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A BASELINE DOCUMENTATION REPORT FOR THE DELTA WIND BIRDS SKY
LAKE NATURE RESERVE

By

Jensine Coggin, Hays Dubberly, Preston Perkins, and Michael Thomas

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

Oxford, MS

May 2021

Approved By

Advisor: Professor Jason Hoeksema

Reader: Professor Peter Zee

Reader: Professor Susan Ballanger

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Abstract

The purpose of this baseline documentation is to conduct a report on our subject property and discuss the findings. A conservation easement is established by upholding a certain standard of a property's current condition which makes a baseline documentation necessary for an easement to be enacted. Baseline documentation reports are used as a resource to monitor and enforce the legal agreements of the conservation easement. The subject property is currently owned by the Delta Wind Birds organization. In our scenario, this documentation report will serve to aid in the conversion of our subject property into a conservation easement in which the Mississippi Land Trust will serve as the steward. The subject property is a 13.66 acre tract which borders Sky Lake, an oxbow lake located in Humphreys county. The methods used in this report range from hands on survey methods and sightings in addition to research and communication on various animal and plant species in the respective fields. The data gathered from the group's analysis are compiled throughout this report in various charts and tables. This data includes numerous bird species that occur on the subject property as well as those of conservation concern; such as Anhinga, Bald Eagle, and Prothonotary Warbler. In addition, prominent plant species on the subject property include Bald cypress, Water hickory, American groundnut, and Balloon vine. From our findings, we are able to conclude that the subject property has a healthy and flourishing biodiversity. In addition, the conservation easement will protect the subject property from deforestation and will allow the subject property to remain in its natural vegetative state in the future.

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Statement of Purpose and Limitations

The purpose of this *Baseline Documentation Report* (BDR) is to provide a descriptive narrative and photogenic account of the natural, scenic, and cultural features of one contiguous parcel of land totaling +/- 13.66 acres (subject property) located on Sky Lake, an oxbow lake located in Humphreys County, Mississippi. The subject property defined and described in this report is offered by the owner (Delta Wind Birds) for enrollment in a perpetual conservation easement administered by the Mississippi Land trust in 2021.

The subject property is not part of, or located within, a larger contiguous tract.

Throughout this report, the conservation easement area will be referenced as the subject property or CE area.

The purpose of the conservation easement on the subject property is to protect and conserve natural areas, open space, natural communities, waterfowl, and any other wildlife habitat that may call the subject property home. In addition, this easement will serve as an example to any properties in the area of what a protected landscape at Sky Lake should look like. Once finalized, the conservation easement will serve to preserve both the natural and scenic values of the subject property, which extends along the bank and protrudes marginally into Sky Lake, which lies within the Yazoo River Basin.

When donating a conservation easement, the Internal Revenue Service (IRS) requires that the donor provides sufficient baseline data “to establish the condition of the property at

the time of the gift” (Treasury Reg. § 1.170A-14(g)(5)(i)). The regulations specify that such documentation may include:

- A. The appropriate survey maps for the United States Geological Survey, showing the property lines and other contiguous or nearby protected area;
- B. A map of the area drawn to scale, showing all existing man-made improvements or incursions, vegetation and identification of flora and fauna, land use history, and distinct natural features;
- C. An aerial photograph of the property at an appropriate scale taken as close as possible to the date the donation is made; and
- D. On-site photographs taken at appropriate locations on the property.

In order for the conservation easement to be eligible for a charitable deduction, the easement must protect or preserve at least one of the following:

- A. Land areas for outdoor recreation or education of the general public.
- B. Natural habitats for fish, wildlife and plants of similar ecosystems.
- C. Open space, which provides scenic enjoyment to the general public or yields a significant public benefit according to a clearly delineated federal, state or local governmental policy.
- D. A historically important land area or a certified historic structure, defined as any building, structure, or land area that is
 - (a) listed in the National Register

(b) certified by the U.S. Secretary of the Interior to be of historic significance to a historic district listed on the National Register.

This *Baseline Documentation Report* includes those required elements for subject property proposed for protection via a conservation easement.

There is no claim or intent of this report to entail an extensive assessment of the ecological, historic, or archeological features of the property. This report is a compilation of data that describes with narratives, maps, and photographs the general natural community types, scenic areas, man-made features, and improvements to the property in a format that will allow Mississippi Land Trust to compare site specific data during future inspections of the property. The description of the flora herein is not to be considered a complete biological inventory of the plants on the property, but rather a description of the major components of the natural and created plant communities that occur on the site at the time of this report. Likewise, the description of the fauna should be considered a preliminary list of species that were either observed on the property during site visits by the report preparers or others, or may occur (in the case of species of conservation concern known to occur in similar habitat in the area). Because plant communities change in response to natural disturbances and during normal vegetational succession, these descriptions only provide a “snapshot” of the ecological conditions present at the time of this report and are not an exhaustive inventory. Assessment of the property included in this document is limited to the property owned by Delta Wind Birds, as identified within

the narrative and on the site maps and aerial photos included in the Appendix. No other representation is expressed or implied. Field work and photographs for this assessment were conducted on 05/15/20 and 09/27/20.

CONSERVATION EASEMENT AREA SUMMARY TABLE

NAME OF PROPERTY	Delta Wind Birds Sky Lake Nature Reserve
OWNER	Delta Wind Birds P.O. Box 1536 Oxford, MS 38655, USA dwindbirds@gmail.com
PRIMARY POINT OF CONTACT	Jason Hoeksema, President 237 Timber Ln. Oxford, MS 38655 662-202-4992
LEGAL COUNSEL	Hollaman Raney, P.C. P.O. Box 1480 Oxford, MS 38655 Mobile - (662) 801-2266 Office – (662) 236-4001 Fax – (662) 236-4939
EASEMENT HOLDER	Mississippi Land Trust Attn: Brian Ballinger P.O. Box 23 Stoneville, MS 38776 bballinger@wildlifemiss.org www.mississippilandtrust.org 662-686-3375
PROPERTY LOCATION / LEGAL	Approximately 6.25 miles north of Belzoni, MS, in the West 1/4, of the West 1/2, Southeast 1/4 in Section 33, T 17 N, R 3 W, of Humphreys County, MS. The property is located on the west side of Sky lake, running parallel with Sky Lake Road. The property is accessible from Sky Lake Road, north of Old US Hwy 49W.
DEED AND TAX PARCELS	Humphreys County, MS, Deed Book 0202, Pages 18-22, August 24, 2020 (PPIN X-XXX-XX-XXX.XX)
ACREAGE AND HABITATS	Total CE area = +/- 13.66 acres Mixed Bottomland Hardwoods/Swamp Forest = +/-12.56 Open Field = +/- 1.1
USGS QUAD	Indianola, MS 7.5 Minute Quadrangle Maps
CENTER COORDINATES FOR EASEMENT AREA	Center of Easement 33°16'23.2"N, 90°30'42.2"W
ELEVATION	Ranges from 30 to 36 meters above Mean Sea Level
LANDMARKS	Sky Lake Road

Property Location

The subject property is located in Humphreys County, Mississippi, which is approximately 6.25 miles north of Belzoni, Mississippi (Figure 1). The easement is located on the West side of Sky Lake, running parallel with Sky Lake Road. The main property access is from Sky Lake Road which runs north from Old US Hwy 49W.

