# Threatened & Endangered Species Report

# South Gosling Future Park

## Harris County, Texas

*Prepared for*

**The Woodlands Township**

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# Executive Summary

The Woodlands Township retained Halff to conduct a threatened and endangered species habitat assessment as part of the South Gosling Future Park project in Harris County, Texas (study area). The purpose of this study is to determine if suitable habitat for state and federally listed species under the Endangered Species Act (ESA) and Texas state code exist within the study area.

Halff conducted a field investigation in October 2023 within the 201-acre study area and observed two terrestrial habitat types and five aquatic habitat types that are depicted in **Figure 7**. The United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPaC) Official Species List identified seven federally listed threatened and endangered species, species proposed to be listed, or candidate species whose geographic ranges may include the study area. According to the IPaC Official Species List, there is no USFWS-designated critical habitat within the study area. Based on a field investigation, desktop analysis of the study area, and suitable habitat descriptions for federally listed species, it is Halff's opinion that suitable habitat may be present for the endangered red-cockaded woodpecker and the proposed project may affect this federally listed species. Therefore, informal consultation with USFWS may be recommended.

The proposed project may impact the state-listed endangered Houston toad, threatened swallow-tailed kite, threatened Rafinesque's big-eared bat, and threatened sandbank pocketbook which are identified in the TPWD RTEST Official Species List. Therefore, early coordination with TPWD may be recommended due to the presence of suitable habitat in the study area and possible impacts to these state-listed species.

Additionally, the study area may contain suitable habitat for the monarch butterfly (*Danaus plexippus*) that is currently listed as a candidate species awaiting a listing determination from the USFWS. Under Section 4 of the Endangered Species Act (ESA), candidate species do not receive statutory protection, albeit the classification of a candidate species may warrant future protection under the ESA upon a listing determination. Therefore, the monarch butterfly was not considered in the threatened and endangered species review for the proposed project. The tricolored bat (*Perimyotis subflavusi*) is proposed as endangered and the alligator snapping turtle (*Macrochelys temminckii*) is proposed threatened. Similarly, proposed species are listed as candidate species until the official status is updated. Thus, the tricolored bat and the alligator snapping turtle were not considered in the threatened and endangered species review at this time.

# 1.0 PROJECT DESCRIPTION

The proposed South Gosling Future Park project includes the development of the study area into a public park in Harris County, Texas. The study area measures approximately 201 acres and includes portions of Spring Creek along its eastern boundary. The study area is bound by Gosling Road to the west, Spring Creek to the east, undeveloped land to the north, and Spring Valley Golf Club to the south. **Figure 1** shows the general study area location with respect to the greater Houston area and **Figure 2** shows the study area in relation to the local road network. **Figure 3** depicts recent (2023) aerial imagery of the study area.

# 2.0 METHODOLOGY

Halff completed field investigations of the study area on October 17-18, November 9, and November 21, 2023; and a desktop review of the study area utilizing information and data from the following agencies and/or resources:

- U.S. Fish and Wildlife Service (USFWS)
- Texas Parks and Wildlife Department (TPWD) Texas Natural Diversity Database (TXNDD)
- U.S. Geological Survey (USGS) Texas Geologic Database
- U.S. Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Web Soil Survey (SSURGO)
- ESRI and NearMap aerial imagery
- Ecological Mapping System of Texas (EMST)

Habitat conditions within the study area were characterized using USGS Texas Geologic Map Database, NRCS Web Soil Survey, and TPWD EMST data in addition to field observations related to vegetation, soils, and hydrology. The USFWS IPaC is an online tool that provides information on federally managed resources to streamline the environmental review process. Through the USFWS IPaC, a local USFWS office can generate an Official Species List based on the location in which the project occurs. The IPaC Official Species List identifies federally-listed threatened and endangered species, proposed to be listed species, candidate species, and designated critical habitat that may occur within the boundary of the study area and/or may be affected by the project.

The TPWD RTEST by County is an online tool that generates information regarding potential occurrence of federally- and state-protected species and Species of Greatest Conservation Need (SGCN)[1] on a county level. Historically, the TPWD county species lists have been overly inclusive when compared to USFWS lists and may list species known to be extirpated from the area. Therefore, species identified as only state listed (i.e., not also federally listed) on the TPWD RTEST will be evaluated. This information, which was last updated on September 1, 2023, by TPWD, was utilized in evaluating potential impacts to protected species by determining the presence of suitable habitat within the study area for each state-listed species.

The TPWD TXNDD is a record of occurrences (sorted per USGS quadrangle) for rare plant and animal resources that is based upon the best available information to TPWD. The TXNDD data are used to support

[1] Species designated as a SGCN are generally those that are declining or rare and in need of attention to recover or to prevent the need to list under state or federal regulation. Species designated as SGCN do not have regulatory protection.

determinations of potential species occurrence for the study area and provide specific information where available. An absence in the TXNDD data does not equate to absence of a species in the study area.

The above resources identify listed species whose known ranges could extend into the study area, provide requisite habitat descriptions, and identify if USFWS designated critical habitat exists within the vicinity. Potential for the proposed project to affect species listed by the USFWS under the ESA was evaluated by comparing USFWS IPaC, TPWD TXNDD data, and the study area's habitat conditions.

# 3.0 THREATENED AND ENDANGERED SPECIES REGULATIONS

## 3.1 Endangered Species Act

USFWS has authority under the ESA to list and monitor the status of species whose populations are considered imperiled. USFWS regulations that implement the ESA are codified and regularly updated in 50 Code of Federal Regulations Part 17. The federal process identifies potential candidates based on the species' biological vulnerability, which is based upon many factors affecting the species within its range and is linked to the best scientific data available to the USFWS at the time. Species listed as threatened or endangered by the USFWS are provided full protection under the ESA including a prohibition of indirect take such as destruction of known critical habitat (i.e., areas formally designated by USFWS in the Federal Register).

This report includes one of three recommended determinations of effect on federally-listed endangered and threatened species, species proposed to be listed, and their habitat: "no effect," "may affect, not likely to adversely affect," or "may affect, likely to adversely affect." These three possible determinations, in accordance with guidance offered by the USFWS, are described below.

1. No effect – A "no effect" determination means that there are absolutely no effects from the proposed action, positive or negative, to listed species. A "no effect" determination does not include effects that are insignificant (small in size), discountable (extremely unlikely to occur), or beneficial.
2. May affect, not likely to adversely affect – A "may affect, not likely to adversely affect" determination may be reached for a proposed action where all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the effects and should not reach the scale where take occurs. Discountable effects are those that are extremely unlikely to occur. This conclusion is usually reached through the informal consultation process, and written concurrence from the USFWS exempts the proposed action from formal consultation. The federal action agency's written request for USFWS concurrence should accompany the biological assessment/biological evaluation.
3. May affect, likely to adversely affect – A "may affect, likely to adversely affect" determination means that all adverse effects cannot be avoided. A combination of beneficial and adverse effects is still "likely to adversely affect" even if the net effect is neutral or positive. Section 7 of the ESA requires that the federal action agency request initiation of formal consultation with the USFWS when a "may affect, likely to adversely affect" determination is made. A written request for formal consultation should accompany the biological assessment/biological evaluation. Formal consultation results in the USFWS issuing a biological opinion as to whether or not the action, as proposed, will jeopardize the continued existence of any listed species.

## 3.2 Texas Parks and Wildlife Code

Texas endangered species legislation in 1973 and subsequent amendments have established a state regulatory program for the management and protection of endangered species (i.e., species in danger of extinction) and threatened species (i.e., likely to become endangered within the foreseeable future). Chapters 67 and 68 of the Texas Parks and Wildlife Code authorize TPWD to formulate lists of threatened and endangered fish and wildlife species and to regulate the taking or possession of the species. Under this statutory authority, the TPWD regulates the taking, possession, transport, export, processing, selling or offering for sale, or shipping of threatened or endangered species of fish and wildlife.

## 3.3 Migratory Bird Treaty Act

Passed in 1918, MBTA utilizes treaties between the United States, Canada, Mexico, and Russia to protect migratory bird species populations. Under federal regulation, the MBTA makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird without a USFWS-issued permit.

## 3.4 Bald and Golden Eagle Act

Enacted in 1940, the BGEPA has since undergone various amendments and ultimately aids in the federal protection and management of bald eagles and golden eagles. The BGEPA prohibits the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export, or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit.

# 4.0 HABITAT ASSESSMENT

## 4.1 Terrestrial Habitats

### *4.1.1 Geology*

Two geologic units occur within the study area: Alluvium (Qal) and the Lisie Formation (Ql) (**Figure 4**). The Alluvium geologic unit makes up the majority of the study area. Major and minor constituents within the Alluvium geologic unit consist of fine-detrital and coarse-detrital. Coloration includes dark gray to dark brown. The Lissie Formation geologic unit makes up the southwestern portion of the study area. Major and minor constituents for this unit consist of fine - detrital and coarse - detrital. Coloration includes gray, dark brown, and red. **Table 1** summarizes all geologic units mapped within the study area.

*Table 1: Summary of Geologic Units*

| Geologic Unit Name | Description | Acreage in Study Area | Percent of Study Area |
|---|---|---|---|
| Alluvium (Qal) | Floodplain deposits, including low terrace deposits 3-8 feet above floodplain subject to flooding; clay, silt, sand, gravel, and organic matter; silt and clay, calcareous, dark gray to dark brown; sand, largely quartz; gravel, siliceous, mostly chert, quartzite, and petrified wood, along Colorado River much limestone, igneous, and metamorphic rock, probably mostly reworked from terrace deposits; fluviatile morphology well preserved with point bars, oxbows, and abandoned channel segments. | 194 | 97% |

| | | | |
|---|---|---|---|
| Lissie Formation (Ql) | Consist of three mapped units, including alluvium undifferentiated as to texture and origin, fine grained channel facies, and fine-grained overbank facies, together form deltaic plain that parallels the Gulf Coast, contains Pleistocene vertebrate fauna, sand, silt, clay, some gravel. | 7.0 | 3% |

Source: USGS Texas Geologic Database

### 4.1.2 Soils

Four soil units occur within the study area (**Figure 5**). Characteristics of each soil unit are summarized in **Table 2**. Based on field observations, silty clay soils dominate the study area.

Table 2: Summary of Soil Units

| Soil Unit Symbol | Map Unit Name | Drainage Class | Landform | Depth to Restrictive Layer | Acreage in Study Area | Percent of Study Area |
|---|---|---|---|---|---|---|
| Br | Bruno loamy fine sand | Excessively drained | Flood plains | >80 inches | 0.1 | <1% |
| HatA | Hatliff-Pluck-Kian complex, 0 to 1 percent slopes, frequently flooded | Well drained | Flood plains | >80 inches | 38.7 | 19.3% |
| Kn | Kenney loamy fine sand, 0 to 2 percent slopes | Well drained | Terraces | >80 inches | 160.2 | 79.8% |
| SegB | Segno fine sandy loam, 1 to 3 percent slopes | Well drained | Interfluves | >80 inches | 1.7 | <1% |

Source: USDA NRCS Web Soil Survey

### 4.1.3 Vegetation

The TPWD EMST database is a 398-class, 10-meter spatial resolution land classification map for Texas. According to the EMST data, the study area contains eight vegetation types (**Figure 6**). The most common vegetation type within the study area Post Oak Savanna: Post Oak Motte and Woodland, which makes up 85 percent of the study area (approximately 158.6 acres) and is dominated by canopy cover including loblolly pine (*Pinus taeda*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), sugar hackberry (*Celtis laevigata*), and cedar elm (*Ulmus crassifolia*). **Table 3** summarizes all EMST vegetation types mapped within the study area.

