8
Sagittaria platyphylla	delta arrowhead	6	16.2
Salix nigra	black willow	0	0.0
Saururus cernuus	lizard's tail	2	5.4
Sparganium americanum	American burreed	2	5.4
Taxodium distichum	baldcypress	0	0.0
Triadica sebifera	**tallowtree**	7	18.9
Typha latifolia	broadleaf cattail	2	5.4
Zizaniopsis miliacea	giant cutgrass	25	67.6

Table 23. Macrophyte community of Lake Mary Crawford. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Mary Crawford			
Littoral Depth	12.3'	**Date Surveyed**	June 9, 2023
Species Richness	21	**Total Pts. Sur**	19
Native Species Richness	17	**Total Pts. Veg**	19
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	8	42.1
Cephalanthus occidentalis	buttonbush	9	47.4
Eichhornia crassipes	water hyacinth	0	0.0
Eleocharis vivipara	hairgrass	1	5.3
Itea virginica	Virginia sweetspire	1	5.3
Juncus effusus	soft rush	3	15.8
Justicia ovata	looseflower waterwillow	1	5.3
Liquidambar styraciflau	sweetgum	1	5.3
Ludwigia peploides	floating waterprimrose	7	36.8
Nelumbo lutea	American lotus	10	52.6
Nymphaea odorata	white waterlily	6	31.6
Panicum repens	**torpedograss**	7	36.8
Persicaria sp.	knotweed	3	15.8
Potamogeton diversifolius	waterthread pondweed	1	5.3
Sagittaria latifolia	broadleaf arrowhead	1	5.3
Sagittaria platyphylla	delta arrowhead	1	5.3
Saururus cernuus	lizard's tail	6	31.6
Taxodium distichum	baldcypress	0	0.0
Triadica sebifera	**tallowtree**	0	0.0
Typha latifolia	broadleaf cattail	1	5.3
Zizaniopsis miliacea	giant cutgrass	0	0.0

Table 24. Macrophyte community of Lake Walthall. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Walthall			
Littoral Depth	21.8'	**Date Surveyed**	June 6, 2023
Species Richness	14	**Total Pts. Sur**	15
Native Species Richness	13	**Total Pts. Veg**	15
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	8	53.3
Brasenia schreberi	watershield	1	6.7
Cephalanthus occidentalis	buttonbush	12	80.0
Echinodorus cordifolius	creeping burhead	2	13.3
Eleocharis vivipara	hairgrass	11	73.3
Hypericum walteri	marsh St. Johnswort	0	0.0
Liquidambar styraciflau	sweetgum	3	20.0
Najas guadalupensis	southern naiad	1	6.7
Panicum hemitomon	maiden cane	1	6.7
Rotala sp.	rotala	9	60.0
Salix nigra	black willow	1	6.7
Saururus cernuus	lizard's tail	2	13.3
Taxodium distichum	baldcypress	9	60.0
Utricularia gibba	humped bladderwort	2	13.3

Table 25. Macrophyte community of the Pearl River Delta. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Pearl River Delta			
Species Richness	36	**Date Surveyed**	June 20, 2023
Native Species Richness	27	**Total Pts. Sur**	28
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	16	57.1
Baccharis halimifolia	groundseltree	5	17.9
Cabomba caroliniana	carolina fanwort	16	57.1
Ceratophyllum demersum	coontail	17	60.7
Cicuta maculata	water hemlock	12	42.9
Cladium mariscus	swamp sawgrass	1	3.6
Colocasia esculenta	taro	0	0.0
Eichhornia crassipes	water hyacinth	12	42.9
Hydrocotyle ranunculoides	floating pennywort	1	3.6
Juncus roemerianus	black needlerush	4	14.3
Juncus sp.	rush	1	3.6
Lemna minor	lesser duckweed	1	3.6
Ludwigia peploides	floating waterprimrose	17	60.7
Lythrum lineare	saltmarsh loosestrife	0	0.0
Myriophyllum spicatum	Eurasian watermilfoil	1	3.6
Najas guadalupensis	southern naiad	1	3.6
Nitella sp.	nitella	5	17.9
Nuphar advena	spatterdock	22	78.6
Oxycaryum cubense	Cuban bulrush	3	10.7
Panicum repens	**torpedograss**	4	14.3
Peltandra virginica	green arrow arum	2	7.1
Persicaria sp.	knotweed	7	25.0
Phragmites australis	common reed	13	46.4
Pontederia cordata	pickerelweed	7	25.0
Sabal minor	dwarf palmetto	8	28.6
Sagittaria lancifolia	bulltongue arrowhead	8	28.6
Salvinia minima	waterspangles	16	57.1
Saururus cernuus	lizard's tail	1	3.6
Schoenoplectus tabernaemontani	softstem bulrush	9	32.1
Taxodium distichum	baldcypress	7	25.0
Triadica sebifera	**tallowtree**	1	3.6
Typha latifolia	broadleaf cattail	1	3.6
Utricularia sp.	bladderwort	8	28.6
Vallisneria americana	eelgrass	7	25.0
Zizania aquatica	southern wild rice	4	14.3
Zizaniopsis miliacea	giant cutgrass	4	14.3