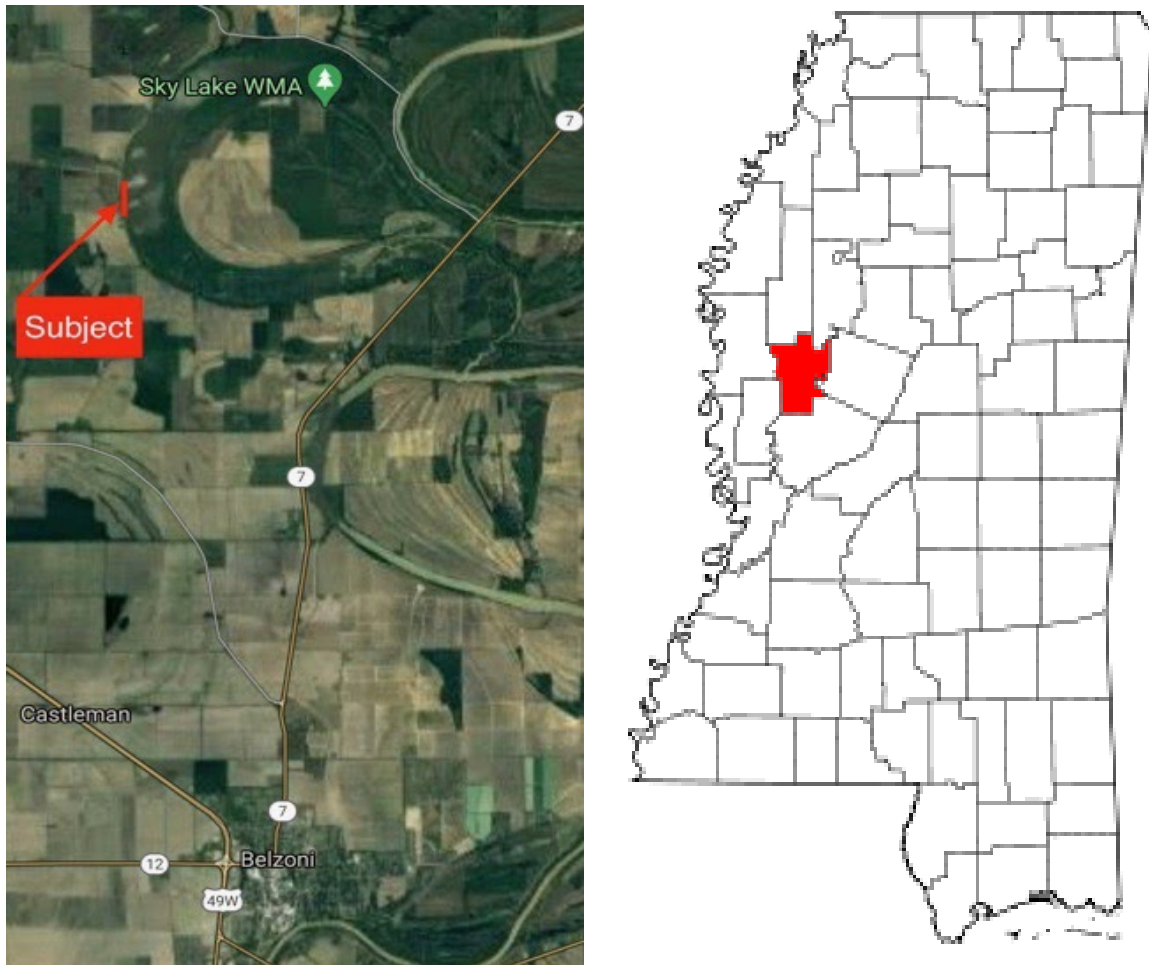


Figure 1: Property area near Belzoni (left, with subject property in red) in Humphreys County, Mississippi (right).

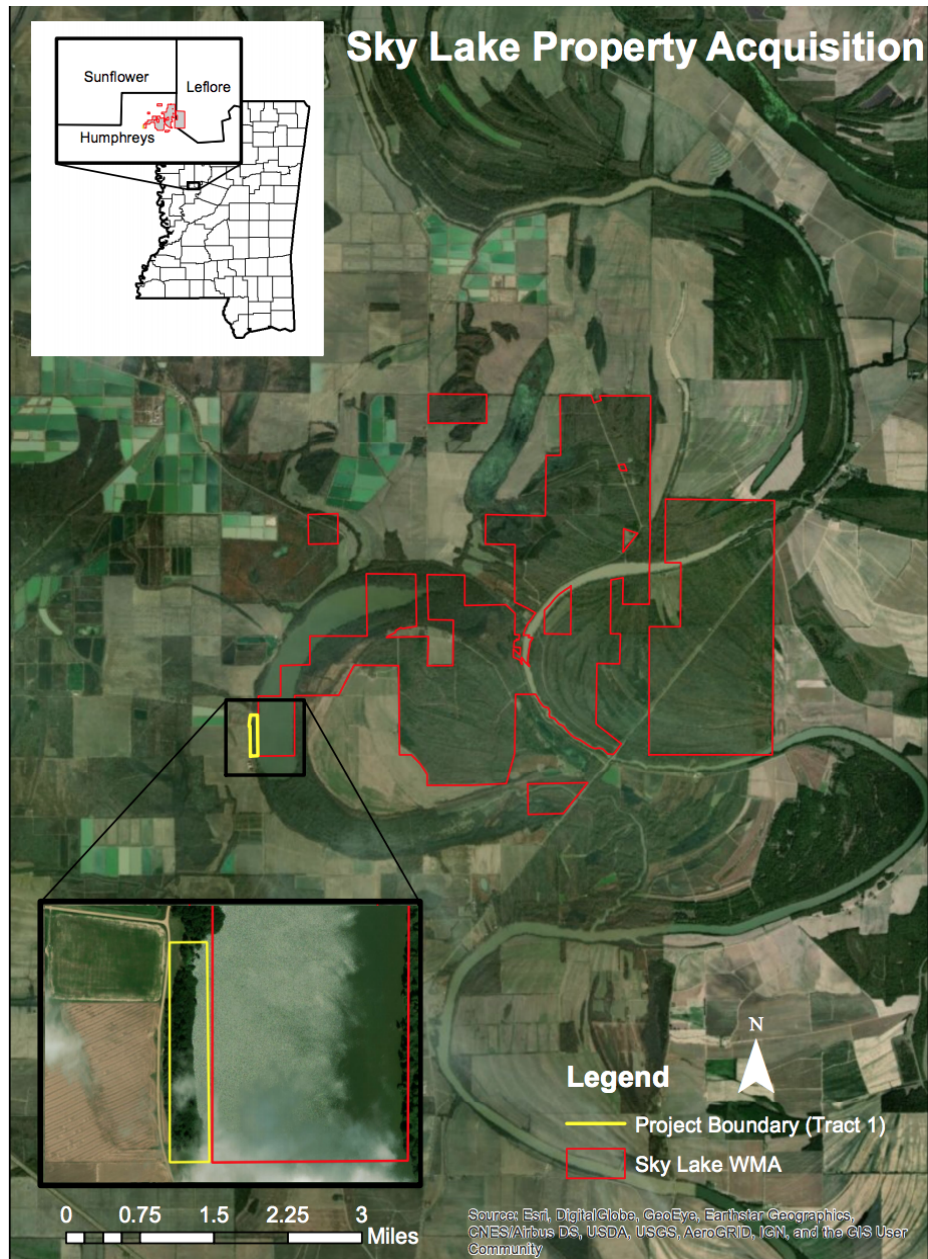


Figure 2: The map on the left shows the position of the subject property (outlined in yellow) relative to Sky Lake, and relative to the adjacent Sky Lake WMA (outlined in red).