*Table 3: Summary of EMST Types*

| EMST Vegetation Types – Common Name | Dominant Plant Species | Acreage in Study Area | Percent of Study Area |
|---|---|---|---|
| Barren | Little to no vegetative cover | 0.3 | <1% |
| Gulf Coast: Coastal Prairie | *Schizachyrium scoparium, Sorghastrum nutans, Bothriochloa laguroides* ssp. *Torreyana, Bouteloua curtipendula, Andropogon gerardii, Nassella leucotricha, Paspalum pubiflorum* | 3.17 | 1.6% |

| | | | |
|---|---|---|---|
| Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed Forest | *Pinus taeda, Pinus elliottii, Juniperus virginiana* | 0.2 | <1% |
| Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest | *Liquidambar styraciflua, Quercus nigra, Celtis laevigata, Ulmus crassifolia, Fraxinus pennsylvanica* | 32.0 | 15.9% |
| Pineywoods: Small Stream and Riparian Wet Prairie | *Cynodon dactylon, Lolium perenne, Sorghum halepense, Schizachyrium scoparium, Panicum virgatum, Tripsacum dactyloides* | 0.1 | <1% |
| Pineywoods: Southern Mesic Hardwood Forest | *Fagus grandifolia, Magnolia grandiflora, Pinus echinata* | 1.9 | <1% |
| Post Oak Savanna: Post Oak Motte and Woodland | *Quercus stellata, Quercus marilandica, Quercus fusiformis, Carya texana, Celtis laevigata, Prosopis glandulosa, Quercus nigra, Diospyros virginiana, Juniperus virginiana* | 158.6 | 79% |
| Native Invasive: Deciduous Woodland | *Prosopis glandulosa, Celtis laevigata, Ulmus crassifolia, Juiperus ashei, Quercus stellata* | 0.97 | <1% |
| Pine Plantation >3 meters tall | *Pinus taeda, Pinus echinate, Pinus elliottii, Liquidambar styraciflua, Quercus nigra, Nyssa sylvatica, Quercus falcata* | 3.38 | 1.7% |
| Urban Low Intensity | Impervious surface | <1 | <1% |

Based on the field investigation, two terrestrial habitat types were observed within the study area, displayed in **Figure 7**. **Appendix B** contains photos of the observed habitat types, which correspond to the photo point locations provided in **Figure 8**. The upland woodland habitat type is the most prevalent, making up 69 percent of the study area (138 acres) This habitat community was dominated canopy cover including loblolly pine (*Pinus taeda*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), sugar hackberry (*Celtis laevigata*), and cedar elm (*Ulmus crassifolia*). Herbaceous vegetation within the upland woodland community includes American beautyberry (*Callicarpa americana)*, little bluestem (*Schizachyrium* scoparium), American holly (*Ilex* opaca), and wax myrtle (*Morella cerifera*). Riparian woodland is the second most common terrestrial habitat type and makes up 17 percent (35 acres) of the study area. This vegetation community was dominated by tree species, including river birch (*Betula nigra*), sweet gum (*Liquidambar styraciflua*), Siberian elm (*Ulmus pumila*), Chinese tallow tree (*Triadica sebifera*), and willow oak (*Quercus phellos*). Herbaceous species within the riparian woodland vegetation community includes heath aster (*Symphyotrichum ericoides*), Carolina elephant's foot (*Elephantopus carolinianus*), and yaupon holly (*Ilex vomitoria*).

## 4.2 Aquatic Habitats

Based on the field investigation, five aquatic habitat types occur within the study area: emergent wetland, forested wetland, open water ponds, ephemeral stream and perennial stream (**Figure 7**).

The largest area of wetland habitat identified within the study area was within an emergent wetland-freshwater marsh complex located on the southwest portion of the study area. Some additional, smaller areas emergent wetland habitat was identified adjacent to Spring Creek and along pond fringes. Emergent wetland habitat was dominated by species such as dotted smartweed (*Persicaria punctata*), soft rush (*Juncus effusus*), hempvine (*Mikania scandens*), alligator weed (*Alternanthera philoxeroides*), eastern common buttonbush (*Cephalanthus occidentalis*), and Cherokee sedge (*Carex cherokeensis*).

Forested wetland habitat was observed primarily in narrow depressional areas of the floodplain throughout the study area. These features were dominated by hydrophytic canopy and herbaceous vegetation

including lobolly pine (*Pinus taeda*), deer-tongue witchgrass (*Panicum clandestinum*), swamp smartweed (*Persicaria hydropiperoides*), raven's foot sedge (*Carex crus-corvi*), and dotted smartweed (*Persicaria punctata*).

Four open water features were observed within the study area. Generally, these features are impoundments of the surface tributary system located in shallow floodplains that allow a relatively static water level to persist.

Three ephemeral streams were identified during field investigations that served as drainage features between emergent wetland-pond complexes and Spring Creek. This system also includes two open water ponds and two emergent wetland features that surround the ponds.

Spring Creek is a perennial stream the flows west-east through the northernmost portion of the study area then bends to the northwest-southeast across the full length the study area's eastern boundary. Within the study area, Spring Creek only extends for approximately 764 feet then extends approximately 1.2 mile along the eastern boundary before continuing southward. At the time of the field visit, the stream was fast-flowing and Halff observed moderate depth for Spring Creek within the study area. Boulders, cobble, gravel, and loamy clay substrates with overhanging vegetation, deep pools, emergent vegetation, undercut banks, logs/brush, and variable substrate composition were observed within Spring Creek**.** No fish or aquatic macroinvertebrates were observed during the field investigation.

# 5.0 RESULTS

## 5.1 Texas Natural Diversity Database

On October 16, 2023, TPWD provided ArcGIS shapefile data for all reported species within Harris County, Texas.

### *5.1.1 Element Occurrences within the Study Area*

The review of the TXNDD records indicate that one known element occurrence (EO) occurs within the study area. The bald eagle (*Haliaeetus leucocephalus*) is listed as SGCN by TPWD. TXNDD records indicate that the last known observation of this species occurring in the area was in 2003.

### *5.1.2 Element Occurrences Proximal to the Study Area*

A review of the TXNDD records indicates two known EOs occur within the one-mile buffer of the study area. The Sabine shiner (*Notropis sabinae*) is listed as SGCN but was last reported in the area was in 2002. Additionally, one EO record for the alligator snapping turtle (which is listed as proposed threatened by USFWS and TPWD) was reported within the one-mile buffe. The last observation of this species within the one-mile buffer was reported in March 2020. TXNDD records also indicate that sixteen EOs for the federally endangered red-cockaded woodpecker (*Dryobates borealis*), three EOs for the state-listed threatened western creek chubsucker (*Erimyzon claviformis*), three EO for the state-listed endangered Texas prairie dawn (*Hymenoxys texana*), four EOs for the state-listed sandbank pocketbook (*Lampsilis satura*), four EOs for the state-listed threatened and federally proposed threatened alligator snapping turtle (*Macrochelys temminckii*), one EO for the chub shiner (*Notropis potteri*), and eleven EOs for the state-lited Houston daisy (*Rayjacksonia aurea*) are located in the quadrangles surrounding the study area. TXNDD EOs surrounding the study area are detailed in **Figure 9**.

## 5.2 Federally Listed Species

On November 29, 2023, Halff received an Official Species List (**Appendix C**) from the Texas Coastal Ecological Services Field Office, which identified six federally listed threatened and endangered species, proposed to be listed species, and candidate species that may occur within the study area. No critical habitat was also identified within the study area. A table summarizing the federally listed species, suitable habitat descriptions, and effect determinations is included in **Appendix C**. Based on habitat conditions within the study area, it is Halff's opinion that the study area may contain suitable habitat for the federally listed endangered red-cockaded woodpecker (*Picoides borealis*) and the proposed threatened alligator snapping turtle (*Macrochelys temminckii*).

## 5.3 State-listed Species

On November 2, 2023, Halff acquired a list of rare, threatened, and endangered species whose geographic range may include Harris County. A review of the TPWD RTEST by County list (**Appendix D**) identified 85 species, with 27 species designated as threatened or endangered and 58 as SGCN. Species designated as SGCN are declining or rare and need attention to recover or prevent the need to list under state or federal regulation. Species designated as SGCN do not have regulatory protection and will not be discussed further. However, a table summarizing the state-listed species, suitable habitat descriptions, and impact determinations is included in **Appendix D**. Based on habitat conditions within the study area; it is Halff's opinion that the study area may contain suitable habitat for the state-listed endangered Houston toad, threatened swallow-tailed kite, threatened Rafinesque's big-eared bat, and threatened sandbank pocketbook and thus may impact these species.

# 6.0 CONCLUSION

Based on a field investigation, desktop analysis of the study area, and suitable habitat descriptions for federally listed species, it is Halff's opinion that suitable habitat for the federally listed endangered red-cockaded woodpecker, is present within the study area. Therefore, the proposed project may affect federally listed species and informal consultation with USFWS may be recommended.

Similarly, suitable habitat for the state-listed endangered Houston toad, threatened swallow-tailed kite, threatened Rafinesque's big-eared bat, and threatened sandbank pocketbook is present within the study area. Therefore, the proposed project may impact state-listed species and early coordination with TPWD may be recommended. Implementation of species-appropriate BMPs are recommended for both federally- and state-listed species before any construction activities begin.

Additionally, the study area may contain suitable habitat for the monarch butterfly (*Danaus plexippus*) that is currently listed as a candidate species awaiting a listing determination from the USFWS. Under Section 4 of the Endangered Species Act (ESA), candidate species do not receive statutory protection, albeit the classification of a candidate species may warrant future protection under the ESA upon a listing determination. Therefore, the monarch butterfly was not considered in the threatened and endangered species review for the proposed project. One mammal species, the tricolored bat (*Perimyotis subflavus*), is listed as proposed endangered; and one reptile species, the alligator snapping turtle (*Macrochelys temminckii*) is listed as a proposed threatened. Similarly, proposed species are listed as candidate species until the official status is updated. Thus, the tricolored bat and the alligator snapping turtle were not considered in the threatened and endangered species review at this time.

# 7.0 REFERENCES

Campbell, L. (2003). Endangered and Threatened Animals of Texas: Their Life History and Management. Austin, Texas: Texas Parks and Wildlife Press. Revised and approved by USFWS, 2003.

Poole, J. M., W. R. Carr, D. M. Price, and J. R. Singhurst. (2007). Rare Plants of Texas. Texas A&M University Press, College Station, TX. https://www.tamupress.com/book/9781585445578/rare-plants-of-texas/. Accessed November 2, 2023.

TPWD. (2021). Texas Natural Diversity Database Element Occurrence data export. Wildlife Diversity Program of Texas Parks & Wildlife Department. Accessed October 16, 2023.

USFS. (n.d.). Monarch Butterfly Habitat Needs. USDA. Retrieved September 26, 2023, from https://www.fs.usda.gov/wildflowers/pollinators/Monarch_Butterfly/habitat/index.shtml.

USFWS. (2013b). Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Comal Springs Dryopid Beetle, Comal Springs Riffle Beetle, and Peck's Cave Amphipod; final rule. 74 Fed. Reg. 2013-09895 (Oct. 23, 2013) (to be codified at 50 C.F.R. pt. 17).

_____. (2020). Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly, 50 Federal Register, pp. 81813 – 81822.

_____. (2021a). Endangered and Threatened Wildlife and Plants; Endangered Species Status With Critical Habitat for Guadalupe Fatmucket, Texas Fatmucket, Guadalupe Orb, Texas Pimpleback, and False Spike, and Threatened Species Status With Section 4(d) Rule and Critical Habitat for Texas Fawnsfoot. Federal Register 86(163):47916-48011.