Table 26. Macrophyte community of Simpson County Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Simpson County Lake			
Littoral Depth	13.5'	**Date Surveyed**	June 9, 2023
Species Richness	27	**Total Pts. Sur**	24
Native Species Richness	25	**Total Pts. Veg**	24
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alnus serrulata	smooth alder	2	8.3
Alternanthera philoxeroides	alligator weed	23	95.8
Arundinaria gigantea	river cane	2	8.3
Carex vulpinoidea	foxtail sedge	1	4.2
Carex sp.	sedge	3	12.5
Cephalanthus occidentalis	buttonbush	2	8.3
Eleocharis vivipara	hairgrass	18	75.0
Hydrocotyle ranunculoides	floating pennywort	1	4.2
Hydrocotyle umbellata	marsh pennywort	5	20.8
Hypericum walteri	marsh St. Johnswort	9	37.5
Itea virginica	Virginia sweetspire	6	25.0
Juncus effusus	soft rush	17	70.8
Liquidambar styraciflau	sweetgum	0	0.0
Ludwigia peploides	floating waterprimrose	1	4.2
Nymphaea odorata	white waterlily	2	8.3
Nyssa biflora	swamp tupelo	4	16.7
Panicum repens	**torpedograss**	13	54.2
Peltandra virginica	green arrow arum	3	12.5
Persicaria sp.	knotweed	3	12.5
Potamogeton diversifolius	waterthread pondweed	1	4.2
Sagittaria latifolia	broadleaf arrowhead	2	8.3
Saururus cernuus	lizard's tail	7	29.2
Sparganium americanum	American burreed	3	12.5
Taxodium distichum	baldcypress	0	0.0
Typha latifolia	broadleaf cattail	0	0.0
Utricularia sp.	bladderwort	5	20.8
Zizaniopsis miliacea	giant cutgrass	2	8.3

Table 27. Macrophyte community of Calling Panther Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Calling Panther Lake			
Littoral Depth	19.2'	**Date Surveyed**	June 7, 2023
Species Richness	25	**Total Pts. Sur**	39
Native Species Richness	22	**Total Pts. Veg**	38
		%-Littoral Veg	97.4
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	2	5.3
Arundinaria gigantea	river cane	1	2.6
Brasenia schreberi	watershield	5	13.2
Carex sp.	sedge	1	2.6
Cephalanthus occidentalis	buttonbush	5	13.2
Cyperus sp.	nutsedge	5	13.2
Eleocharis quadrangulata	square-stem spikerush	2	5.3
Hypericum walteri	marsh St. Johnswort	24	63.2
Juncus effusus	soft rush	17	44.7
Liquidambar styraciflau	sweetgum	2	5.3
Ludwigia peploides	floating waterprimrose	10	26.3
Nelumbo lutea	American lotus	0	0.0
Nymphaea odorata	white waterlily	9	23.7
Panicum repens	**torpedograss**	1	2.6
Persicaria sp.	knotweed	4	10.5
Potamogeton diversifolius	waterthread pondweed	4	10.5
Rotala sp.	rotala	1	2.6
Sagittaria platyphylla	delta arrowhead	2	5.3
Saururus cernuus	lizard's tail	12	31.6
Scirpus cyperinus	woolgrass	5	13.2
Sparganium americanum	American burreed	2	5.3
Taxodium distichum	baldcypress	1	2.6
Triadica sebifera	**tallowtree**	0	0.0
Typha latifolia	broadleaf cattail	2	5.3
Zizaniopsis miliacea	giant cutgrass	13	34.2

Table 28. Macrophyte community of Lake Natchez. No species were observed at survey points.

Lake Natchez			
Littoral Depth	3.3'	**Date Surveyed**	June 8, 2023
Species Richness	2	**Total Pts. Sur**	17
Native Species Richness	2	**Total Pts. Veg**	0
		%-Littoral Veg	0.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Juncus effusus	soft rush	0	NA
Liquidambar styraciflau	sweetgum	0	NA

Table 29. Macrophyte community of Lake Tangipahoa. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Tangipahoa			
Littoral Depth	2.6'	**Date Surveyed**	June 6, 2023
Species Richness	31	**Total Pts. Sur**	40
Native Species Richness	24	**Total Pts. Veg**	40
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	37	92.5
Bacopa caroliniana	waterhyssop	19	47.5
Ceratophyllum demersum	coontail	0	0.0
Chara sp.	muskgrass	1	2.5
Cyperus sp.	nutsedge	1	2.5
Eichhornia crassipes	water hyacinth	38	95.0
Hydrocotyle ranunculoides	floating pennywort	16	40.0
Hydrocotyle umbellata	marsh pennywort	4	10.0
Hypericum sp.	St. Johnswort	1	2.5
Hypericum walteri	marsh St. Johnswort	4	10.0
Juncus effusus	soft rush	2	5.0
Justicia ovata	looseflower waterwillow	2	5.0
Lemna minor	lesser duckweed	1	2.5
Lilaeopsis carolinensis	Carolina grasswort	1	2.5
Limnobium spongia	American frogsbit	3	7.5
Ludwigia peploides	floating waterprimrose	5	12.5
Ludwigia sp.	waterprimrose	5	12.5
Myriophyllum aquaticum	parrotfeather	5	12.5
Nuphar advena	spatterdock	19	47.5
Nymphaea odorata	white waterlily	2	5.0
Oxycaryum cubense	Cuban bulrush	11	27.5
Panicum hemitomon	maiden cane	16	40.0
Panicum repens	**torpedograss**	1	2.5
Persicaria sp.	knotweed	1	2.5
Sagittaria latifolia	broadleaf arrowhead	1	2.5
Salvinia minima	waterspangles	23	57.5
Salvinia molesta	**giant salvinia**	1	2.5
Saururus cernuus	lizard's tail	6	15.0
Triadica sebifera	**tallowtree**	0	0.0
Utricularia gibba	humped bladderwort	1	2.5
Zizaniopsis miliacea	giant cutgrass	17	42.5