Geographic Position/GPS Coordinates

33°16'23.2"N, 90°30'42.2"W

Acreage

+/- 13.66 acres

Access

Access to the subject property is from Sky Lake Rd, a public gravel road (Figure 3).



Figure 3: Sky Lake Road viewed from the north to south (left) and from the south to north (right).

Legal Description - Conservation Easement Area

The following legal description is adapted from a survey conducted by Marshall Clayton Beckwith, a surveyor licensed with the state of Mississippi, on February 9, 2020 (see Tract 1 in Appendix 1).

A parcel of land located in the West 1/4, of the West 1/2, Southeast 1/4 in Section 33, T 17 N, R 3 W, of Humphreys County, MS and being more particularly described as follows:

Commencing From A Found 1-1/4" Pipe at the SW Corner of Section 33, T 17N, R 3W, HUMPHREYS COUNTY, MS;

Thence run N 89° 27'04" E for a distance of 2642.27 Ft to a found 3/4" iron rod on the eastern boundary of Sky Lake Road at the SW Corner of the SE 1/4 of Section 33 and being the point of beginning of Tract 1; thence run N 00° 39'48" E for a distance of 1802.24 Ft to a set 1/2" rebar; thence run N 89° 33'34" E for a distance of 330.28 Ft to a point not set in Sky Lake, but having a set 1/2" rebar witness corner on line with an offset distance of 241.50 Ft.; thence run S 00° 39'48" W for a distance of 1801.62 Ft to a point not set in Sky Lake, but having a Set 1/2" rebar witness corner bearing S 89° 27'04" W at an offset distance of 221.11 Ft; hence run S 89° 27'04" W for a distance of 330.28 Ft to a found 3/4" Iron Rod, and the point of beginning of Tract 1.

Containing an area of 13.66 Acres more or less. Bearing and distances are based on GPS grid coordinates from MS West Zone 2302.

Ownership History of the Property

The subject property was once part of a larger parcel, which was conveyed to Charles W. Rowland and Delores G. Rowland by Guaranty Bank & Trust company in a deed of trust under a promissory note on July 30, 2001. On July 11, 2003, the larger parcel was foreclosed on by Guaranty Bank & Trust Company and offered for sale at auction. On July 25, 2003 the larger parcel was sold to Glenn Miller of Timber Resources of Mississippi, Inc.. On May 7, 2012, the subject property was part of a parcel that was conveyed to James H. Tipton and Marilyn K. Tipton by Glenn Miller. On May 11, 2012, James H. Tipton conveyed a parcel containing the subject property to McBride Farm and Outfitters, LLC. On October 2, 2017, James H. Tipton conveyed a parcel containing the subject property to Robert B. Smith. Alan Woodard, PA conducted a title search on the subject property on behalf of Delta Wind Birds in November, 2019, and determined that the deed from Tipton to Smith contained an erroneous survey map. Delta Wind Birds commissioned an updated survey, which was finalized on February 29, 2020. On May 4, 2020, the subject property was conveyed by Robert B. Smith to Delta Wind Birds, who immediately conveyed it to Michael T. Lewis with an option to repurchase at a later date. On August 18, 2020, Delta Wind Birds purchased the subject property from Michael T. Lewis.

Property Description

General Description of the Region

Humphreys County, Mississippi is located in west central Mississippi with the county seat being Belzoni. Humphreys County has a total area of 431 square miles, 13 of which are water. This region was coined the “Farm-Raised Catfish Capital of the World” in 1976 by Governor Cliff Finch due to the fact that 160 sq. kilometers were used to grow catfish. Humphreys County is home to a large number of oxbow lakes, which are curved lakes formed where the main channel of a river once flowed. The county is encompassed by the Mississippi River Alluvial Plain, Mississippi Alluvial Valley (MAV). This ecoregion encompasses the largest continuous system of wetlands in North America.

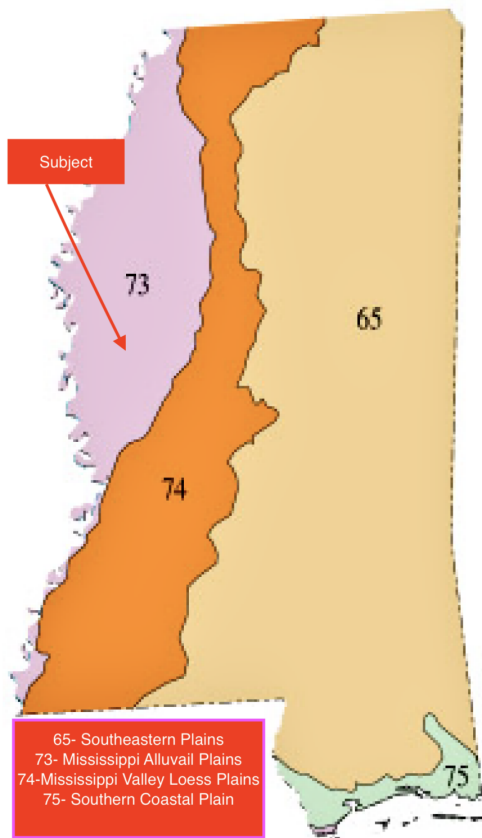


Figure 4.

Level III Ecoregions of Mississippi. Source: U.S. Environmental Protection Agency

The almost 25 million acre MAV supports an ecologically rich forested wetland ecosystem. Less than 20% of the original bottomland forests remain today because of agriculture, decades of draining, and forest clearing. The floodplain extends from the meeting point of the Mississippi and Ohio rivers to the Gulf of Mexico. Almost 40% of the waterfowl from the Mississippi Flyway and 60% of all U.S. bird species migrate or winter in the MAV. It is the most significant wintering waterfowl habitat area for Mallards and Wood Ducks in North America, and hosts a significant number of Green-winged Teal, Northern Shoveler, and Gadwall in winter. In 1987, the MAV became part of the Lower Mississippi Valley Joint Venture partnership, who has continued to improve the habitat conditions of waterfowl.

The subject property is also located in the Southern Central region of the Yazoo River Basin (Figure 3). The Yazoo River Basin is Mississippi's largest basin and covers 13,355 miles and all or parts of 30 counties. In its northern half, the Yazoo River Basin boasts an impressive width of 100 miles and a length of nearly 200 miles. Major streams included in this basin are the Yazoo, Tallahatchie, Yalobusha, Coldwater, Bogue Phalia, Yocona, and Sunflower Rivers. The southern end of the basin is located where the Yazoo River flows into the Mississippi river just north of Vicksburg, Mississippi. Although described as an extremely erosive area of the country, Humphreys County has some of the most fertile and productive farmland in the world (Cheng). Humphreys County land use has been predominantly agriculture (cotton, soybeans, and corn) for more than 100 years, and is well known for producing more farm-raised catfish than any other county in the world.