_____. (2021b). Endangered and threatened wildlife and plants; threatened species status with a Section 4(d) rule for bracted twistflower and designation of critical habitat. Federal Register 86:62668–62705. https://www. federalregister.gov/documents/2021/11/10/2021-24343/endangered-and-threatenedwildlife-and-plants-threatened-species-status-with-a-section-4d-rule-for

_____. (2023). USFWS Official Species List. Austin, TX: Austin Ecological Services Field Office. November 29, 2023.

# Appendix A: Figures


N

0 2.5 5 10

Miles

## Legend

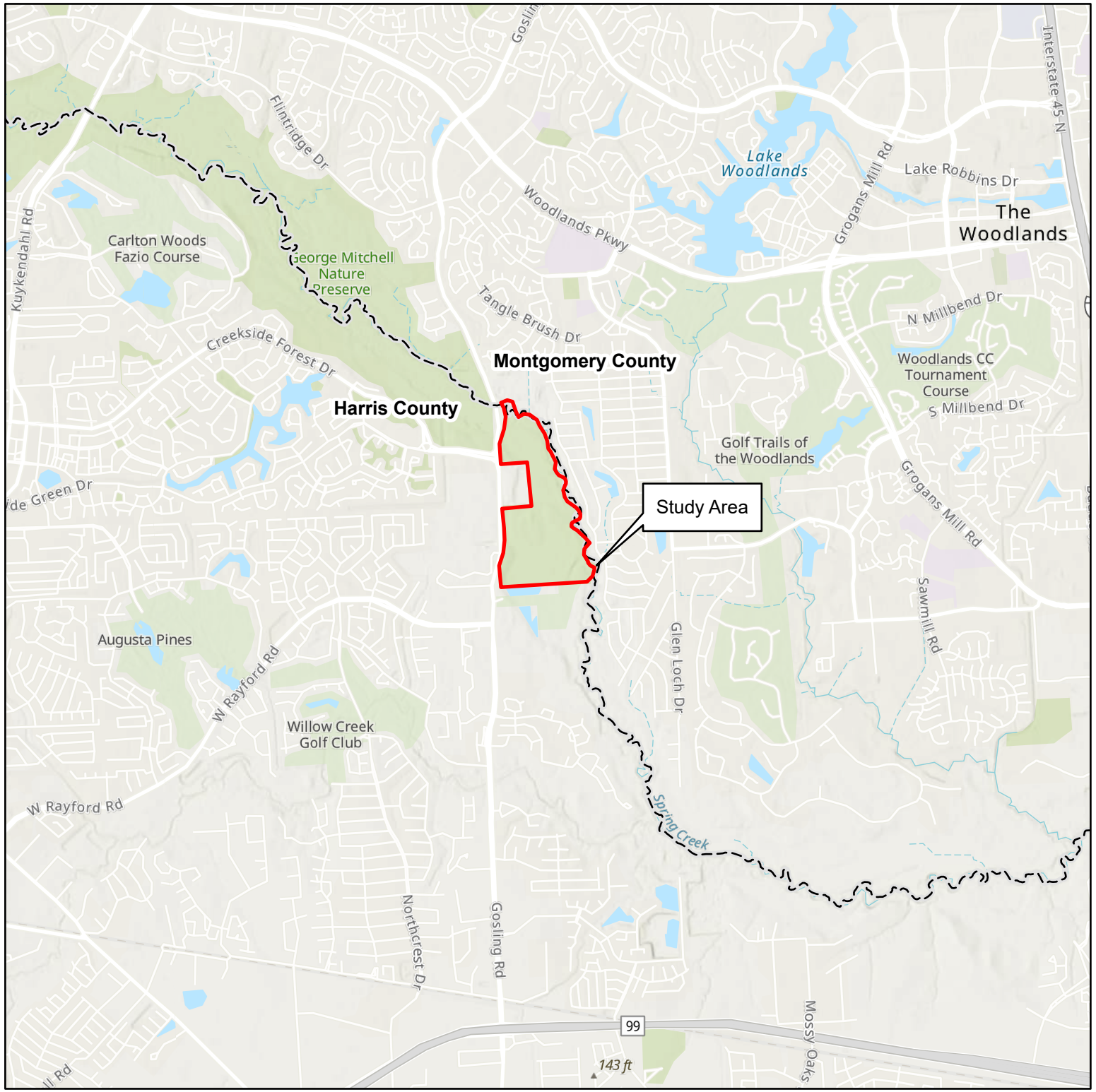
- Study Area
- County Boundary

Notes:
1. Map Center: 95.51389°W 30.13303°N
2. World Street Map: Baylor University, City of Houston, HPB, Montgomery County, TX GIS Office, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 1**
**Location Map**

halff




N

0 2,000 4,000 8,000

Feet

## Legend

- Study Area
- County Boundary

Notes:
1. Map Center: 95.50047°W 30.13341°N
2. World Topographic Map: Baylor University, City of Houston, HPB, Montgomery County, TX GIS Office, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA
World Hillshade: Esri, NASA, NGA, USGS, FEMA

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 2**
**Vicinity Map**

halff


N

0 400 800 1,600

Feet

## Legend

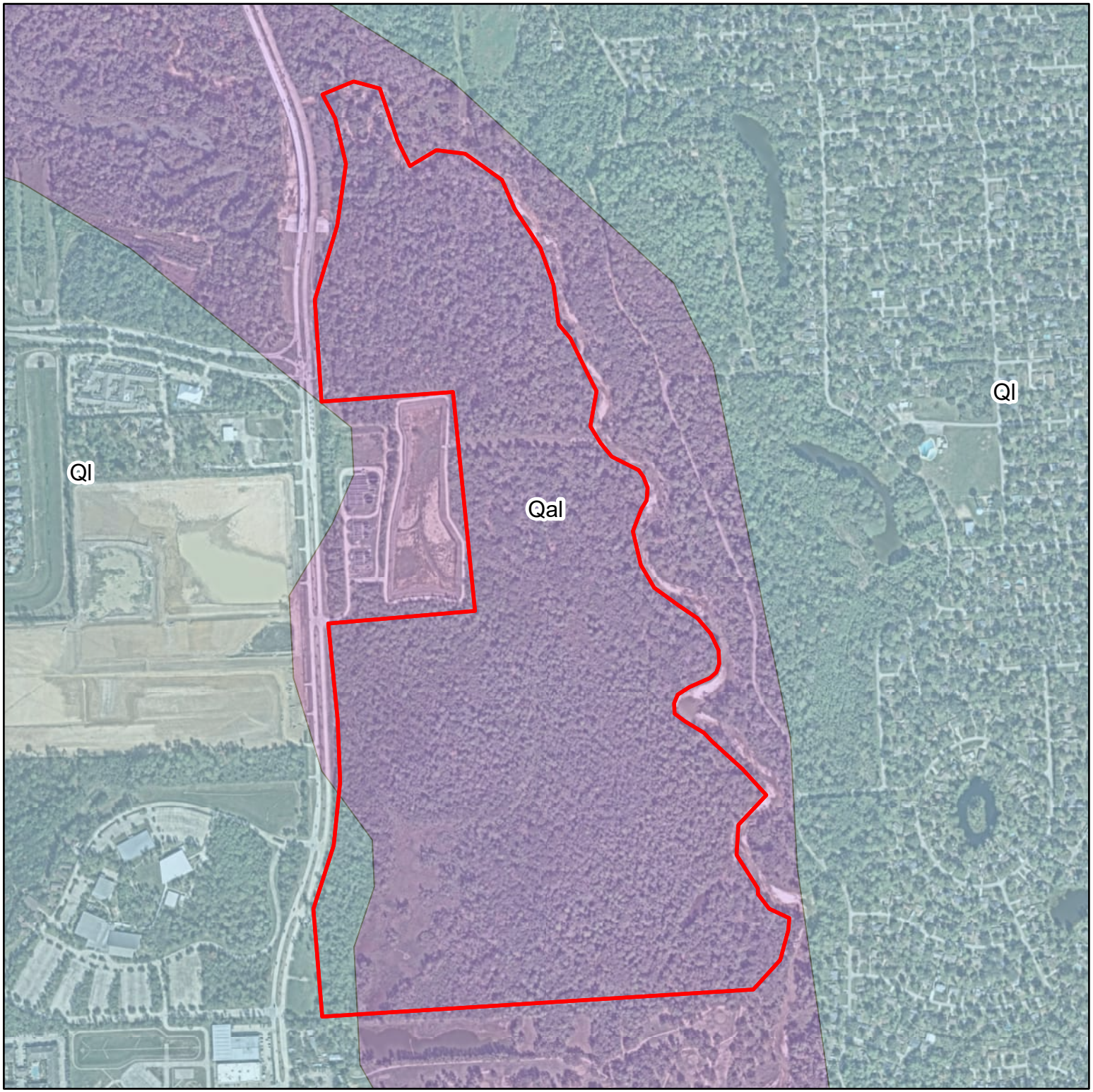
- Study Area
- County Boundary

Notes:
1. Map Center: 95.50045°W 30.13772°N
2. Nearmap WMS Server: [2023]

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 3**
**Aerial Imagery Map**

halff




N

0 400 800 1,600

Feet

**Legend**

Study Area

Geologic Unit

Qal - Alluvium

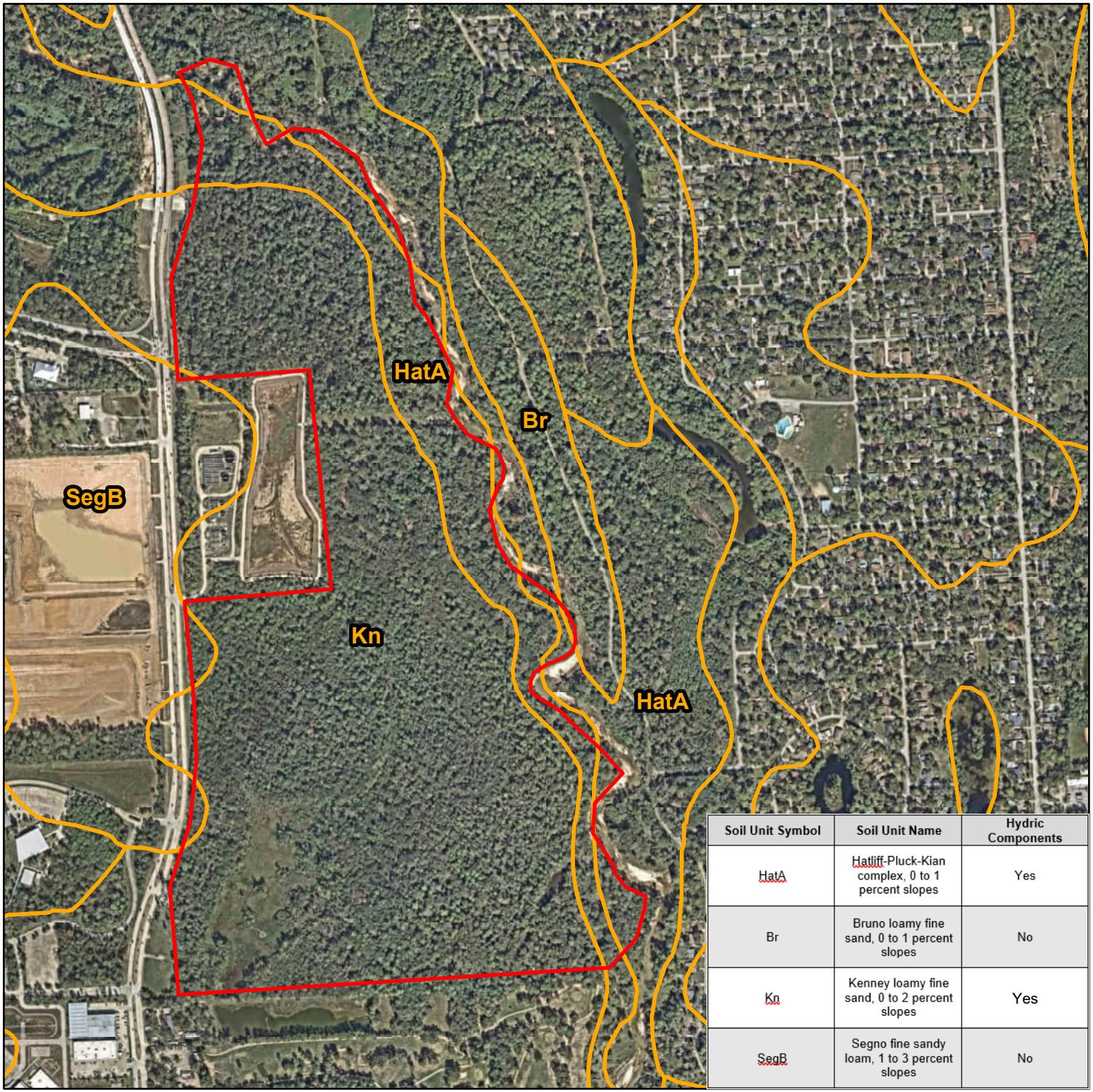
Ql - Lissie Formation

Notes:
1. Map Center: 95.50045°W 30.13772°N
2. Nearmap WMS Server: [2023]