Table 30. Macrophyte community of Okhissa Lake. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Okhissa Lake			
Littoral Depth	20.0'	**Date Surveyed**	June 5, 2023
Species Richness	26	**Total Pts. Sur**	25
Native Species Richness	19	**Total Pts. Veg**	24
		%-Littoral Veg	96.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alternanthera philoxeroides	alligator weed	7	29.2
Brasenia schreberi	watershield	4	16.7
Cephalanthus occidentalis	buttonbush	1	4.2
Chara sp.	muskgrass	2	8.3
Cyperus sp.	nutsedge	1	4.2
Eleocharis vivipara	hairgrass	2	8.3
Hydrilla verticillata	**hydrilla**	3	12.5
Hydrocotyle umbellata	marsh pennywort	1	4.2
Hypericum walteri	marsh St. Johnswort	7	29.2
Juncus effusus	soft rush	9	37.5
Justicia americana	American waterwillow	1	4.2
Limnobium spongia	American frogsbit	1	4.2
Ludwigia peploides	floating waterprimrose	2	8.3
Ludwigia sp.	waterprimrose	3	12.5
Myriophyllum aquaticum	parrotfeather	4	16.7
Najas minor	spiny naiad	1	4.2
Nymphaea odorata	white waterlily	1	4.2
Panicum repens	**torpedograss**	2	8.3
Persicaria sp.	knotweed	3	12.5
Potamogeton nodosus	American pondweed	5	20.8
Salvinia molesta	**giant salvinia**	11	45.8
Triadica sebifera	**tallowtree**	2	8.3
Typha latifolia	broadleaf cattail	4	16.7
Utricularia gibba	humped bladderwort	8	33.3
Utricularia sp.	bladderwort	2	8.3
Zizaniopsis miliacea	giant cutgrass	14	58.3

Table 31. Macrophyte community of Lake Tom Bailey. Species in red are non-native and species in bold font are listed as federal and/or Mississippi state noxious weeds. Species with '0' for points present indicates it was present at site but was not observed at any survey points.

Lake Tom Bailey			
Littoral Depth	1.8'	**Date Surveyed**	June 16, 2023
Species Richness	34	**Total Pts. Sur**	25
Native Species Richness	30	**Total Pts. Veg**	25
		%-Littoral Veg	100.0
Scientific Name	**Common Name**	**# Pts. Present**	**%-Frequency**
Alnus serrulata	smooth alder	9	36.0
Alternanthera philoxeroides	alligator weed	16	64.0
Arundinaria gigantea	river cane	3	12.0
Brasenia schreberi	watershield	1	4.0
Carex sp.	sedge	4	16.0
Cephalanthus occidentalis	buttonbush	3	12.0
Cyperus sp.	nutsedge	4	16.0
Echinodorus cordifolius	creeping burhead	2	8.0
Eleocharis quadrangulata	square-stem spikerush	2	8.0
Hydrocotyle umbellata	marsh pennywort	8	32.0
Hydrolea uniflora	oneflower false fiddleleaf	1	4.0
Hypericum walteri	marsh St. Johnswort	9	36.0
Itea virginica	Virginia sweetspire	2	8.0
Juncus effusus	soft rush	7	28.0
Juncus sp.	rush	4	16.0
Limnobium spongia	American frogsbit	1	4.0
Liquidambar styraciflau	sweetgum	1	4.0
Ludwigia peploides	floating waterprimrose	4	16.0
Ludwigia sp.	waterprimrose	2	8.0
Nymphaea odorata	white waterlily	1	4.0
Nyssa biflora	swamp tupelo	0	0.0
Panicum hemitomon	maiden cane	7	28.0
Panicum repens	**torpedograss**	5	20.0
Potamogeton pulcher	spotted pondweed	2	8.0
Rhynchospora corniculata	shortbristle horned beaksedge	1	4.0
Rhynchospora sp.	beaksedge	3	12.0
Sagittaria latifolia	broadleaf arrowhead	2	8.0
Sagittaria platyphylla	delta arrowhead	6	24.0
Salvinia molesta	**giant salvinia**	2	8.0
Saururus cernuus	lizard's tail	4	16.0
Taxodium distichum	baldcypress	1	4.0
Triadica sebifera	**tallowtree**	5	20.0
Typha latifolia	broadleaf cattail	0	0.0
Zizaniopsis miliacea	giant cutgrass	6	24.0