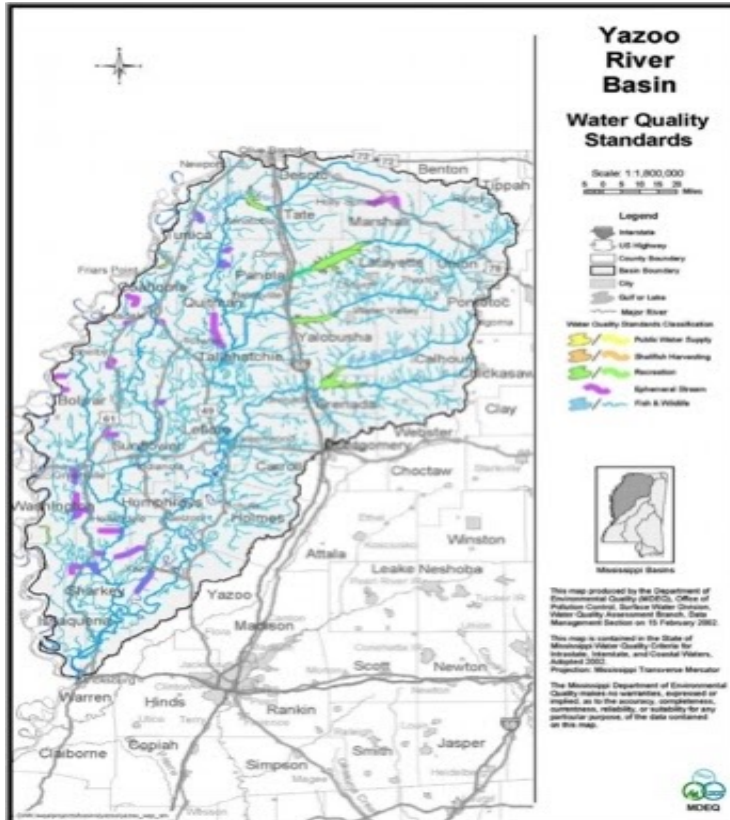


Figure 5: Map of the Yazoo River Basin focusing on specific water quality standards and areas of concern that fall within the Yazoo River Basin.

The purpose of the report was to identify principal causes of surface water quality problems in the Yazoo River Basin (Figure 5). These water quality issues include excessive concentration of nutrients, siltation, pathogens, and organic enrichment from non-point source pollution. Recommendations made in the report focus on management practices to not only protect water quality and wetland habitat in the basin but also to improve water quality for the future. These recommendations help landowners to reduce soil erosion, improve water quality, establish wildlife habitat, and to enhance forest and wetland resources. In addition, programs and efforts to permanently protect forested wetlands adjacent to water bodies are actively being implemented.

Climate

The climate in Humphreys County, Mississippi could generally be described as hot in summer and mild in winter. Humphreys County averages 56.2 inches of rain per year, with an average of 97.3 days in which precipitation is recorded. In addition, Humphreys County has an average of 215 days that are described as “sunny.” The average high temperature in July is recorded at 91.5 degrees Fahrenheit, whereas the average low in January is recorded at 34.3 degrees Fahrenheit. The hottest month for Humphreys County is August, in which an average high of 91.8 degrees Fahrenheit is recorded. The most pleasant months of the year for Humphreys county are October, April, and May. Annual snowfall for Humphreys County is recorded at 0.1 inches, making it one of the lowest ranked counties for snowfall in Mississippi.

Soils on the Property

The soils vary in levels of silt concentration, but all areas reflect a drainage class of “poorly drained.” Dowling clay (alligator) is the most common type of soil present on the subject property (Figure 6). All areas, with the exception of water, are classified as prime farmland.

Table 1: This table contains a breakdown of the varying types of soils present on the subject property. Dowling clay is the most prominent soil type, typically being found in marshy wetland habitats. The distinct soil types were identified with the help of the NRCS web soil survey map.

MAP UNIT SYMBOL	MAP UNIT NAME	ACRES IN AOI	PERCENT OF AOI
<i>Da</i>	<i>Dowling Clay (alligator)</i>	<i>7.9</i>	<i>57.6%</i>
<i>Fm</i>	<i>Forestdale silt loam, 0 to 2 percent slopes</i>	<i>1.6</i>	<i>11.6%</i>
<i>Fp</i>	<i>Forestdale silt loam, 2 to 5 percent slopes</i>	<i>0.2</i>	<i>1.6%</i>
<i>Fs</i>	<i>Forestdale very fine sandy loam, 0 to 2 percent slopes</i>	<i>1.1</i>	<i>8.0%</i>
<i>W</i>	<i>Water</i>	<i>2.9</i>	<i>21.2%</i>



Figure 6: The soil data map on the right represented here is taken from the United States Department of Agriculture soil survey website.

Improvements to the Property

There are not any roads in the subject property, nor any paved roads adjacent to the subject property. Sky Lake Road is a rough gravel road. No man-made improvements were noted on the subject property, except for an agricultural drainage ditch and culvert intersecting the property near its south end (Figure 10).

Mineral and Water Rights

Mineral rights are retained by the current property owners, Delta Wind Birds. Mississippi is a regulated riparian state for water law and water rights cannot be severed.

GPS Photos and Locations

Figures 8-12 contain photos that are geo-referenced, annotated with GPS coordinates, elevation, and compass direction to visually document the landscape of the property at the time of the site visit on 27 September 2020. The pictures were captured using the app GPS Camera 55.



Figure 7: Open field habitat at north end of property. The left photo was taken facing east, towards Sky Lake, along the north boundary of the subject property. The right photo was taken from the same point, facing southeast. At the northwest corner of the property, there is a sign that can be viewed when facing east towards Sky Lake, from Sky Lake Road.



Figure 8: Open field habitat at south end of property. The left photo was taken facing east, towards Sky Lake, along the south boundary of the subject property. The right photo was taken from the same point, facing northeast. At the southwest corner of the property, there is another sign that can be viewed when facing east towards Sky Lake, from Sky Lake Road.



Figure 9: Open field habitat at south end of subject property. The left photo was taken from the exact same positions as the Figure 8 images, but facing north along the west boundary of the subject property. Visible is an irrigation ditch that allows for farming sediment to flow from the fields into Sky Lake. In the left photo, one can see the ditch in the short distance. On the right picture, the drainage pipe in the ditch allows for runoff. This the only man-made feature on the property.



Figure 10: Both of these pictures are representative of the open field habitat at the north end of the property. The left photo views the property facing north while the photo on the right views the property facing south. Each of these photos were taken from the same position.



Figure 11: Each of these photos represent the palustrine wetland on the subject property. The image on the left shows the open understory of the sloped understory, facing north. On the right is the largest cypress tree, viewed facing east towards Sky Lake.