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 4**
**Geology Map**

halff




| Soil Unit Symbol | Soil Unit Name | Hydric Components |
|---|---|---|
| HatA | Hatliff-Pluck-Kian complex, 0 to 1 percent slopes | Yes |
| Br | Bruno loamy fine sand, 0 to 1 percent slopes | No |
| Kn | Kenney loamy fine sand, 0 to 2 percent slopes | Yes |
| SegB | Segno fine sandy loam, 1 to 3 percent slopes | No |

N

0 400 800 1,600

Feet

## Legend

Study Area

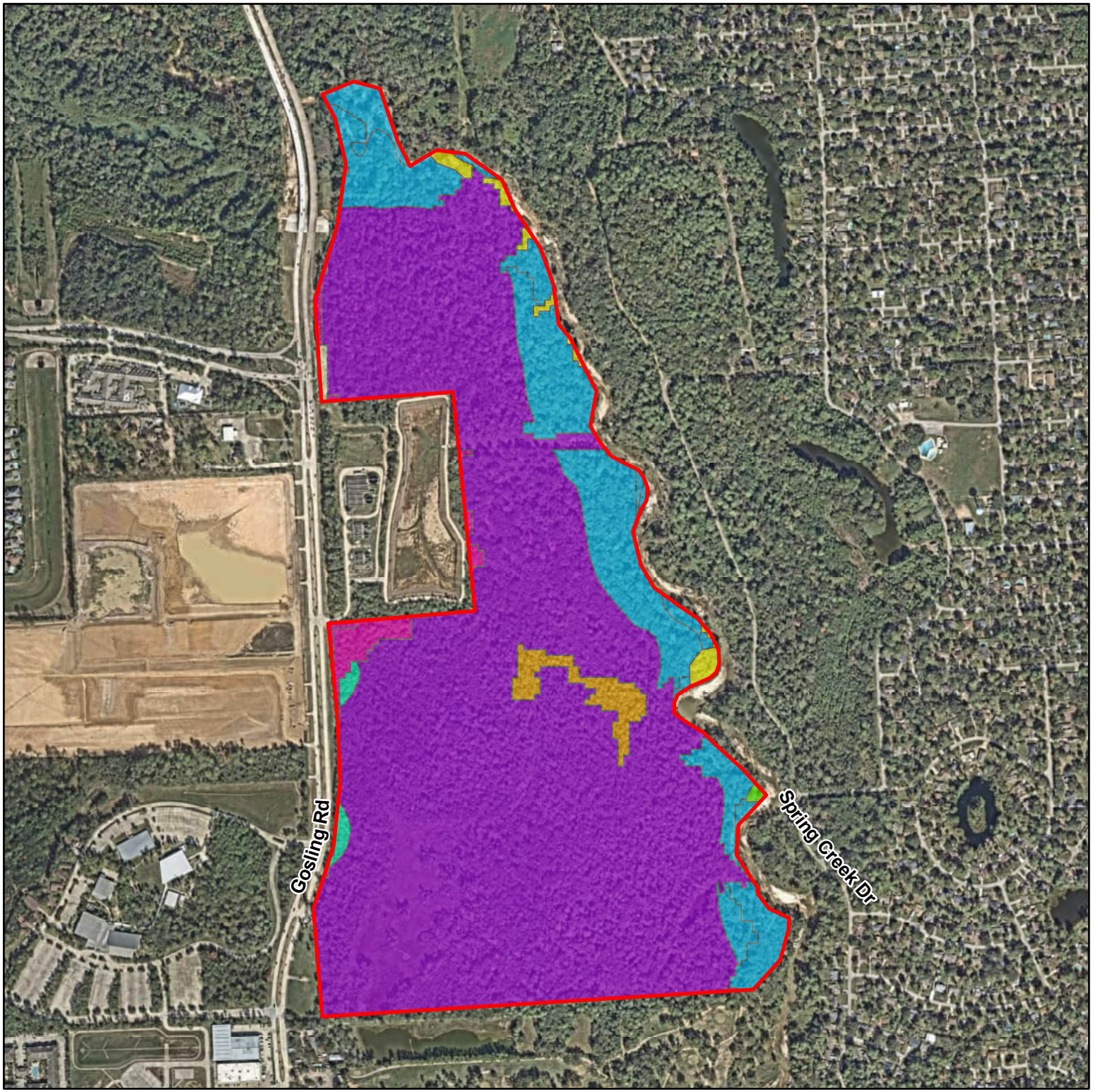
SSURGO Soil Unit

Notes:
1. Map Center: 95.49779°W 30.13727°N
2. Nearmap WMS Server: [2023]
3. USDA NRCS Web Soil Survey

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 5**
**Soil Map**

halff




N

0 250 500 1,000

Feet

**Legend**

Study Area

EMST Vegetation Type

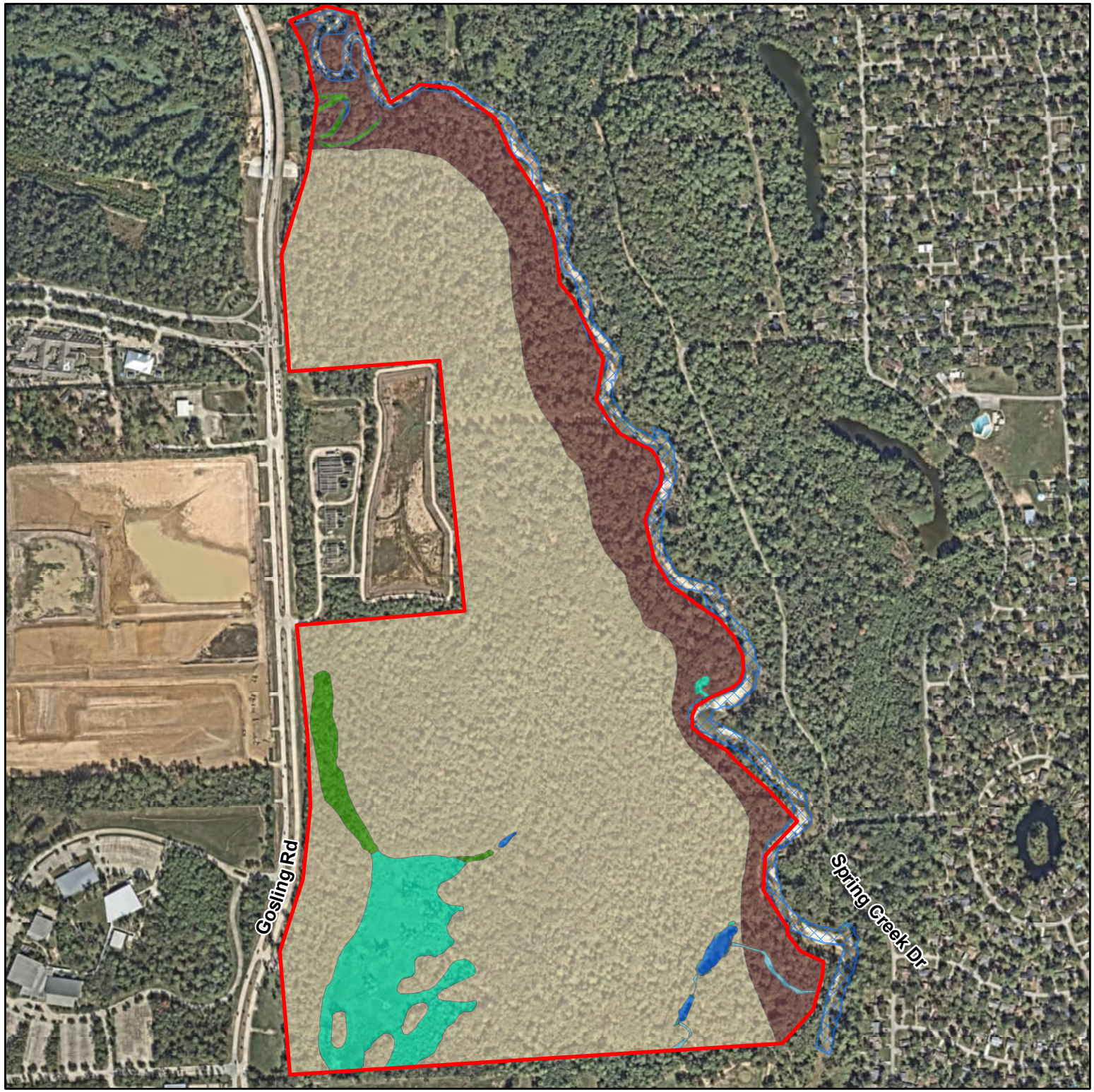
- Barren
- Gulf Coast: Coastal Prairie
- Native Invasive: Deciduous Woodland
- Pine Plantation > 3 meters tall
- Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest
- Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed Forest
- Pineywoods: Small Stream and Riparian Wet Prairie
- Pineywoods: Southern Mesic Hardwood Forest
- Post Oak Savanna: Post Oak Motte and Woodland

Notes:
1. Map Center: 95.50045°W 30.13772°N
2. Nearmap WMS Server: [2023]