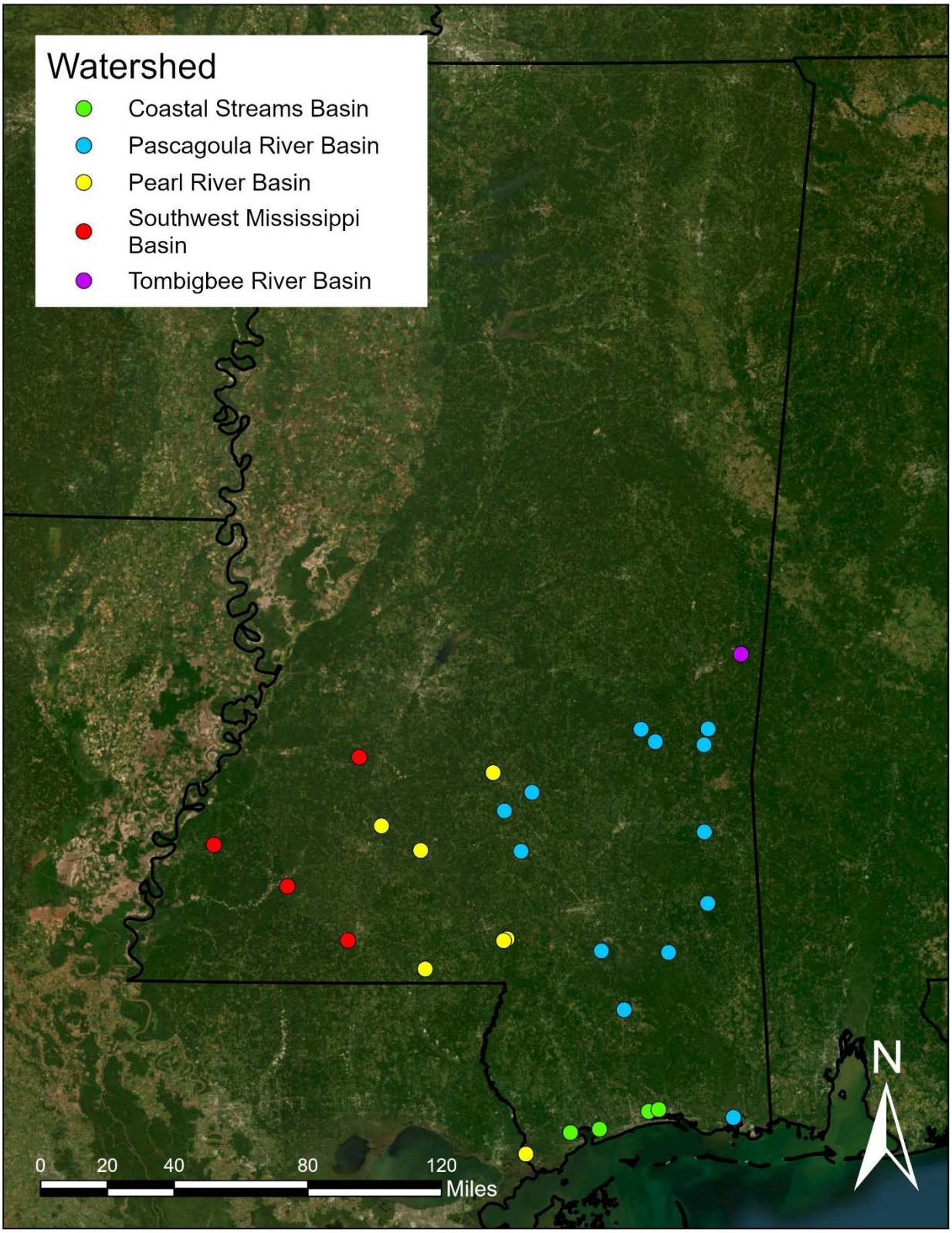


Fig 1. Locations of Mississippi waterbodies surveyed during June 2023. Sites belonging to different river/stream basins indicated by different color codes.

Appendices

Appendix 1. Lakes surveyed in 2017, 2019, 2020, 2022, and 2023; an 'X' indicates year(s) lake was surveyed; lakes where non-native species were observed for at least one survey are in red font; lakes where federal and/or state noxious weed(s) were observed are in **bold**.

Lakes	2017	2019	2020	2022	2023	Management Entity*
Aberdeen (TTW)		X				USACE
Amory (TTW)		X				USACE
Anchor	X					Private
Archusa Creek	X			X	X	PHW
Bay Springs (TTW)	X			X		USACE
Bee	X					Private
Big Creek				X		PHW
Bill Waller	X			X	X	MDWFP
Bogue Homa	X					MDWFP
Bluff	X			X		USFWS
Calling Panther	X				X	MDWFP
Caroline	X					Private
Choctaw				X		USFS
Clarkco Lake	X					MDWFP
Claude Bennett	X				X	MDWFP
Columbia	X			X	X	MDWFP
Columbus (TTW)	X		X			USACE
Dalewood Shore			X			Private
Doyle Arm			X	X		USFWS
Dry Creek	X				X	PHW
Eddins					X	Private
Elvis Presley	X	X				MDWFP
English	X					MDWFP
Flint Creek	X				X	PHW
Fulton (TTW)		X				USACE
Geiger	X				X	MDWFP
George			X			Private
Hideaway	X					Private
Horseshoe			X			Private
Ivy					X	MDWFP
Kemper	X			X		MDWFP
Lamar Bruce	X	X				MDWFP
Lincoln	X				X	MDWFP
Little Eagle			X			Private
Loakfoma	X			X		USFWS
Lower			X			USACE
Lowndes	X			X		MDWFP