Aerial Photos

These aerial photos (Figs. 12-13) capture the entire subject property from January 20, 2020.



Figure 12: The arrow on the left shows the north end of the forested palustrine wetland habitat, while the arrow on the far right shows the south end of the subject property. Sky Lake's water level was high and thus the open field habitat was inundated.



Figure 13: This image encompasses the entire property and surrounding area, with agricultural fields to the west and Sky Lake to the right. The arrows indicate the north and south ends of the subject property.

Habitats and Biota in CE Area

The types of habitat present on the subject property were determined by observing specific characteristics of the subject property at various scales. In addition, the Wetlands Mapper provided by the U.S. Fish and Wildlife Service was used in determining specific wetland boundaries (U.S. Fish and Wildlife). Table 2 below represents the breakdown of the habitat types present. The Palustrine Wetland dominates the majority of the subject property, whereas the Open Field Habitat is a small percentage of the total area.

Table 2: The following table is a representation of the two types of habitats present on the subject property. Due to the subject property being located on the bank of Sky Lake, it is expected that the Palustrine Wetland habitat dominates the greater majority of the habitat type. However, there still is a small percentage of the property that is representative of an Open Field habitat.

HABITAT/LAND COVER	TYPE	ACRES	PERCENT	DESCRIPTION
Mixed Bottomland Hardwoods and Swamp Forest	Palustrine Wetland	12.56	91.9	Palustrine Wetland includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens. Dominant species include Bald cypress, Water Hickory and Buttonbush.
Open Field	Upland	1.1	8.1	Uncultivated land with soil representative of cropland.
Total CE Area		13.66	100%	

We used a variety of approaches to compile information about plant and animal species occurring at the subject property. For all organisms, presence was noted during the site visits. In addition, we conducted two different botanical surveys, one in the open field habitat and another in the palustrine wetland habitat on the subject property. To aid in the

identification of bird species in the area that we were not able to directly observe, bird sightings at Sky Lake were accessed through documentation provided by the eBird database (Species Map). For all animals, we list species that either a) were observed during a site visit (listed in bold), or b) are listed as a species of conservation concern in Mississippi's State Wildlife Action Plan and that may occur at the subject property based on known occurrence in similar habitats or nearby. Nearby occurrences were determined by searching Humphreys and surrounding counties in the Natural Heritage Database maintained by the Mississippi Department of Wildlife Fisheries and Parks.

Plants

On September 27, 2020, two different forms of botanical surveys were conducted, one each in the open field and palustrine wetland habitats on the subject property, using protocols set forth by the California Department of Fish and Wildlife and California native plant society (CDFW-CNPS), which recommends a bounded plot (relevé) method for habitats dominated by herbaceous vegetation and a representative area (rapid assessment) method for habitats dominated by woody vegetation. The rapid assessment method can identify up to 20 of the most abundant species in a larger plot. In contrast, the relevé method seeks to identify all plant species present in a smaller plot area. However, both methods classify each plant into layers or strata, and estimate percent cover.

The surveys identified prominent species in each of these environments at the time of the surveys. A rapid assessment of the palustrine wetland habitat was conducted within a 1000 m² (40 x 25 meters) area. The three most prominent species identified in this survey,

representative of the palustrine wetland, were water hickory, bald cypress, and buttonbush. A relevé survey of the open field habitat at the north end of the reserve was conducted within a 100 m² (4 x 25 meters) area. In this survey, the three most abundant plant species were balloon vine, American groundnut, and sunshine mimosa. Table 3 gives the nineteen most prominent plant species recorded from a vegetation rapid assessment in the palustrine wetland, sorted by percent cover. Table 4 gives all the plant species in the relevé survey of the open field habitat, sorted by percent cover.

The two surveys are not meant to represent a comprehensive list of all plant species occurring on the subject property, but rather a representative snapshot of the two dominant habitats. Some plant species that were not recorded in our surveys on September 27, 2020, but were noted in the subject property on previous site visits, include: rhomboid mercury (*Acalypha rhomboidea*), balloon vine (*Cardiospermum halicacabum*), wild persimmon (*Diospyros virginiana*), halberd-leaf rosemallow (*Hibiscus laevis*), swamp rosemallow (*Hibiscus moscheutos*), water tupelo (*Nyssa aquatica*), and dwarf palmetto (*Sabal minor*).



Figure 14: Habitat Map.

The image represents a breakdown of the habitats found in the CE area:
Palustrine Wetland and Open Field

Table 3: The following table shows the results of a vegetation rapid assessment conducted in the palustrine wetland habitat. The survey was conducted in a representative area of 1000m² (40 x 25m, aligned perpendicular to the shoreline) in which we identified up to 20 of the most prominent plant species. The abbreviations under the strata column are defined as follows: T (Overstory tree), U (Understory tree), S (Shrub), H (Herb), V (Woody Vine).

STRATA	COMMON NAME	SCIENTIFIC NAME	PERCENT COVER (%)
T	Bald cypress	<i>Taxodium distichum</i>	15-25
T	Water hickory	<i>Carya aquatica</i>	15-25
S	Buttonbush	<i>Cephalanthus occidentalis</i>	5-15
T	Sugarberry	<i>Celtis laevigata</i>	1-5
U	Eastern swamp privet	<i>Foresteria acuminata</i>	1-5
T	Water locust	<i>Gleditsia aquatica</i>	1-5
V	Greenbrier	<i>Smilax rotundifolia</i>	1-5
U	Cedar elm	<i>Ulmus crassifolia</i>	1-5
V	Poison ivy	<i>Toxicodendron radicans</i>	1
V	Wild grape	<i>Vitis sp.</i>	1
H	White morning glory	<i>Ipomoea lacunosa</i>	1
H	Wright's morning glory	<i>Ipomoea wrightii</i>	1
H	Indian heliotrope	<i>Heliotropium indicum</i>	<1
H	Rosemallow	<i>Hibiscus sp.</i>	<1
H	Willow primrose	<i>Ludwigia decurrens</i>	<1
U	Laurel oak	<i>Quercus laurifolia</i>	<1
T	Overcup oak	<i>Quercus lyrata</i>	<1
H	Smooth false buttonweed	<i>Spermacoce glabra</i>	<1
H	Dayflower	<i>Commelina sp.</i>	<1

Table 4: The following table shows the results of a relevé botanical survey conducted in the open field habitat. The plot was established in a representative area of 100m² (4 x 25m, aligned perpendicular to the shoreline) in which we identified all plant species. H = Herb, and U = low-medium tree.