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 6**
**EMST Map**

halff




N

0 350 700 1,400

Feet

**Legend**

Study Area

Observed Habitat

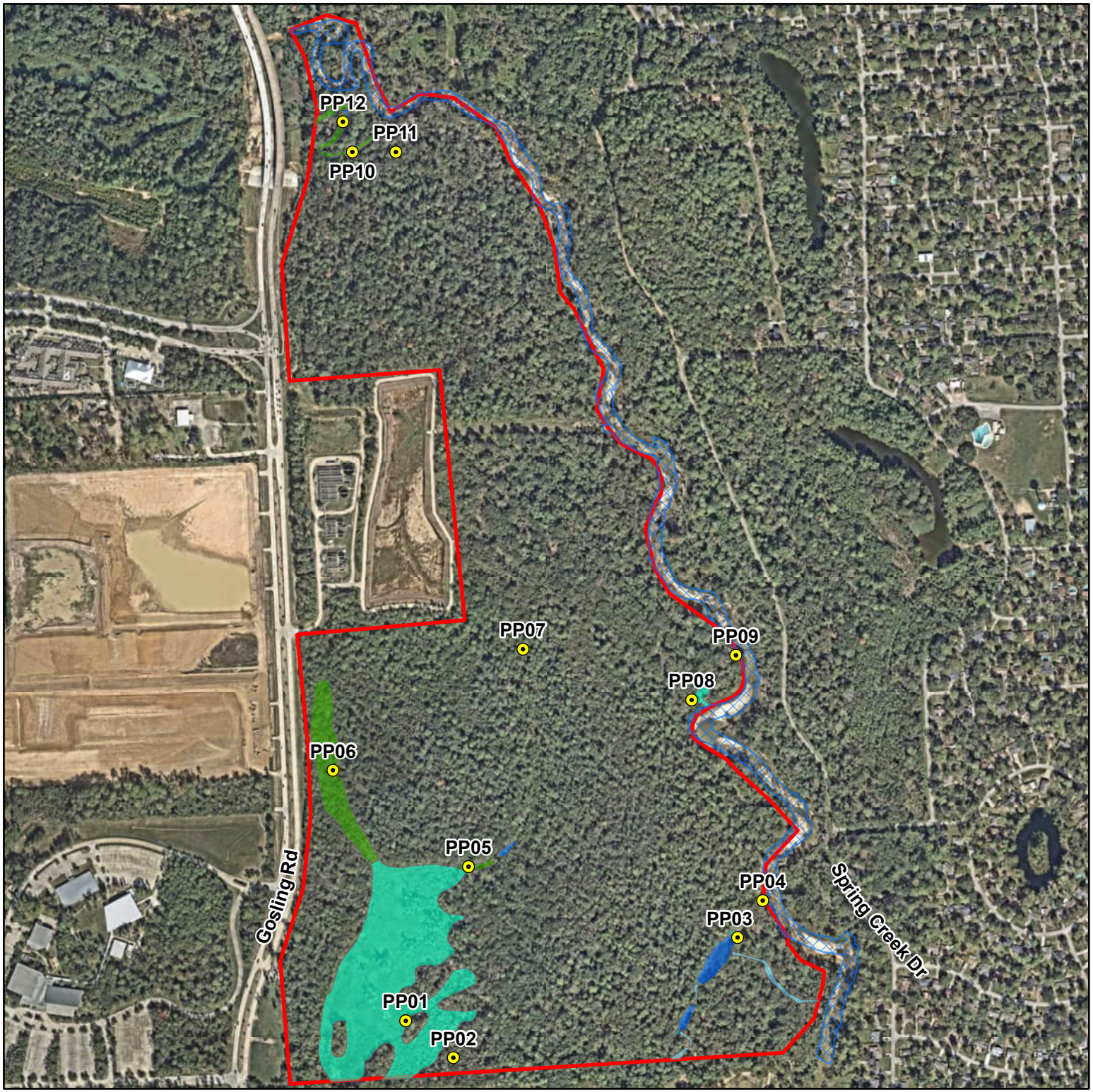
- Riparian Woodland
- Upland Woodland
- Emergent Wetland
- Forested Wetland
- Ephemeral Stream
- Open Water Pond
- Perennial Stream

Notes:
1. Map Center: 95.50043°W 30.13759°N
2. Nearmap WMS Server: [2023]

South Gosling Future Park
Harris County, Texas
Date: 12/1/2023

**Figure 7**
**Observed Habitat Map**

halff




N

0 350 700 1,400

Feet

## Legend

- Study Area
- Photo Point

Aquatic Features

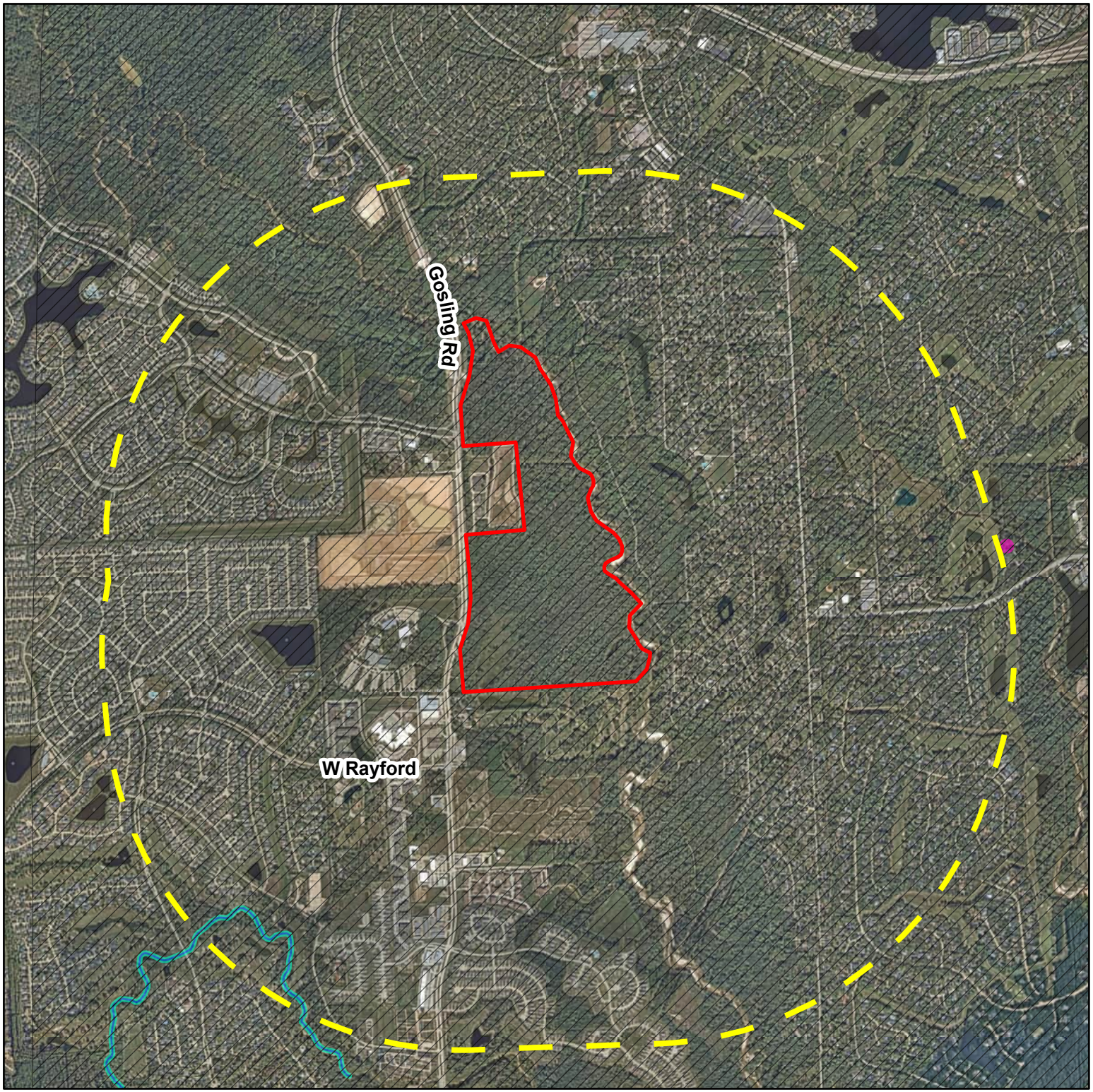
- Emergent Wetland
- Forested Wetland
- Ephemeral Stream
- Open Water Pond
- Perennial Stream

Notes:
1. Map Center: 95.50045°W 30.13772°N
2. Nearmap WMS Server: [2023]

South Gosling Future Park
Harris County, Texas
Date: 12/1/2023

**Figure 8**
**Photo Point Location Map**

halff




N

0 1,000 2,000 4,000

Feet

**Legend**

- Study Area
- 1-Mile Buffer

Species Common Name

- Sabine shiner
- alligator snapping turtle
- western creek chubsucker
- bald eagle

Notes:
1. Map Center: 95.50085°W 30.13602°N
2. Nearmap WMS Server: [2023]

South Gosling Future Park
Harris County, Texas
Date: 11/7/2023

**Figure 9**
**TXNDD Element Occurrence Map**

halff

# Appendix B: Photo Point Log

## Appendix B: Photo Point Log

Photo Point (PP-1): Emergent wetland habitat, facing west.

PP-2: Upland woodland habitat, facing east.

PP-3: Open water pond surrounded by emergent wetland habitat, facing southeast.

PP-4: Perennial stream habitat, facing north.

PP-5: Forested wetland habitat, facing west.

PP-6: Forested wetland habitat, facing south.

PP-7: Upland woodland habitat, facing south.

PP-8: Emergent wetland habitat from Spring Creek overbank flow, facing northeast.

PP-9: Perennial stream habitat, facing southeast.

PP-10: Riparian woodland habitat, facing east.

PP-11: Upland woodland habitat, facing north.

PP-12: Open water pond surrounded by forested wetland habitat, facing west.

# Appendix C: USFWS Information

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
Phone: (281) 286-8282 Fax: (281) 488-5882

In Reply Refer To: November 29, 2023
Project Code: 2024-0020745
Project Name: South Gosling Future Park

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Corpus Christi, and Alamo, Texas, have combined administratively to form the Texas Coastal Ecological Services Field Office. All project related correspondence should be sent to the field office address listed below responsible for the county in which your project occurs:

Project Leader; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058
*Angelina*, *Austin*, *Brazoria*, *Brazos*, *Chambers, Colorado, Fayette, Fort Bend, Freestone, Galveston, Grimes, Hardin, Harris, Houston, Jasper, Jefferson, Leon, Liberty, Limestone, Madison, Matagorda, Montgomery, Newton, Orange, Polk, Robertson, Sabine, San Augustine, San Jacinto, Trinity, Tyler, Walker, Waller, and Wharton.*

Assistant Field Supervisor, U.S. Fish and Wildlife Service; 4444 Corona Drive, Ste 215; Corpus Christi, Texas 78411
*Aransas, Atascosa, Bee, Brooks, Calhoun, De Witt, Dimmit, Duval, Frio, Goliad, Gonzales, Hidalgo, Jackson, Jim Hogg, Jim Wells, Karnes, Kenedy, Kleberg, La Salle, Lavaca, Live Oak, Maverick, McMullen, Nueces, Refugio, San Patricio, Victoria, and Wilson.*

U.S. Fish and Wildlife Service; Santa Ana National Wildlife Refuge; Attn: Texas Ecological Services Sub-Office; 3325 Green Jay Road, Alamo, Texas 78516
*Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata*.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as

amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/media/endangered-species-consultation-handbook.

Non-Federal entities may consult under Sections 9 and 10 of the Act. Section 9 and Federal regulations prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined (50 CFR § 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. “Harass” is defined (50 CFR § 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Should the proposed project

have the potential to take listed species, the Service recommends that the applicant develop a Habitat Conservation Plan and obtain a section 10(a)(1)(B) permit. The Habitat Conservation Planning Handbook is available at: https://www.fws.gov/library/collections/habitat-conservation-planning-handbook.