Mary	X					Private
Mary Crawford	X			X	X	MDWFP
Maynor Creek	X			X	X	PHW
Mike Connor	X				X	MDWFP
Moon	X	X				Private
Natchez	X				X	MDWFP
Okatibbee			X	X		MDWFP
Okhissa	X				X	USFS
Perry	X			X	X	MDWFP
Pickwick (TTW/TVA)		X				USACE/TVA
Pool D (TTW)		X				USACE
Pool E (TTW)		X				USACE
Prentiss Walker	X			X	X	MDWFP
Roebuck			X			Private
Roosevelt	X					MDWFP
Ross Branch				X		USFWS
Simpson-Legion	X				X	MDWFP
Smithville (TTW)		X				USACE
Spring		X		X		MDWFP
Tangipahoa	X				X	MDWFP
Tippah	X					MDWFP
Tom Bailey					X	MDWFP
Tombigbee	X					MDWFP
Trace State Park			X	X		MDWFP
TTW AL-Col		X				USACE
TTW Canal		X				USACE
Turkey Creek	X			X		PHW
Turkey Fork	X			X	X	PHW
Walthall	X				X	MDWFP
Washington	X	X				Private
Wasp			X			Private

*In the Management Entity column: USACE is U.S. Army Corps of Engineers; PHW is Pat Harrison Waterway District; MDWFP is MS Department of Wildlife, Fisheries, and Parks; USFWS is U.S. Fish and Wildlife Service; USFS is the U.S. Forest Service; and TVA is the Tennessee Valley Authority

Appendix 2. List of all species observed in surveys conducted in 2017, 2019, 2020, 2022, and 2023; numbers in year columns indicate number of waterbodies the respective species was observed in; status column indicates whether the species is native (Nat), non-native (Non-nat), or unknown (-).

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Acer negundo	box elder	Nat	-	-	10	-	-
Acer rubrum	red maple	Nat	1	3	9	-	-
Acer saccharinum	silver maple	Nat	-	-	5	-	-
Albizia julibrissin	mimosa	Non-nat	-	8	4	-	-
Algae sp.	algae	-	7	-	-	17	-
Alnus serrulata	smooth alder	Nat	-	-	1	-	6
Alnus sp.	alder	Nat	-	9	1	-	-
Alternanthera philoxeroides	alligator weed	Non-nat	30	7	14	21	26
Amaranthus tubercualtus	roughfruit waterhemp	Nat	-	-	2	-	-
Apocynum cannabinum	hemp dogbane	Nat	-	-	2	-	-
Arundinaria gigantea	giant cane	Nat	2	3	-	-	14
Azolla caroliniana	Carolina mosquitofern	Nat	1	-	2	1	1
Baccharis halimifolia	eastern baccharis	Nat	5	5	7	-	6
Bacopa caroliniana	blue waterhyssop	Nat	4	1	1	2	3
Bacopa monnieri	herb-of-grace	Nat	-	-	1	-	2
Bacopa sp.	waterhyssop	-	2	-	-	-	1
Bambusa vulgaris	common bamboo	Nat	-	-	1	-	-
Betula nigra	river birch	Nat	-	-	13	2	-
Boehmeria cylindrica	smallspike false nettle	Nat	2	1	21	-	-
Bolboschoenus robustus	sturdy bulrush	Nat	-	-	-	-	4
Brasenia schreberi	watershield	Nat	16	3	2	-	13
Brunnichia ovata	redvine	Nat	-	-	2	-	-
Cabomba caroliniana	fanwort	Nat	-	-	2	-	5
Callicarpa americana	American beautyberry	Nat	1	-	-	-	-
Carex sp.	sedge	-	1	2	9	21	7
Carex vulpinoidea	foxtail sedge	Nat	-	-	-	-	4
Carya aquatica	water hickory	Nat	2	-	6	-	-
Carya glabra	pignut hickory	Nat	-	-	1	-	-
Castanea dentata	American chesnut	Nat	-	-	1	-	-
Cephalanthus occidentalis	common buttonbush	Nat	21	8	17	21	18
Ceratophyllum demersum	coontail	Nat	10	8	7	5	7
Cercis canadensis	eastern redbud	Nat	-	-	1	-	-
Chara sp.	muskgrass	Nat	11	5	7	11	9
Chasmanthium sessiflroum	longleaf woodoats	Nat	-	-	1	-	-
Cicuta maculata	water hemlock	Nat	-	-	-	-	7
Cinnamomun camphora	camphortree	Non-nat	-	-	1	-	-
Cladium mariscus	sawgrass	Nat	-	-	4	1	6