LAYER	COMMON NAME	SCIENTIFIC NAME	PERCENT COVER (%)
H	American groundnut	<i>Apios americana</i>	25
H	Balloon vine	<i>Cardiospermum halicacabum</i>	25
H	Sunshine mimosa	<i>Mimosa strigillosa</i>	25
H	Bermuda grass	<i>Cynodon dactylon</i>	15
H	Melon	<i>Cucumis sp.</i>	5
H	Swamp rose mallow	<i>Hibiscus moscheutos</i>	5
H	Green foxtail	<i>Setaria pumila</i>	5
H	Amaranth	<i>Amaranthus sp.</i>	4
H	American buckwheat vine	<i>Brunnichia ovata</i>	3
H	Wright's morning glory	<i>Ipomoea wrightii</i>	3
H	Prickly fanpetals	<i>Sida spinosa</i>	3
H	Johnsongrass	<i>Sorghum halapense</i>	3
H	Ragweed	<i>Ambrosia sp.</i>	2
H	Dogbane	<i>Apocynum cannabinum</i>	2
H	Cockspur grass	<i>Echinochloa sp. (prob. crus-galli)</i>	2
H	Goldenrod	<i>Solidago sp.</i>	1-5
U	Sugarberry	<i>Celtis laevigata</i>	1
H	Crabgrass	<i>Digitaria sp. (prob. sanguinalis)</i>	1
H	Pennsylvania smartweed	<i>Persicaria pennsylvanicum</i>	1
H	Knotweed	<i>Polygonaceae sp.</i>	1
H	Blackberry	<i>Rubus argutus</i>	1
H	Carolina horsenettle	<i>Solanum carolinense</i>	1
H	Aster	<i>Symphotrichum sp.</i>	1

H	Vetch	<i>Vicia sativa</i>	1
H	Dayflower	<i>Commelina sp.</i>	<1
U	Water hickory	<i>Carya aquatica</i>	<1

In each of the following tables of animal occurrence, NatureServe ranks are also incorporated; this includes global rank, state rank, federal status, and state status. Global rank is an international system for ranking threatened or endangered species throughout the world. Ranks are developed for different portions of a species range. The first and most critical rank describes the species status globally, and best describes the risk of extinction. This is called the Global Rank and begins with a "G". The most widely used NatureServe ranks in the United States are the State Ranks, which describe the rarity of a species within each state's boundary. These State Ranks begin with the letter "S". Global, National, and State ranks all use a 1-5 ranking system, with 1 representing the most critically imperilled because of extreme rarity or vulnerability to extinction. State ranks are defined as follows: S#B (Breeding – Conservation status refers to the breeding population of the species in Mississippi), S#N (Non-breeding – Conservation status refers to the non-breeding population of the species in Mississippi). Federal status and state status are defined as follows: LE (LE – Listed Endangered - A species is in danger of extinction throughout all or a significant portion of its range), LT (Listed Threatened - A species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range), PS (Partial Status - A species listed in parts of its range and not in others; or, one or more subspecies or varieties are listed, while the others are not listed).

Birds

Table 5 is a compilation of bird species that have been identified on the subject property, or on Sky Lake. Of the 132 bird species listed below, 89 of these species have been identified on the subject property.

Table 5: The following table contains a list of birds known to occur at the subject property (bold) or at Sky Lake, based on our own site visits, as well as data from eBird.org. For those listed as species of conservation concern in the Mississippi State Wildlife Action Plan, their conservation status is also listed.

COMMON NAME	SCIENTIFIC NAME	FAMILY	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
Acadian flycatcher	<i>Empidonax virens</i>	Tyrannidae				
American avocet	<i>Recurvirostra americana</i>	Recurvirostridae				
American coot	<i>Fulica americana</i>	Rallidae				
American crow	<i>Corvus brachyrhynchos</i>	Corvidae				
American goldfinch	<i>Spinus tristis</i>	Fringillidae				
American kestrel	<i>Falco sparverius</i>	Falconidae				
American redstart	<i>Setophaga ruticilla</i>	Parulidae				
American robin	<i>Turdus migratorius</i>	Turdidae				
American white pelican	<i>Pelecanus erythrorhynchos</i>	Pelecanidae				
American wigeon	<i>Mareca americana</i>	Anatidae				
Anhinga	<i>Anhinga anhinga</i>	Anhingidae	G5	S3B, S1N		
Bald eagle	<i>Haliaeetus leucocephalus</i>	Accipitridae	G4	S2B, S2N		
Baltimore oriole	<i>Icterus galbula</i>	Icteridae				
Barn swallow	<i>Hirundo rustica</i>	Hirundinidae				
Barred owl	<i>Strix varia</i>	Strigidae				
Belted kingfisher	<i>Megascops alcyon</i>	Alcedinidae				
Black-bellied whistling-duck	<i>Dendrocygna autumnalis</i>	Anatidae				
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	Ardeidae	G5	S3B, S4N		
Black-necked stilt	<i>Himantopus mexicanus</i>	Recurvirostridae				
Black-throated green warbler	<i>Setophaga virens</i>	Parulidae				

Blackpoll warbler	<i>Setophaga striata</i>	Parulidae				
Blue grosbeak	<i>Passerina caerulea</i>	Cardinalidae				
Blue jay	<i>Cyanocitta cristata</i>	Corvidae				
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>	Poliophtilidae				
Blue-headed vireo	<i>Vireo solitarius</i>	Vireonidae				
Blue-winged teal	<i>Anas discors</i>	Anatidae				
Brown thrasher	<i>Toxostoma rufum</i>	Mimidae				
Brown-headed cowbird	<i>Molothrus ater</i>	Icteridae				
Canada goose	<i>Branta canadensis</i>	Anatidae				
Carolina chickadee	<i>Poecile carolinensis</i>	Paridae				
Carolina wren	<i>Thryothorus ludovicianus</i>	Troglodytidae				
Cattle egret	<i>Bubulcus ibis</i>	Ardeidae				
Cedar waxwing	<i>Bombycilla cedrorum</i>	Bombycillidae				
Chimney swift	<i>Chaetura pelagica</i>	Apodidae				
Chipping sparrow	<i>Spizella passerina</i>	Passerellidae				
Common grackle	<i>Quiscalus quiscula</i>	Icteridae				
Common yellowthroat	<i>Geothlypis trichas</i>	Parulidae				
Cooper's hawk	<i>Accipiter cooperii</i>	Accipitridae				
Dark-eyed junco	<i>Junco hyemalis</i>	Passerellidae				
Dickcissel	<i>Spiza americana</i>	Cardinalidae				
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Phalacrocoracidae				
Downy woodpecker	<i>Picoides pubescens</i>	Picidae				
Dunlin	<i>Calidris alpina</i>	Scolopacidae				
Eastern bluebird	<i>Sialia sialis</i>	Turdidae				
Eastern kingbird	<i>Tyrannus tyrannus</i>	Tyrannidae				
Eastern meadowlark	<i>Sturnella magna</i>	Icteridae				
Eastern phoebe	<i>Sayornis phoebe</i>	Tyrannidae				
Eastern towhee	<i>Pipilo erythrophthalmus</i>	Passerellidae				
Eastern wood-pewee	<i>Contopus virens</i>	Tyrannidae				
European starling	<i>Sturnus vulgaris</i>	Sturnidae				
Forster's tern	<i>Sterna forsteri</i>	Laridae				
Gadwall	<i>Anas strepera</i>	Anatidae				