Migratory Birds:
In addition to responsibilities to protect threatened and endangered species under the Act, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts visit: https://www.fws.gov/program/migratory-birds.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable National Environmental Policy Act (NEPA) documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

# OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Texas Coastal Ecological Services Field Office**
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(281) 286-8282

# PROJECT SUMMARY

Project Code: 2024-0020745
Project Name: South Gosling Future Park
Project Type: Recreation - New Construction
Project Description: Development of new parkland in Harris County, Texas.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@30.1376287,-95.50033265424373,14z


Counties: Harris and Montgomery counties, Texas

# ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

| NAME | STATUS |
|---|---|
| Tricolored Bat *Perimyotis subflavus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/10515 | Proposed Endangered |

## BIRDS

| NAME | STATUS |
|---|---|
| Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* | Threatened |
| No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/10477 | |
| Piping Plover *Charadrius melodus* | Threatened |
| Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>This species only needs to be considered under the following conditions:<br>▪ Wind related projects within migratory route.<br>Species profile: https://ecos.fws.gov/ecp/species/6039 | |
| Red-cockaded Woodpecker *Picoides borealis* | Endangered |
| No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/7614 | |
| Rufa Red Knot *Calidris canutus rufa* | Threatened |
| There is **proposed** critical habitat for this species.<br>This species only needs to be considered under the following conditions:<br>▪ Wind related projects within migratory route.<br>Species profile: https://ecos.fws.gov/ecp/species/1864 | |

## REPTILES

| NAME | STATUS |
|---|---|
| Alligator Snapping Turtle *Macrochelys temminckii* | Proposed Threatened |
| No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/4658 | |

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus* | Candidate |
| No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | |

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

# BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

**There are bald and/or golden eagles in your project area.**

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Sep 1 to Jul 31 |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

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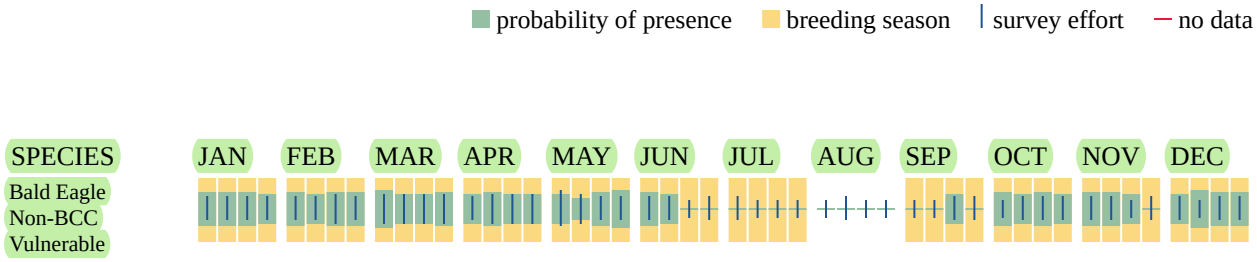



Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| American Kestrel *Falco sparverius paulus*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9587 | Breeds Apr 1 to Aug 31 |

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Sep 1 to Jul 31 |
| Brown-headed Nuthatch *Sitta pusilla*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9427 | Breeds Mar 1 to Jul 15 |
| Chimney Swift *Chaetura pelagica*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9406 | Breeds Mar 15 to Aug 25 |
| Kentucky Warbler *Oporornis formosus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9443 | Breeds Apr 20 to Aug 20 |
| Lesser Yellowlegs *Tringa flavipes*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9679 | Breeds elsewhere |
| Pectoral Sandpiper *Calidris melanotos*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9561 | Breeds elsewhere |
| Prothonotary Warbler *Protonotaria citrea*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9439 | Breeds Apr 1 to Jul 31 |
| Red-headed Woodpecker *Melanerpes erythrocephalus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9398 | Breeds May 10 to Sep 10 |
| Sprague's Pipit *Anthus spragueii*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/8964 | Breeds elsewhere |
| Swallow-tailed Kite *Elanoides forficatus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/8938 | Breeds Mar 10 to Jun 30 |

| NAME | BREEDING SEASON |
|---|---|
| Wood Thrush *Hylocichla mustelina*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9431 | Breeds May 10 to Aug 31 |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

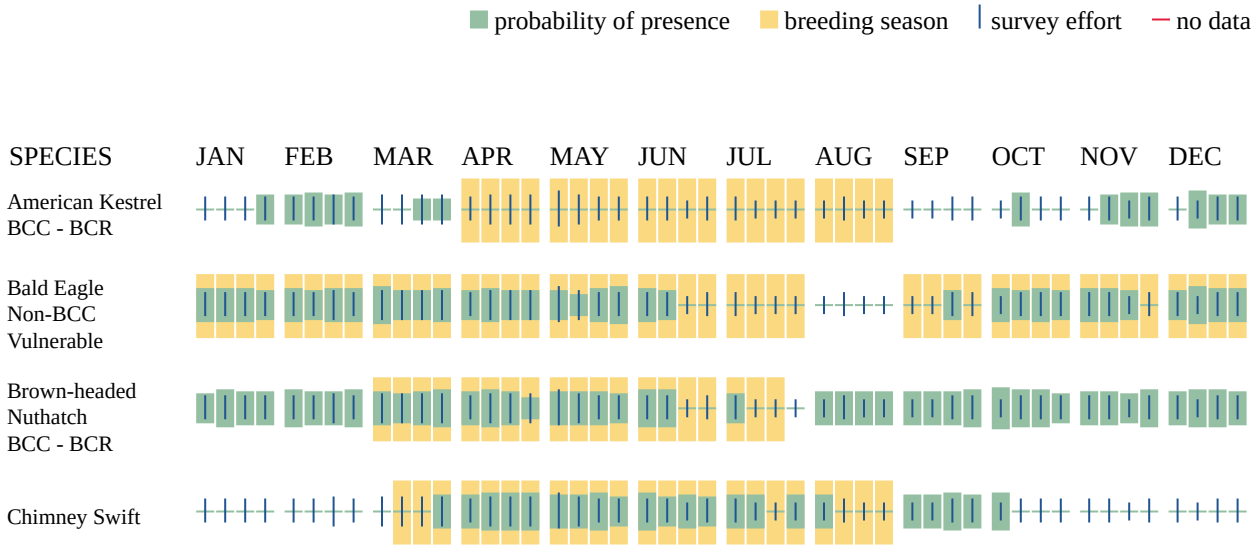
**Probability of Presence** (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.




Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

# IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Peter Van Zandt
Address: 13620 Briarwick Drive, Building C, Suite 100
City: AUSTIN
State: TX
Zip: 78729
Email pvanzandt@halff.com
Phone: 7372708711

## Appendix C: Summary of Federally Listed Threatened and Endangered Species

| Species | Federal Status | Description of Suitable Habitat | Effect Determination | Explanation for Effect/Take Determination |
|---|---|---|---|---|
| | | **MAMMALS** | | |
| Tricolored Bat *Perimyotis subflavus* | PE | In Texas, tricolored bats may be found year-round. In the spring, summer, and fall they primarily nest on leaves or bark of live and dead trees, or epiphytic vegetation such as Spanish moss (Tillandsia usneoides). They may also roost among ferns and crevices on limestone and sandstone bluffs and cliffs during this time. From late winter to early spring, they may roost in culverts, abandoned buildings, and large hollow trees. Tricolored bats typically roost alone or in small groups. During the winter they may go into periods of torpor during colder temperatures however they will emerge to feed on warm evenings. Foraging habitat consists of open woodlands, riparian corridors, and forest edge. | N/A | As a proposed species lacking federal protection under the ESA, an effect determination is not warranted at this time. However, if construction activities for this project are not completed prior to the listing of this species, the determination of effect and USFWS consultation needs may need to be reevaluated once a listing decision is made since the project may impact the tricolored bat. |
| | | **BIRDS** | | |
| Eastern black rail | T | This species prefers salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps. They nest in or along the edge of marshes and sometimes on damp ground but are usually on mats of the previous year's dead grasses. Their nest is usually hidden in the marsh grass or at the base of Salicornia. | No Effect | The study area does not contain salt, brackish, nor freshwater marsh habitats that have the vegetation to support this species. Therefore, the proposed project will have no effect on the species. |
| Piping plover *Charadrius melodus* | T | This bird is a wintering migrant along the Texas Gulf Coast. It inhabits beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Algal flats appear to be the highest quality habitat as they have continuous availability throughout all tidal conditions. | No Effect | This species only needs to be considered for wind energy projects, and the necessary open sandy habitat is not present within the study area. Therefore, the proposed project would have no effect on the species. |

| Species | Federal Status | Description of Suitable Habitat | Effect Determination | Explanation for Effect/Take Determination |
|---|---|---|---|---|
| Red-cockaded woodpecker *Picoides borealis* | E | This species prefers longleaf pines (*Pinus palustris*), but other species of pine trees are acceptable. Red-cockaded woodpeckers uses pine trees to create cavities within the trunk to nest. Upland woodlands, riparian areas, and pine forests are common vegetation communities that the species inhabits. | May affect | Both the upland woodland and riparian woodland communities within the study area are dominated by loblolly pines. Therefore, suitable habitat is present within the study area and the project may affect the species. |
| Rufa red knot *Calidris canutus rufa* | T | This species primarily occurs along seacoasts on tidal flats and beaches, herbaceous wetland, and shoreline. They migrate long distances in flocks northward through the contiguous U.S. mainly April-June, southward July-October. In rare inland encounters, red knots can use mudflats. | No Effect | This species only needs to be considered for wind energy projects, and the necessary open sandy habitat is not present within the study area. Therefore, the proposed project would have no effect on the species. |
| **REPTILES** | | | | |
| Alligator snapping turtle *Macrochelys temminckii* | PT | Aquatic: perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the water's edge. | N/A | The study area contains emergent wetlands and freshwater ponds that may contain perennial water levels throughout the year. As a proposed species lacking federal protection under the ESA, an effect determination is not warranted at this time. However, if construction activities for this project are not completed prior to the listing of this species, the determination of effect and USFWS consultation needs may need to be reevaluated once a listing decision is made. |
| **INSECTS** | | | | |

| Species | Federal Status | Description of Suitable Habitat | Effect Determination | Explanation for Effect/Take Determination |
|---|---|---|---|---|
| Monarch butterfly *Danaus plexippus* | C | Adults are found in a variety of habitats including native prairies, pastures, open woodlands and savannas, desert scrub, roadsides, and other habitats with abundant nectar plants, including urbanized areas. Milkweed (primarily Asclepias spp.) is an obligate host plant where eggs are laid and larvae feed. | N/A | The study area may contain plants utilized by this species. As a candidate species lacking federal protection under the ESA, an effect determination is not warranted at this time. However, if construction activities for this project are not completed prior to the listing of this species, the determination of effect and USFWS consultation needs may need to be reevaluated once a listing decision is made. |

Key to species status abbreviations used:
C = Federal candidate for listing
E = Federally-listed endangered
T = Federally-listed threatened
PT = Proposed federally-listed threatened
Source: USFWS IPaC (July 2023)

# Appendix D: TPWD Information

Last Update: 9/1/2023

# HARRIS COUNTY

## AMPHIBIANS

**Houston toad** *Anaxyrus houstonensis*

Terrestrial and aquatic: Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults are presumed to move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any water body from a tire rut to a large lake.

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: Y |
| Endemic: Y | Global Rank: G1 | State Rank: S1 |

**southern crawfish frog** *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4T4 | State Rank: S3 |

**spotted dusky salamander** *Desmognathus conanti*

This species occurs in association with aquatic habitats in forested areas. Small, clear, spring fed streams with sandy substrate bordered with ferns and moss as well as murky, stagnant water bodies in cypress swamps, baygalls, and flood plains in bottomland forests support populations of this species.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S1 |

**Strecker's chorus frog** *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3 |

**Woodhouse's toad** *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: SU |

## BIRDS

**bald eagle** *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3B,S3N |

# HARRIS COUNTY

## BIRDS

**black rail** *Laterallus jamaicensis*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: T | State Status: T | SGCN: Y
Endemic: N | Global Rank: G3 | State Rank: S2

**black skimmer** *Rynchops niger*

Habitat description is not available at this time.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S2B

**Franklin's gull** *Leucophaeus pipixcan*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S2N

**mountain plover** *Charadrius montanus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G3 | State Rank: S2

**piping plover** *Charadrius melodus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT | State Status: T | SGCN: Y
Endemic: N | Global Rank: G3 | State Rank: S2N

# HARRIS COUNTY

## BIRDS

**reddish egret** *Egretta rufescens*

Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: S2B |

**rufa red knot** *Calidris canutus rufa*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes.

| | | |
|---|---|---|
| Federal Status: LT | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G4T2 | State Rank: S2N |

**Sprague's pipit** *Anthus spragueii*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat during migration and in winter consists of pastures and weedy fields (AOU 1983), including grasslands with dense herbaceous vegetation or grassy agricultural fields.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S3N |

**swallow-tailed kite** *Elanoides forficatus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S2B |

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4T4 | State Rank: S2 |

**white-faced ibis** *Plegadis chihi*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S4B |

# HARRIS COUNTY

## BIRDS

**white-tailed hawk** *Buteo albicaudatus*

Near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G4G5 | State Rank: S4B |

**whooping crane** *Grus americana*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: Y |
| Endemic: N | Global Rank: G1 | State Rank: S1S2N |

**wood stork** *Mycteria americana*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: SHB,S2N |

## CRUSTACEANS

**Houston burrowing crayfish** *Fallicambarus houstonensis*

All species in the genus <i>Fallicambarus </i>are primary burrowers (Guiasu, 2007). It is clearly a primary burrower with 100% of adult and subadult specimens known from excavated burrows. Large numbers of juveniles were collected from Temporary pools (October through February) (Johnson, 2008).