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Clethra alnifolia	coastal pepperbush	Nat	-	-	1	-	-
Colocasia esculenta	wild taro	Non-nat	8	5	2	2	4
Commelina virginica	Virginia dayflower	Nat	-	-	11	-	1
Crataegus sp.	hawthorn	Nat	1	-	-	-	-
Crinum americanum	southern swamp crinum	Nat	-	-	3	-	4
Crotalaria sp.	rattlebox	-	-	1	-	-	-
Cynodon dactylon	Bermuda grass	Non-nat	-	-	1	-	-
Cyperus esculentus	yellow nutsedge	Non-nat	4	-	21	-	-
Cyperus iria	rice flatsedge	Non-nat	-	-	1	-	-
Cyperus odoratus	fragrant flatsedge	Nat	4	-	-	-	-
Cyperus sp.	flatsedge	-	1	-	-	-	11
Cyperus virens	green flatsedge	Nat	-	-	2	-	-
Cyrilla racemiflora	swamp titi	Nat	-	-	1	-	7
Dicanthelium latifolia	broadleaf panicgrass	Nat	-	-	1	-	-
Digitaria sp.	crabgrass	-	2	-	-	-	-
Diodia virginiana	Virginia buttonweed	Nat	-	-	1	6	-
Diospyros virginiana	common persimmon	Nat	-	-	9	-	-
Drepanocladus sp.	watermoss	-	1	-	-	-	-
Dulichium arundinaceum	three-way sedge	Nat	1	-	-	5	4
Echinochloa crus-galli	barnyard grass	Non-nat	-	-	1	-	-
Echinodorus cordifolius	creeping burhead	Nat	5	-	1	-	6
Eichhornia crassipes	water hyacinth	Non-nat	8	5	7	2	7
Eleocharis compressa	flatstem spikerush	Nat	-	-	-	8	-
Eleocharis elongata	slim spikerush	Nat	-	-	-	1	-
Eleocharis obtusa	blunt spikerush	Nat	4	2	3	2	1
Eleocharis palustris	common spikerush	Nat	-	-	1	1	-
Eleocharis parvula	dwarf spikerush	Nat	-	-	1	-	-
Eleocharis quadrangulata	squarestem spikerush	Nat	2	6	3	9	7
Eleocharis sp.	spikerush	-	1	-	1	-	3
Eleocharis vivipara	viviparous spikerush	Nat	14	2	1	1	16
Elymus virginicus	Virginia wildrye	Nat	-	-	1	-	-
Equisetum sp.	horsetail	-	2	5	1	-	-
Eupatorium serotinum	lateflowering thoroughwort	Nat	3	-	2	-	-
Foresteria acuminata	eastern swamp privet	Nat	-	-	6	-	-
Fraxinus caroliniana	swamp ash	Nat	-	-	1	-	-
Fraxinus pennsylvanica	green ash	Nat	3	-	2	-	-
Gleditsia aquatica	water locust	Nat	-	-	5	-	-
Hibiscus laevis	halberdleaf rosemallow	Nat	2	-	-	-	-
Hibiscus lasiocarpos	wooly rosemallow	Nat	-	-	1	2	-
Hibiscus moscheutos	crimsoneyed rosemallow	Nat	1	-	4	-	-

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Hydrilla verticillata	hydrilla	Non-nat	5	9	1	5	1
Hydrocotyle ranunculoides	floating marshpennywort	Nat	2	5	2	-	7
Hydrocotyle sp.	pennywort	-	4	-	-	13	-
Hydrocotyle umbellata	manyflower marshpennywort	Nat	12	7	7	1	18
Hydrolea quadrivalvis	waterpod	Nat	6	2	-	2	-
Hydrolea uniflora	oneflower false fiddleleaf	Nat	-	-	-	-	4
Hypericum lobocarpum	fivelobe St. Johnswort	Nat	-	-	-	-	1
Hypericum mutillum	dwarf St. Johnswort	Nat	-	-	-	-	1
Hypericum sp.	St. Johnswort	Nat	-	-	-	-	5
Hypericum walteri	greater marsh st. johnswort	Nat	2	-	4	-	20
Ilex aquifolium	English holly	Non-nat	-	-	1	-	-
Ilex decidua	possumhaw	Nat	-	-	4	-	-
Iris sp.	iris	-	-	-	-	2	2
Juncus acuminatus	tapertip rush	Nat	-	-	6	1	-
Juncus canadensis	Canada rish	Nat	-	-	-	-	2
Juncus dudleyi	Dudley's rush	Nat	-	-	-	1	-
Juncus effusus	common rush	Nat	15	12	7	19	15
Juncus marginatus	grassleaf rush	Nat	-	-	-	1	-
Juncus pelocarpus	brownfruit rush	Nat	-	-	-	3	-
Juncus repens	lesser creeping rush	Nat	3	-	-	-	8
Juncus roemerianus	black needlerush	Nat	-	-	5	-	6
Juncus sp.	rush	-	3	-	-	-	6
Justicia americana	American water-willow	Nat	6	11	22	3	1
Justicia ovata	looseflower water-willow	Nat	-	-	-	-	3
Landoltia punctata	spotted duckweed	Nat	-	4	9	-	-
Leersia oryzoides	rice cutgrass	Nat	2	-	12	10	-
Lemna minor	common duckweed	Nat	3	4	11	4	4
Lemna sp.	duckweed	-	3	-	-	-	-
Leptochloa panicoides	Amazon sprangletop	Nat	-	-	1	-	-
Ligustrum sinense	Chinese privet	Non-nat	-	-	1	-	-
Lilaeopsis carolinensis	Carolina grasswort	Nat	-	-	-	-	1
Limnobium spongia	American frogbit	Nat	3	4	2	3	4
Lindera benzoin	northern spicebush	Nat	4	-	-	-	-
Liquidambar styraciflua	sweetgum	Nat	4	-	4	-	13
Ludwigia arcuata	Piedmont primrose-willow	Nat	2	-	-	-	-
Ludwigia hexapetala	six-petal primrose-willow	Nat	-	-	-	5	3
Ludwigia leptocarpa	anglestem primrose-willow	Nat	-	6	10	11	-
Ludwigia palustris	marsh seedbox	Nat	3	-	-	-	-
Ludwigia peploides	floating primrose-willow	Nat	18	8	7	14	17
Ludwigia sp.	primrose	Nat	2	-	-	-	8