Golden-crowned Kinglet	<i>Regulus satrapa</i>	Regulidae				
Gray Catbird	<i>Dumetella carolinensis</i>	Mimidae				
Great Blue Heron	<i>Ardea herodias</i>	Ardeidae				
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Tyrannidae				
Great Egret	<i>Ardea alba</i>	Ardeidae				
Great Horned Owl	<i>Bubo virginianus</i>	Strigidae				
Greater White-fronted Goose	<i>Anser albifrons</i>	Anatidae				
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Scolopacidae				
Hairy Woodpecker	<i>Leuconotopicus villosus</i>	Picidae				
Hermit Thrush	<i>Catharus guttatus</i>	Turdidae				
Horned Lark	<i>Eremophila alpestris</i>	Alaudidae				
House Sparrow	<i>Passer domesticus</i>	Passeridae				
House Wren	<i>Troglodytes aedon</i>	Troglodytidae				
Indigo Bunting	<i>Passerina cyanea</i>	Cardinalidae				
Killdeer	<i>Charadrius vociferus</i>	Charadriidae				
Least Sandpiper	<i>Calidris minutilla</i>	Scolopacidae				
Lesser Scaup	<i>Aythya affinis</i>	Anatidae				
Lesser Yellowlegs	<i>Tringa flavipes</i>	Scolopacidae				
Little Blue Heron	<i>Egretta caerulea</i>	Ardeidae	G5	S2B, S2N		
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Laniidae				
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	Scolopacidae				
Louisiana Waterthrush	<i>Parkesia motacilla</i>	Parulidae	G5	S3B		
Magnolia Warbler	<i>Setophaga magnolia</i>	Parulidae				
Mallard	<i>Anas platyrhynchos</i>	Anatidae				
Merlin	<i>Falco columbarius</i>	Falconidae				
Mississippi Kite	<i>Ictinia mississippiensis</i>	Accipitridae				
Mourning Dove	<i>Zenaidura macroura</i>	Columbidae				
Northern Bobwhite	<i>Colinus virginianus</i>	Odontophoridae	G5	S3S4	(PS)	
Northern Cardinal	<i>Cardinalis cardinalis</i>	Cardinalidae				
Northern Flicker	<i>Colaptes auratus</i>	Picidae				
Northern Harrier	<i>Circus cyaneus</i>	Accipitridae				

Northern Mockingbird	<i>Mimus polyglottos</i>	Mimidae				
Northern Shoveler	<i>Spatula clypeata</i>	Anatidae				
Orange-crowned Warbler	<i>Vermivora celata</i>	Parulidae				
Osprey	<i>Pandion haliaetus</i>	Pandionidae	G5	S3B, S1S2N		
Painted Bunting	<i>Passerina ciris</i>	Cardinalidae	G5	S3S4B		
Palm Warbler	<i>Setophaga palmarum</i>	Parulidae				
Pectoral Sandpiper	<i>Calidris melanotos</i>	Scolopacidae				
Pied-billed Grebe	<i>Podilymbus podiceps</i>	Podicipedidae				
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Picidae				
Pine Siskin	<i>Spinus pinus</i>	Fringillidae				
Pine Warbler	<i>Setophaga pinus</i>	Parulidae				
Prothonotary Warbler	<i>Protonotaria citrea</i>	Parulidae	G5	S5B		
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Picidae				
Red-eyed Vireo	<i>Vireo olivaceus</i>	Vireonidae				
Red-shouldered Hawk	<i>Buteo lineatus</i>	Accipitridae				
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Accipitridae				
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Icteridae				
Ring-billed Gull	<i>Larus delawarensis</i>	Laridae				
Ring-necked Duck	<i>Aythya collaris</i>	Anatidae				
Roseate Spoonbill	<i>Platalea ajaja</i>	Threskiornithidae				
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Regulidae				
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Trochilidae				
Ruddy Duck	<i>Oxyura jamaicensis</i>	Anatidae				
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Passerellidae				
Semipalmated Sandpiper	<i>Calidris pusilla</i>	Scolopacidae				
Short-billed Dowitcher	<i>Limnodromus griseus</i>	Scolopacidae				
Snow Goose	<i>Chen caerulescens</i>	Anatidae				
Snowy Egret	<i>Egretta thula</i>	Ardeidae	G5	S4B, S1N		
Song Sparrow	<i>Melospiza melodia</i>	Passerellidae				

Spotted Sandpiper	<i>Actitis macularius</i>	Scolopacidae				
Stilt Sandpiper	<i>Calidris himantopus</i>	Scolopacidae				
Summer Tanager	<i>Piranga rubra</i>	Cardinalidae				
Swamp Sparrow	<i>Melospiza georgiana</i>	Passerellidae				
Tufted Titmouse	<i>Baeolophus bicolor</i>	Paridae				
Turkey Vulture	<i>Cathartes aura</i>	Cathartidae				
Vesper Sparrow	<i>Pooecetes gramineus</i>	Passerellidae				
Western Sandpiper	<i>Calidris mauri</i>	Scolopacidae	G5	S4N		
White Ibis	<i>Eudocimus albus</i>	Threskiornithidae	G5	S2B, S3N		
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Sittidae				
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Passerellidae				
White-eyed Vireo	<i>Vireo griseus</i>	Vireonidae				
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Passerellidae				
Wilson's Phalarope	<i>Phalaropus tricolor</i>	Scolopacidae				
Winter Wren	<i>Troglodytes hiemalis</i>	Troglodytidae				
Wood Duck	<i>Aix sponsa</i>	Anatidae				
Wood Stork	<i>Mycteria americana</i>	Ciconiidae	G4	S2N	PS:LT	LE
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Cuculidae				
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Parulidae				
Yellow-throated Warbler	<i>Setophaga dominica</i>	Parulidae				

Mammals

Table 6 represents mammal data for the subject property. Of the mammals listed, the Eastern Gray Squirrel is the only mammal that we observed during site visits. However, with the help of the Mississippi Wildlife Action Plan and Dr. Richard Buchholz, we believe the remainder of the mammals listed below may occur on the subject property.

Table 6: The following table contains a list of mammals either a) observed during a site visit (**bold**), or b) listed as a species of conservation concern in Mississippi's State Wildlife Action Plan and could occur at the subject property based on known occurrence in similar habitats or nearby.

COMMON NAME	SCIENTIFIC NAME	FAMILY	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
Eastern Spotted Skunk	<i>Spilogale putorius</i>	Mephitidae	G5	S1		
Louisiana Black Bear	<i>Ursus americanus luteolus</i>	Urdidae	G5T2	S1	LT	LE
Northern Long-eared bat	<i>Myotis septentrionalis</i>	Vespertilionidae	G1G2	S1N	LT	
Rafinesque's Big-eared Bat	<i>Corynorhinus rafinesquii</i>	Vespertilionidae	G3G4	S3		
Hoary Bat	<i>Lasiurus cinereus</i>	Vespertilionidae	G5	S3	(PS)	
Southeastern Myotis	<i>Myotis austroriparius</i>	Vespertilionidae	G3G4	S3		
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>	Sciuridae				

* **bold** = observed at the subject property

Fishes

Table 7 lists the one fish species--Alligator Gar--that is listed as being of conservation concern as stated in the Mississippi's Wildlife Action Plan

Table 7: This table lists fishes that are of conservation concern (based on listing in Mississippi's Wildlife Action Plan) that likely occur at Sky Lake. After cross-reference of the Mississippi's Wildlife Action Plan and a list of fishes likely to occur at Sky Lake, we found that only one species was under conservation concern.