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: | Global Rank: G2 | State Rank: S3 |

## FISH

**alligator gar** *Atractosteus spatula*

From the Red River to the Rio Grande (Hubbs et al. 2008); occurs in the Trinity River upstream of Lake Livingston. Found in rivers, streams, lakes, swamps, bayous, bays and estuaries typically in pools and backwater habitats. Floodplains inundated with flood waters provide spawning and nursery habitats.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S4 |

# HARRIS COUNTY

## FISH

**Mississippi silvery minnow** *Hybognathus nuchalis*

Found in eastern Texas streams, from the Brazos River eastward and northward to the Red River; found in moderate current; silty, muddy, or rocky substrate. In Texas, adults likely to inhabit smaller tributary streams.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: | Global Rank: G5 | State Rank: S4 |

**oceanic whitetip shark** *Carcharhinus longimanus*

Habitat description is not available at this time.

| | | |
|---|---|---|
| Federal Status: LT | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: GNR | State Rank: S2 |

**Sabine shiner** *Notropis sabinae*

Inhabits small streams and large rivers of eastern Texas from San Jacinto drainage northward along the Gulf Coast to the Sabine River Basin; Habitat generalist with affinities for shallow, moving water and rarely found in pools and backwater areas;<br />closely restricted to substrate of fine, silt free sand in small creeks and rivers having slight to moderate current.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: S3 |

**saltmarsh topminnow** *Fundulus jenkinsi*

Occupies estuaries and the edges of saltmarsh habitats along the Gulf coast in salinities of 4-20 ppt in Spartina dominated tidal creeks and wetlands (Peterson & Ross 1991; Peterson & Turner 1994; Lopez et al. 2010; and Griffith 1974). Requires access to small interconnected tidal creeks for feeding and reproduction. Spawning occurs from March to August during high tide events (Robertson Thesis, 2016). Non-migratory.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3 | State Rank: S1 |

**shortfin mako shark** *Isurus oxyrinchus*

Habitat description is not available at this time.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: GNR | State Rank: S2 |

**silverband shiner** *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S4 |

**southern flounder** *Paralichthys lethostigma*

# HARRIS COUNTY

## FISH

This is an estuarine-dependent species that inhabits riverine, estuarine and coastal waters, and prefers muddy, sandy, or silty substrates (Reagan and Wingo 1985). Individuals can tolerate wide temperature (~5-35°C) and salinity ranges (0-60 ppt). Southern Flounder spawn in offshore waters of the Gulf of Mexico from October to February (Reagan and Wingo 1985). The oceanic larval stage is pelagic and lasts 30–60 days. Metamorphosing individuals enter estuaries and migrate towards low-salinity headwaters, where settlement occurs (Burke et al. 1991, Walsh et al. 1999). The young fish enter the bays during late winter and early spring, occupying seagrass; some may move further into coastal rivers and bayous. Juveniles remain in estuaries until the onset of sexual maturation (approximately two years), at which time they migrate out of estuaries to join adults on the inner continental shelf. Adult southern flounder leave the bays during the fall for spawning in the Gulf of Mexico. They spawn for the first time when two years old at depths of 50 to 100 feet. Although most of the adults leave the bays and enter the Gulf for spawning during the winter, some remain behind and spend winter in the bays. Those in the Gulf will reenter the bays in the spring. The spring influx is gradual and does not occur with large concentrations that characterize the fall emigration.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S5 |

**western creek chubsucker** *Erimyzon claviformis*

Eastern Texas streams from the Red River to the San Jacinto drainage. Habitat includes silt-, sand-, and gravel-bottomed pools of clear headwaters, creeks, and small rivers; often near vegetation; occasionally in lakes. Spawning occurs in river mouths or pools, riffles, lake outlets, or upstream creeks. Prefers headwaters, but seldom occurs in springs.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S2S3 |

## INSECTS

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: | Global Rank: G3G4 | State Rank: SNR |

**bay skipper** *Euphyes bayensis*

Apparently tidal sawgrass marsh only, probably covers same range of salinity as saw grass, nectarivore (butterfly), herbivore (caterpillar), larval foodplant is so far unconfirmed but is probably sawgrass, diurnal; two well separated broods apparently peaking in late May and in September which suggests the larvae may well aestivate in summer and the next brood hibernate

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G2G3 | State Rank: S1 |

## MAMMALS

**big brown bat** *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S5 |

# HARRIS COUNTY

## MAMMALS

**big free-tailed bat** *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3 |

**blue whale** *Balaenoptera musculus*

Inhabits tropical, subtropical, temperate, and subpolar waters worldwide, but are infrequently sighted in the Gulf of Mexico. They migrate seasonally between summer feeding grounds and winter breeeding grounds, but specifics vary. Commonly observed at the surface in open ocean.

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: SH |

**eastern red bat** *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S4 |

**eastern spotted skunk** *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: S1S3 |

**Gulf of Mexico Bryde's whale** *Balaenoptera ricei*

Habitat description is not available at this time.

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: N |
| Endemic: N | Global Rank: G1 | State Rank: SNR |

**hoary bat** *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S3 |

**humpback whale** *Megaptera novaeangliae*

# HARRIS COUNTY

## MAMMALS

Inhabits tropical, subtropical, temperate, and subpolar waters world wide. Migrate up to 5,000 miles between colder water (feeding grounds) and warmer water (calving grounds) each year. They will use both open ocean and coastal waters, sometimes including inshore areas such as bays, and are often found near the surface; however, this species is rare in the Gulf of Mexico. The northwest Atlantic/Gulf of Mexico distinct population segment is not considered at risk of extinction and is not listed as Endangered on the Endangered Species Act.

| | | |
|---|---|---|
| Federal Status: LE | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: SNR |

**long-tailed weasel** *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S5 |

**Louisiana black bear** *Ursus americanus luteolus*

Bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G5T2 | State Rank: SNA |

**mountain lion** *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S2S3 |

**muskrat** *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S5 |

**North Atlantic right whale** *Eubalaena glacialis*

Inhabits subtropical and temperate waters in the northern Atlantic. Commonly found in coastal waters or clsoe to the continental shelf near the surface. They migrate from feeding grounds in cooler waters (Canada and New England) to warmer waters of the southeast US (South Carolina, Georgia, and Florida) to give birth in the fall/winter - both areas are identified as critical habitat by NOAA-NMFS. Nursery areas are in shallow, coastal waters. This species is very rare in the Gulf of Mexico and the few reported sightings are likely vagrants (Ward-Geiger etal 2011).

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: Y |
| Endemic: N | Global Rank: G1 | State Rank: S1 |

# HARRIS COUNTY

## MAMMALS

**northern yellow bat** *Lasiurus intermedius*

Occurs mainly along the Gulf Coast but inland specimens are not uncommon. Prefers roosting in spanish moss and in the hanging fronds of palm trees. Common where this vegtation occurs. Found near water and forages over grassy, open areas. Males usually roost solitarily, whereas females roost in groups of several individuals.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S4 |

**Rafinesque's big-eared bat** *Corynorhinus rafinesquii*

Historically, lowland pine and hardwood forests with large hollow trees. roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S2 |

**sei whale** *Balaenoptera borealis*

Habitat description is not available at this time.

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: N |
| Endemic: N | Global Rank: G5? | State Rank: SNR |

**southeastern myotis bat** *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: S3? |

**sperm whale** *Physeter macrocephalus*

Inhabits tropical, subtropical, and temperate waters world wide, avoiding icey waters. Distribution is highly dependent on their food source (squids, sharks, skates, and fish), breeding, and composition of the pod. In general, this species migrates from north to south in the winter and south to north in the summer; however, individuals in tropical and temperate waters don't seem to migrate at all. Routinely dive to catch their prey (2,000-10,000 feet) and generally occupies water at least 3,300 feet deep near ocean trenches.

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S1 |

**swamp rabbit** *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S5 |

# HARRIS COUNTY

## MAMMALS

**tricolored bat** *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3G4 | State Rank: S2 |

**western hog-nosed skunk** *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: S4 |

## MOLLUSKS

**Louisiana pigtoe** *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

| | | |
|---|---|---|
| Federal Status: PT | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G1G2 | State Rank: S1 |

**sandbank pocketbook** *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: | Global Rank: G2? | State Rank: S1 |

## REPTILES

**alligator snapping turtle** *Macrochelys temminckii*

Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G3 | State Rank: S2 |

**eastern box turtle** *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3 |

# HARRIS COUNTY

## REPTILES

**loggerhead sea turtle** *Caretta caretta*

Inhabits tropical, subtropical, and temperate waters worldwide, including the Gulf of Mexico. They migrate from feeding grounds to nesting beaches/barrier islands and some nesting does occur in Texas (April to September). Beaches that are narrow, steeply sloped, with coarse-grain sand are preffered for nesting. Newly hatched individuals depend on floating alage/seaweed for protection and foraging, which eventually transport them offshore and into open ocean. Juveniles and young adults spend their lives in open ocean, offshore before migrating to coastal areas to breed and nest. Foraging areas for adults include shallow continental shelf waters.

| | | |
|---|---|---|
| Federal Status: LT | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G3 | State Rank: S4 |

**prairie skink** *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S2 |

**pygmy rattlesnake** *Sistrurus miliarius*

The pygmy rattlesnake occurs in a variety of wooded habitats from bottomland coastal hardwood forests to upland savannas. The species is frequently found in association with standing water.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S2S3 |

**slender glass lizard** *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3 |

**smooth softshell** *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3 |

**Texas diamondback terrapin** *Malaclemys terrapin littoralis*

Coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive. Bay islands are important habitats. Nests on oyster shell beaches.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G4T3 | State Rank: S2 |

**Texas horned lizard** *Phrynosoma cornutum*

# HARRIS COUNTY

## REPTILES

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: N | Global Rank: G4G5 | State Rank: S3 |

**timber (canebrake) rattlesnake** *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G4 | State Rank: S4 |

**western box turtle** *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S3 |

**western chicken turtle** *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5T5 | State Rank: S2S3 |

**western hognose snake** *Heterodon nasicus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G5 | State Rank: S4 |

## PLANTS

**coastal gay-feather** *Liatris bracteata*

Coastal prairie grasslands of various types, from salty prairie on low- lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G2G3 | State Rank: S2S3 |

# HARRIS COUNTY

## PLANTS

**corkwood** *Leitneria pilosa ssp. pilosa*

Wet or saturated silty soils along brackish or freshwater swamps and ponds and other low, poorly drained sites; flowers in early spring, fruiting as early as May

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G2G3T2 | State Rank: S2 |

**Correll's false dragon-head** *Physostegia correllii*

Wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G2 | State Rank: S2 |

**giant sharpstem umbrella-sedge** *Cyperus cephalanthus*

In Texas on saturated, fine sandy loam soils, along nearly level fringes of deep prairie depressions; also in depressional area within coastal prairie remnant on heavy black clay; in Louisiana, most sites are coastal prairie on poorly drained sites, some on slightly elevated areas surrounded by standing shallow water, and on moderately drained sites; soils include very strongly acid to moderately alkaline silt loams and silty clay loams; flowering/fruiting May-June, August-September, and possibly other times in response to rainfall