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Lychnothamnus barbatus		Nat	-	-	-	-	1
Lythrum lineare	saltmarsh loosestrife	Nat	-	-	5	-	5
Magnolia grandiflora	souther magnolia	Nat	-	-	1	-	-
Magnolia virginiana	sweetbay	Nat	-	-	1	-	-
Mayaca fluviatilis	stream bogmoss	Nat	1	-	-	-	3
Mentha aquatica	watermint	Non-nat	-	-	-	-	1
Mikania scandens	climbing hempvine	Nat	-	-	2	-	-
Mimulus rigens	Allegheny monkeyflower	Nat	-	-	-	1	-
Myrica cerifera	southern wax myrtle	Nat	-	-	6	12	-
Myriophyllum aquaticum	parrotfeather	Non-nat	6	6	2	5	6
Myriophyllum heterophyllum	variableleaf watermilfoil	Nat	1	-	-	-	6
Myriophyllum spicatum	Eurasian watermilfoil	Non-nat	3	4	2	9	5
Najas guadalupensis	southern naiad	Nat	10	-	1	1	7
Najas minor	brittle naiad	Non-nat	12	2	3	-	1
Nekemias arborea	peppervine	Nat	-	-	6	-	-
Nelumbo lutea	American lotus	Nat	11	6	4	11	5
Nitella sp.	stonewort	-	7	-	-	-	6
Nuphar advena	spatterdock	Nat	4	-	3	-	6
Nymphaea odorata	American white waterlily	Nat	20	3	2	14	14
Nyssa aquatica	water tupelo	Nat	4	-	3	-	-
Nyssa biflora	swamp tupelo	Nat	-	-	-	-	10
Orontium aquaticum	goldenclub	Nat	-	-	-	-	2
Oxycaryum cubense	cuban bulrush	Non-nat	7	3	4	3	4
Panicum hemitomon	maidencane	Nat	1	-	-	-	11
Panicum repens	torpedo grass	Non-nat	15	4	3	7	26
Panicum rigidulum	redtop panicgrass	Nat	1	-	-	-	-
Panicum sp.	panicgrass	-	4	-	-	-	-
Parthenocissus quinquefolia	Virginia creeper	Nat	-	-	1	-	-
Paspalum distichum	knotgrass	Nat	-	-	4	2	-
Paspalum floridanum	Florida paspalum	Nat	-	-	2	-	-
Paspalum notatum	bahiagrass	-	-	-	-	1	-
Paspalum sp.	paspalum	-	-	-	25	-	-
Paspalum urvillei	Vasey’s grass	Non-nat	-	-	1	-	-
Peltandra virginica	green arrow arum	Nat	2	8	2	5	9
Persea palustris	swamp bay	Nat	-	-	2	-	-
Persicaria amphibium	water knotweed	Nat	3	-	-	-	-
Persicaria hydropiperoides	swamp smartweed	Nat	7	-	6	14	-
Persicaria pennsylvanicum	Pennsylvania smartweed	Nat	1	1	7	4	-
Persicaria sp.	knotweed	-	10	-	14	8	16
Phalaris arundinacea	reed canary grass	Non-nat	-	-	-	1	-

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Phragmites australis	common reed	Non-nat	1	-	5	-	6
Pinus elliotii	slash pine	Nat	-	-	4	-	-
Pinus sp.	pine	Nat	-	-	2	-	-
Platanus occidentalis	American sycamore	Nat	7	3	14	-	-
Pluchea camphorata	camphorweed	Nat	2	-	-	-	-
Pontederia cordata	pickerelweed	Nat	-	-	14	-	7
Populus deltoides	eastern cottonwood	Nat	-	-	4	-	-
Potamogeton crispus	curlyleaf pondweed	Non-nat	1	-	-	-	-
Potamogeton diversifolius	waterthread pondweed	Nat	8	-	-	7	14
Potamogeton foliosus	leafy pondweed	Nat	10	-	-	1	-
Potamogeton illinoensis	Illinois pondweed	Nat	2	-	-	-	1
Potamogeton nodosus	longleaf pondweed	Nat	6	9	3	9	2
Potamogeton pulcher	spotted pondweed	Nat	-	-	-	4	1
Potamogeton pusillus	small pondweed	Nat	-	-	-	-	2
Proserpinaca pectinata	combleaf mermaidweed	Nat	-	-	-	-	1
Ptilium capillaceum	eastern bishopweed	Nat	-	-	1	-	-
Quercus alba	white oak	Nat	-	-	2	-	-
Quercus laurifolia	laurel oak	Nat	-	-	-	-	-
Quercus lyrata	overcup oak	Nat	-	-	2	-	-
Quercus nigra	water oak	Nat	1	2	6	-	-
Quercus phellos	willow oak	Nat	-	-	3	-	-
Quercus rubra	red oak	Nat	-	-	1	-	-
Quercus stellata	post oak	Nat	-	-	1	-	-
Quercus virginiana	southern live oak	Nat	-	-	2	-	-
Rhychospora sp.	beaksedge	Nat	-	-	-	-	5
Rhynchospora chalarocephala	loosehead_beaksedge	Nat	-	-	-	3	-
Rhynchospora corniculata	shortbristle horned beaksedge	Nat	5	-	-	4	7
Rhynchospora glomerata	clustered beaksedge	Nat	-	-	-	-	1
Ricciocarpos natans	liverwort	Nat	-	-	1	3	-
Rotala sp.	rotalla	Nat	-	-	-	-	4
Rubus sp.	blackberry	Nat	-	-	3	-	-
Sabal minor	dwarf palmetto	Nat	-	-	7	-	6
Sabatia calycina	coastal rose gentian	Nat	-	-	1	-	1
Saccharum giganteum	sugarcane plumegrass	Nat	6	-	-	-	-
Sacciolepis striata	American cupscale	Nat	5	1	2	-	-
Samolus parviflorus	water pimpernel	Nat	-	-	-	-	1
Sagittaria graminea	grassy arrowhead	Nat	3	3	-	-	-
Sagittaria lancifolia	bulltongue arrowhead	Nat	11	5	6	15	6
Sagittaria latifolia	broadleaf arrowhead	Nat	9	10	4	4	11
Sagittaria montevidensis	giant arrowhead	Non-nat	2	-	-	-	-