COMMON NAME	SCIENTIFIC NAME	FAMILY	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
Alligator Gar	<i>Atractosteus spatula</i>	Lepisosteidae	G3G4	S2		

Reptiles

Table 8 lists two reptiles observed on the property or nearby in Sky Lake during site visits--American Alligator and Plain-bellied Watersnake--while the other six species listed are of conservation concern according to Mississippi's Wildlife Action Plan.

Table 8: This table contains a list of reptiles that either a) were observed during a site visit (**bold**), or b) are listed as a species of conservation concern in Mississippi's State Wildlife Action Plan and that we believe could occur at the subject property based on known occurrence in similar habitats or nearby.

COMMON NAME	SCIENTIFIC NAME	FAMILY	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
Alabama Map Turtle	<i>Graptemys pulchra</i>	Emydidae	G4	S2		
American Alligator	<i>Alligator mississippiensis</i>	Alligatoridae	G4			
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	Cleydridae	G3G4	S3		
Black Kingsnake	<i>Lampropeltis getula nigra</i>	Colubridae	G5T5	S3		
Plain-bellied Watersnake	<i>Nerodia erythrogaster</i>	Colubridae				
Queen Snake	<i>Regina septemvittata</i>	Colubridae	G5	S2S3		
Red Milk Snake	<i>Lampropeltis triangulum sypila</i>	Colubridae	G5T5	S3		
Southern Coal Skink	<i>Plestiodon anthracinus pluvialis</i>	Scincidae	G5T5	S2S3		

* **bold** = observed at Delta Wind Birds Sky Lake Nature

Amphibians

Table 9 lists three amphibians that were observed on the property during site visits--American Bullfrog, Green Frog, and Southern Leopard Frog--while the other three species are of conservation concern according to Mississippi's Wildlife Action Plan.

Table 9: This table contains a list of amphibians that either a) were observed during a site visit (**bold**), or b) are listed as a species of conservation concern in Mississippi's State Wildlife Action Plan and that we believe may could occur at the subject property based on known occurrence in similar habitats or nearby.

COMMON NAME	SCIENTIFIC NAME	FAMILY	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
American Bullfrog	<i>Lithobates catesbeianus</i>	Ranidae				
Crawfish Frog	<i>Lithobates areolatus</i>	Ranidae	G4	S2		
Green Frog	<i>Lithobates calmitans</i>	Ranidae				
Pickerel Frog	<i>Lithobates palustris</i>	Ranidae	G5	S3		
Small-mouthed Salamander	<i>Ambystoma texanum</i>	Ambystomatidae	G5	S3		
Southern Leopard Frog	<i>Lithobates spinocephalus</i>	Ranidae				

* **bold** = observed at Delta Wind Birds Sky Lake Nature Reserve

Threats to Ecological Integrity

The owners have assumed an exceptional and unique goal to forgo subdivision development, intensive agriculture and forest management, commercial hunting, or clear-cutting of the conservation easement area. Instead, they have chosen to protect and conserve the property's ecological functions and natural environment.

The greatest risk to the natural forest community on the property is from subdivision, clearing, and development into lakefront residential lots, similar to the developments immediately adjacent from the subject. The owners are planning to eliminate that threat with the placement of the conservation easement.

Agricultural run-off of sediments and nutrients is of particular concern to the integrity of the wetland habitats of Sky Lake. According to Mississippi's State Wildlife Action Plan (2015), the greatest threats to this drainage area, where the subject is located, are from nutrient runoff, sedimentation, lack of field borders and buffers, farming in the floodplains, logging, wood harvesting, headcutting, and impoundments. Because of its high conservation priority rank, and the decline in quality of stream habitats in this drainage, this natural resource is considered vulnerable by the Mississippi Department of Wildlife, Fisheries and Parks Natural Heritage Program. In addition, the water quality issues include excessive concentration of nutrients, siltation, pathogens, and organic enrichment from non-point source pollution. Recommendations made in the report focus on management practices to not only protect water quality and wetland habitat in the

basin but also to improve water quality for the future. These recommendations help landowners to reduce soil erosion, improve water quality, establish wildlife habitat, and to enhance forest and wetland resources. In addition, programs and efforts to permanently protect forested wetlands adjacent to water bodies are actively being implemented.

Management Needs

The palustrine wetlands and open field habitat are passively managed, and the owners do not anticipate removing any timber from the forested wetland. While not mandatory for the purposes of the conservation easement, the owner should consider developing a Forest Management Plan that complies with the requirements of the Mississippi Land Trust conservation easement.

The Mississippi Department of Environmental Quality recommends that water bodies within the watershed be considered a priority for streambank and riparian buffer zone restoration and any sediment reduction Best Management Practices (BMPs), especially for the road crossings, agricultural activities, and construction activities. The implementation of these BMP activities should reduce the sediment load to water bodies to equal that of a relatively stable stream, and will allow the streams to approach stable conditions. This will provide improved habitat for the support of aquatic life in the water bodies and will result in the attainment of the applicable water quality standard.

No sign of feral swine or beaver damage was evident during the site visits, but nearby and adjacent properties have experienced damage to timber, crops, and habitat. The owners should routinely monitor the property and take control measures as needed, perhaps in collaboration with adjacent landowners.

An abandoned pontoon boat has been observed lodged in the buttonbush at the southeast corner of the property, and it should be removed as soon as possible.

An updated report on the condition of the property should be prepared in the year 2031 (10 years after the recordation of the easement) and submitted to the grantor of the easement.

Recommendation of Conservation Easement

The subject property consists of 12.56 acres of Palustrine Wetland habitat that spans approximately 549 meters along Sky Lake (an oxbow lake and former Mississippi River distributary of the Wisconsin or Holocene age) and 1.1 acres of open field habitat. The property provides habitat for numerous types of waterfowl, wading birds, songbirds, and other wetland-dependent bird species in addition to diverse plants, mammals, reptiles, amphibians, and fish. The natural Palustrine Wetland habitat extending along the bank of Sky Lake makes this property a high-priority candidate for conservation. A perpetual conservation easement on the subject property will ensure that the natural state of the property remains intact, and will eliminate the threat of any destructive human activities.

Protection via a Mississippi Land Trust conservation easement will help preserve the ecological and scenic values of the property and will greatly benefit a wide variety of migrating and resident wildlife in the region that use Palustrine Wetland and forage in adjacent waters and open fields. This easement will protect the functions and values of the natural forests and the adjacent oxbow lake, whose integrity would be otherwise compromised in the future due to construction of residential developments in the immediate vicinity in recent years. Also, this easement will serve to support various governmental conservation policies including but not limited to the defined objectives outlined in the *North American Waterfowl Management Plan* 2018, the *Mississippi State Wildlife Action Plan* (2015-2025), and the Mississippi Department of Environmental Quality's Yazoo River Basin Plan.

Additionally, the conservation easement will expand the area within the basin under permanent protection and will complement the larger, landscape-level conservation efforts in the region undertaken by the Mississippi Land Trust, the US Fish and Wildlife Service, the US Forestry Service, the USDA Natural Resources Conservation Service and Farm Services Agency and its state, federal and private partners.

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Appendix 1: Survey plat of the subject property (Tract 1)