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3?Q | State Rank: S1 |

**goldenwave tickseed** *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3 | State Rank: S3 |

**Houston daisy** *Rayjacksonia aurea*

On and around naturally barren or sparsely vegetated saline slick spots or pimple mounds on coastal prairies, usually on sandy to sandy loam soils, occasionally in pastures and on roadsides in similar soil types where mowing may mimic natural prairie disturbance regimes; flowering late September-November (-December)

| | | |
|---|---|---|
| Federal Status: | State Status: T | SGCN: Y |
| Endemic: Y | Global Rank: G1 | State Rank: S1 |

**Indianola beakrush** *Rhynchospora indianolensis*

Locally abundant in cattle pastures in some areas (at least during wet years), possibly becoming a management problem in such sites; Perennial; Flowering/Fruiting April-Nov

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G3Q | State Rank: S3 |

**Oklahoma grass pink** *Calopogon oklahomensis*

# HARRIS COUNTY

## PLANTS

Mesic, acidic, sandy to loamy prairies, pine savannas, oak woodlands, edges of bogs, and frequently mowed meadows (Goldman, Magrath & Catling 2002). Flowering March-July.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G2 | State Rank: S1S2 |

**panicled indigobush** *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering May-August.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3 | State Rank: S3 |

**South Texas false cudweed** *Pseudognaphalium austrotexanum*

In sandy grasslands on eroded area above saline flats; along edge of sendero through mesquite woodland and shrub mottes on sandy loam; on gravel and silt bars and flats in scour plain of streams (TEX-LL specimens Carr 23682, 29264, 22647, 27206). Oct-Jan, sometimes in spring.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G3 | State Rank: S3 |

**Texas ladies'-tresses** *Spiranthes brevilabris*

Sandy soils in moist prairies, incl. blackland/Fleming prairies, calcareous prairie pockets surrounded by pines, pine-hardwood forest, open pinelands, wetland pine savannahs/flatwoods, and dry to moist fields, meadows, and roadsides. Delicate, nearly ephemeral orchid, producing winter rosettes, flowers Feb-Apr. Historically endemic to SE coastal plain.

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: N | Global Rank: G1G2 | State Rank: S1 |

**Texas meadow-rue** *Thalictrum texanum*

Mostly found in woodlands and woodland margins on soils with a surface layer of sandy loam, but it also occurs on prairie pimple mounds; both on uplands and creek terraces, but perhaps most common on claypan savannas; soils are very moist during its active growing season; flowering/fruiting (January-)February-May, withering by midsummer, foliage reappears in late fall(November) and may persist through the winter

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G2Q | State Rank: S2 |

**Texas prairie dawn** *Hymenoxys texana*

In poorly drained, sparsely vegtated areas (slick spots) at the base of mima mounds in open grassland or almost barren areas on slightly saline soils that are sticky when wet and powdery when dry; flowering late February-early April

| | | |
|---|---|---|
| Federal Status: LE | State Status: E | SGCN: Y |
| Endemic: Y | Global Rank: G2 | State Rank: S2 |

# HARRIS COUNTY

## PLANTS

**Texas tauschia** *Tauschia texana*

Occurs in loamy soils in deciduous forests or woodlands on river and stream terraces; Perennial; Flowering/Fruiting Feb-April

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G3 | State Rank: S3 |

**Texas willkommia** *Willkommia texana var. texana*

Mostly in sparsely vegetated shortgrass patches within taller prairies on alkaline or saline soils on the Coastal Plain (Carr 2015).

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G3G4T3 | State Rank: S3 |

**Texas windmill grass** *Chloris texensis*

Sandy to sandy loam soils in relatively bare areas in coastal prairie grassland remnants, often on roadsides where regular mowing may mimic natural prairie fire regimes; flowering in fall

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G2 | State Rank: S2 |

**threeflower broomweed** *Thurovia triflora*

Near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay along drier upper margins of ecotone between between salty prairies and tidal flats; further inland associated with vegetated slick spots on prairie mima mounds; flowering September-November

| | | |
|---|---|---|
| Federal Status: | State Status: | SGCN: Y |
| Endemic: Y | Global Rank: G2G3 | State Rank: S2S3 |

## Appendix D: Summary of State-listed Threatened and Endangered Species

| Species | State Status | Description of Suitable Habitat | Impact Determination | Explanation for Impact Determination |
|---|---|---|---|---|
| | | **AMPHIBIANS** | | |
| Houston Toad<br>*Anaxyrus houstonensis* | E | Terrestrial and aquatic: Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults are presumed to move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any water body from a tire rut to a large lake. | May Impact | Forests with deep sandy soils, riparian areas, open water ponds, and wetlands all occur within the study area. Therefore, suitable habitat for the species is present within the study area, and the proposed project may result in impacts to the species. |
| | | **BIRDS** | | |
| Reddish egret<br>*Egretta rufescens* | T | Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear. | No Impact | The study area is not located along the Texas coast and does not contain brackish or saltwater habitats; therefore, suitable habitat is not present within the study area. As such, the proposed project will likely not result in an impact. |
| Swallow-tailed kite<br>*Elanoides forficatus* | T | This species inhabits lowland forested regions, especially swampy areas, and ranges into open woodland, marshes, along rivers, lakes, and ponds. It nests high in tall trees in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees. | May Impact | Lowland forested areas suitable for nesting occur within the study area along riparian channels and upland woodland areas identified within the study area. As such, the proposed project may result in an impact. |
| White-faced ibis<br>*Plegadis chihi* | T | Suitable habitat is freshwater marshes, sloughs, and irrigated rice fields near-coastal rookeries in so-called hog-wallow prairies. Other habitat might include brackish and saltwater areas. In marshes, nests are built in low trees, on the ground in bulrushes or reeds, or on floating mats. | No Impact | The study area is not located along the Texas coast or near freshwater marshes; therefore, it does not provide suitable nesting habitat. As such, the proposed project will likely not result in an impact. |
| White-tailed hawk<br>*Buteo albicaudatus* | T | Near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna chaparral; breeding from March to May. | No Impact | The study area is not located along the Texas coast and does not contain suitable inland habitats such as prairies, savannas, or chapparals. Therefore, suitable habitat is not present within the study area. As such, the proposed project will likely not result in an impact. |

| Species | State Status | Description of Suitable Habitat | Impact Determination | Explanation for Impact Determination |
|---|---|---|---|---|
| Whooping Crane<br><br>*Grus americana* | E | The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast, winters in coastal marshes of Aransas, Calhoun, and Refugio. | No Impact | The study area is not located along the Texas coast; however, the study area does contain small ponds and wetlands. Due to the location of the study area, the species would likely only occur during migration. Therefore, species occurrence within the study area would be incidental and ephemeral. As such, the proposed project may result in impacts to the species. |
| Wood stork<br><br>*Mycteria americana* | T | Foraging habitat includes freshwater prairie ponds, flooded pastures or fields, ditches, and other shallow standing water with an open canopy, occasionally including brackish wetlands. Breeding occurs in Mexico, and nesting sites have not been recorded in Texas since 1960. However, post-breeding migrants disperse into Texas in the summer. The species typically roosts communally in tall snags, sometimes in associated with other wading birds (i.e., active heronries). | No Impact | Observation records of this species indicate that it has not been observed nesting in Texas since 1960. Additionally, the intermittent stream within the study area would not provide optimal or suboptimal suitable foraging or wading habitat. As such, the proposed project will likely not result in an impact. |
| **FISH** | | | | |
| Western creek chubsucker<br><br>*Erimyzon claviformis* | T | This species is widespread in east Texas from the Red River to the San Jacinto Rivers. The species occurs in pools of clear headwaters, creeks, and small rivers with silt, sand, and gravel substrates, and occasionally in lakes. It is frequently found near submergent vegetation. Spawning occurs in river mouths or pools, riffles, lake outlets, or upstream creeks. | No Impact | The study area is not located within of the range of this species. Therefore, the proposed project will likely not result in an impact. |
| **MAMMALS** | | | | |
| Louisiana black bear<br><br>*Ursus americanus luteolus* | T | Bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Possible as transient; bottomland hardwoods and large tracts of inaccessible forested area. | No Impact | Wooded areas are located within the study area; however, the study area is beyond its current range, as it has since been extirpated from its historic range in east Texas. Current distribution now limited to Louisiana. Therefore, suitable |

| Species | State Status | Description of Suitable Habitat | Impact Determination | Explanation for Impact Determination |
|---|---|---|---|---|
| | | | | habitat is not present within the study area. As such, the proposed project will likely not result in an impact. |
| Rafinesque's big-eared bat<br><br>*Corynorhinus rafinesquii* | T | Historically utilized lowland pine and hardwood forests with large hollow trees. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures. Commonly in close proximity to water sources. | May Impact | Lowland forested areas suitable for nesting occur riparian channels and upland woodland areas identified within the study area. As such, the proposed project may result in an impact. |
| **MOLLUSKS** | | | | |
| Louisiana pigtoe<br><br>*Pleurobema riddellii* | T | Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments. | No Impact | Streams within the study area occurred with open water ponds as on channel impoundments, which are not known to be suitable for the species. Therefore, suitable habitat is not present within the study area. As such, the proposed project will likely not result in an impact. |
| Sandbank Pocketbook<br>*Lampsilis satura* | T | Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars. | May Impact | The study area contains small streams with suitable substrates that may contain suitable flow conditions during flood events. Therefore, suitable habitat is present within the study area. As such, the proposed project may result in an impact. Note that a presence/absence survey has not been performed. |
| **REPTILES** | | | | |
| Texas horned lizard<br><br>*Phrynosoma cornutum* | T | Terrestrial habitats include sparse vegetation, such as grass, prairie, cactus, scattered brush or scrubby trees. Soil may vary in texture from sandy to rocky. This species burrows into soil, enters rodent burrows, or hides under rock when inactive. In the mountains of the Big Bend area, habitats can extend to 6,000 feet but are largely limited below the pinyon-juniper zone. | No Impact | The study area is dominated by scrub-shrub habitats, and it lacks arid to semiarid sparsely vegetated open areas. As such, the proposed project will likely not result in an impact. |

| Species | State Status | Description of Suitable Habitat | Impact Determination | Explanation for Impact Determination |
|---|---|---|---|---|
| | | **PLANTS** | | |
| Houston daisy<br><br>*Rayjacksonia aurea* | T | On and around naturally barren or sparsely vegetated saline slick spots or pimple mounds on coastal prairies, usually on sandy-to-sandy loam soils, occasionally in pastures and on roadsides in similar soil types where mowing may mimic natural prairie disturbance regimes; flowering in late September to November (possible December). | No Impact | Naturally barren or sparsely vegetated saline slick spots or pimple mounds were not observed within the study area during the field visit; therefore, potential suitable habitat is not present. As such, the proposed project will likely not result in an impact. |
| Texas prairie dawn<br><br>*Hymenoxys texana* | | In poorly drained, sparsely vegtated areas (slick spots) at the base of mima mounds in open grassland or almost barren areas on slightly saline soils that are sticky when wet and powdery when dry; flowering late February-early April. | No Impact | The study area does not contain poorly drained, sparsely vegetates areas at the base of mima mounds in open grassland or barren areas. As such, the proposed project will likely not result in an impact. |

Key to species status abbreviations used:
E = State-listed endangered
T = State-listed threatened
Source: TPWD RTEST by County, Harris County (September 2023)
Note: Due to the lack of marine habitat within the study area, the oceanic whitetip shark (*Carcharhinus longimanus*), Gulf of Mexico Bryde's whale (*Balaenoptera ricei*), humpback whale (*Megaptera novaeangliae*), shortfin mako shark (*Isurus oxyrinchus*), blue whale (*Balaenoptera musculus*), North Atlantic right whale (*Eubalaena glacialis*), sei whale (*Balaenoptera borealis*), sperm whale (*Physeter macrocephalus*), and loggerhead sea turtle (*Caretta caretta*) were excluded from evaluation.