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Sagittaria papillosa	nipplebract arrowhead	Nat	-	-	-	-	1
Sagittaria platyphylla	delta arrowhead	Nat	-	-	-	15	10
Salix nigra	black willow	Nat	12	3	28	15	3
Salvinia minima	common salvinia	Non-nat	3	2	3	-	6
Salvinia molesta	giant salvinia	Non-nat	-	2	2	-	5
Saururus cernuus	lizard's tail	Nat	17	9	5	20	18
Schoenoplectus americanus	three-square bulrush	Nat	-	-	3	-	-
Schoenoplectus tabernaemontani	softstem bulrush	Nat	-	-	6	-	6
Scirpus cyperinus	woolgrass	Nat	9	7	-	7	8
Senna sp.	senna	-	-	-	1	-	-
Sesbania herbacea	bigpod sesbania	Nat	1	7	5	-	-
Sesbania punicia	scarlet sesbania	Non-nat	-	-	2	-	-
Setaria pumila	yellow foxtail	Non-nat	-	-	1	-	-
Sideroxylon lanuginosum	gum bumelia	Nat	-	-	2	-	-
Sium suave	waterp parsnip	Nat	-	-	3	-	-
Smilax sp.	breenbriar	Nat	-	-	3	-	-
Solidago canadensis	canada goldenrod	Nat	-	-	5	-	-
Sorghum halepense	Johnson’s grass	Non-nat	-	-	1	-	-
Sparganium americanum	American bur-reed	Nat	7	1	6	1	6
Spartina alterniflora	smooth cordgrass	Nat	-	-	5	-	-
Spartina cyonsuroides	big cordgrass	Nat	-	-	6	-	-
Spartina patens	saltmeadow cordgrass	Nat	-	-	2	-	-
Spirodela polyrhiza	greater duckweed	Nat	-	-	-	-	1
Sporobolus sp.	dropseed	-	-	-	-	-	5
Stuckenia pectinata	sago pondweed	Nat	4	-	1	-	1
Symphyotrichum divaricatum	southern annual saltmarsh aster	Nat	-	-	2	-	-
Symphyotrichum lanceolatum	lance-leafed aster	Nat	-	-	1	-	-
Symphyotrichum subulatum	eastern annual saltmarsh aster	Nat	-	-	6	-	-
Taxodium ascendens	pond cypress	Nat	-	-	-	-	1
Taxodium distichum	bald cypress	Nat	19	12	17	12	17
Tillandsia usneoides	Spanish moss	Nat	1	-	1	-	-
Triadica sebifera	tallowtree	Non-nat	1	3	11	-	20
Toxicodendron radicans	poison ivy	Nat	-	-	1	-	-
Tripsacum dactyloides	eastern gamagrass	Nat	-	-	-	-	1
Typha angustifolia	narrowleaf cattail	Nat	-	-	-	-	1
Typha domingensis	southern cattail	Nat	-	-	-	-	3
Typha latifolia	broadleaf cattail	Nat	-	8	5	-	16
Typha sp.	cattail	-	23	-	-	12	2
Ulmus alata	winged elm	Nat	-	-	2	-	-

Scientific Name	Common Native	Status	2017	2019	2020	2022	2023
Ulmus americana	American elm	Nat	-	-	1	-	-
Ulmus sp.	elm	Nat	-	-	14	-	-
Utricularia biflora	longspur bladderwort	Nat	-	-	-	-	2
Utricularia gibba	humped bladderwort	Nat	-	-	-	-	7
Utricularia macrorhiza	common bladderwort	Nat	-	2	8	-	-
Utricularia radiata	floating bladderwort	Nat	-	-	-	-	1
Utricularia sp.	bladderwort	-	16	-	4	-	4
Vallisneria americana	American eelgrass	Nat	-	2	6	-	7
Vitis sp.	grape	-	-	-	3	-	-
Vitis vulpina	frost grape	Nat	-	-	3	-	-
Wolffia sp.	watermeal	-	-	-	-	-	1
Woodwardia areolata	netted chainfern	Nat	-	-	3	-	-
Xyris difformis	bog yelloweyed grass	Nat	-	-	-	-	4
Zannichellia palustris	horned pondweed	Nat	-	-	-	-	3
Zizania aquatica	southern wild rice	Nat	-	-	-	-	6
Zizaniopsis miliacea	giant cutgrass	Nat	7	8	8	20	20