

SENSITIVE, THREATENED AND ENDANGERED SPECIES

Overview of Species

The terms "Threatened" and "Endangered" describe the official federal status of certain species in the Preserve as defined by the Endangered Species Act (ESA) of 1973. The term "Candidate" is used officially by the U.S. Fish and Wildlife Service (FWS) describes those species for which the Service has on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded. No candidate species are currently believed to inhabit the Preserve. The term "Species of Concern" describes species which may warrant listing, but further biological research and field study are needed to clarify their conservation status. Texas has enacted regulations similar to the ESA that confer Threatened and Endangered status to certain species that inhabit areas in the state. NPS policies dictate that federal Candidate species, Species of Concern and state listed Threatened and Endangered species are to be managed to greatest extent possible as federally listed Threatened and Endangered species (NPS, 1991), so these species are included in this discussion.

A listing of Sensitive, Threatened and Endangered species specific to Big Thicket is problematic to compile because listed species are rare by default, and current, comprehensive inventories of flora and fauna in the Preserve are incomplete. Moreover, the U.S. Fish and wildlife Service (FWS) publishes lists by county, and political boundaries do not coincide with natural boundaries such as habitats or ecoregions. Since the Preserve is scattered across seven counties in east Texas, not all of the species listed for these counties (such as marine species) have suitable habitat. Nonetheless, all federally listed and state listed species believed to occur permanently or transiently (such as migrating birds) in the Preserve based on past inventories, existing and potential habitat, documented sightings and professional judgement are listed in Table X.

Table X. State and Federally listed Candidate, Threatened and Endangered Species Believed To Occur in Big Thicket National Preserve.

Status: E=Endangered, T= Threatened, SOC=Species of Concern, N/L=Not Listed.

Common Name	Latin Name	Type	Federal Status	State Status
American Swallow-tailed Kite	Elanoides forficatus (u)	Bird	N/L	T
Bachman's Sparrow	Aimophila aestivalis (u)	Bird	N/L	T
Bald eagle	Haliaeetus leucocephalus (u)	Bird	T	E
Peregrine Falcon	Falco Peregrinus ssp. (u)	Bird	E	E
Brown Pelican	Pelicanus occidentalis (u)	Bird	E	E
Piping Plover	Charadrius melodus (u)	Bird	T	E
Red-Cockaded Woodpecker	Picoides borealis (u)	Bird	E	E
White-faced Ibis	Plegadis chihi (u)	Bird	N/L	T
Wood Stork	Mycteria americana (u)	Bird	N/L	T
Blue Sucker	Cyprinodon elongatus (u)	Fish	N/L	T
Creek Chubsucker	Erimyzon oblongus (u)	Fish	N/L	T
Paddlefish	Polyodon spathula (u)	Fish	SOC	E
Caddisfly	Phylocentropus harrisi (u)	Insect	SOC	N/L

Not in NRSB
entered as
unconfirmed

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Common Name	Latin Name	Type	Federal Status	State Status
Dragonfly	Somatochlora margarita	Insect	SOC	N/L
Texas Heelsplitter	Potamilus amphichaenus	Mussel	SOC	N/L
Louisiana Black Bear	Ursus americanus luteolus (u)	Mammal	T	E
Rafinesque's Big-eared Bat	Corynorhinus rafinesquii (u)	Mammal	SOC	T
Southeastern Myotis Bat	Myotis austroriparius (u)	Mammal	SOC	N/L
Navasota Ladies'-Tresses	Spiranthes parksii (u)	Plant	E	E
Slender Gay Feather	Liatris tenuis (u)	Plant	SOC	N/L
Texas Trailing Phlox	Phlox nivalis var. texensis (u)	Plant	E	E
White Firewheel	Gaillardia aestivalis var. winkleri (u)	Plant	SOC	N/L
Alligator Snapping Turtle	Macrochelys temminckii (u)	Reptile	N/L	T
Louisiana Pine Snake	Pituophis melanoleucus ruthveni (u)	Reptile	SOC	E
Northern Scarlet Snake	Cemophora coccinea copei (u)	Reptile	N/L	T
Smooth Green Snake	Liochlorophis vernalis (u)	Reptile	N/L	E
Texas Diamondback Terrapin	Malaclemys terrapin littoralis (u)	Reptile	SOC	N/L
Timber Rattlesnake	Crotalus horridus (u)	Reptile	N/L	T

Birds

American Swallow-Tailed Kites (*Elanoides forficatus*)

American swallow-tailed kites (state listed as threatened) are migratory raptors that inhabit bottomland hardwood forests along major river bottoms in the Southeastern United States and migrate to South America in winter. Kites historically bred throughout the southeastern United States, however, in recent years populations have declined throughout the southeast. According to Rappole and Blacklock (1994), kite populations are now considered rare and local in Louisiana, South Carolina, and Georgia; good populations of kites are now only found in Florida. A recent survey of Swallow-tailed kites in East Texas (Shackelford and Simmons, 1999) documented 277 sightings and only one nest. All sightings of kites in the Preserve have been reported in spring and summer months along the lower and upper Neches River Corridor Units. Although no kite nests have been found, the frequent sightings of this species along the Neches strongly suggest that it may be nesting in mature bottomland forests in or near the Preserve.

Bachman's Sparrow (*Aimophila aestivalis*)

Bachman's Sparrow (State listed Threatened) is an uncommon, endemic resident of east Texas. Preferred habitat for Bachman's sparrow includes mature longleaf pine savannas, open pine woods and brushy overgrown fields (Rappole and Blacklock, 1994). The sparrow is a documented nesting resident of the Preserve; however, it is rare and secretive. The most common sightings of Bachman's sparrow have been along Gore Store road in or near the Turkey Creek Unit.

Bald Eagle (*Haliaeetus leucocephalus*)

Although formerly common, Bald eagles (Federally threatened; state endangered) are rare residents in east Texas. They prefer large lakes and rivers with tall trees along the shoreline. Bald eagles have been sighted most frequently near McQueen's landing in the Upper Neches River Corridor Unit of the Preserve and at the confluence of Menard creek and the Trinity river in the Menard Creek corridor unit. The closest known aerie is on the northern end of the B.A. Steinhagen Reservoir (Ricky Maxey, TPWD, personal communication).

Peregrine Falcon (*Falco peregrinus*) —

Two subspecies of peregrine Falcon are found in Texas: the American peregrine (*Falco peregrinus anatum*) and the Arctic peregrine (*Falco peregrinus tundrius*). The American Peregrine is a resident of the Trans-Pecos region, including Big Bend National Park, and the Chisos, Davis, and Guadalupe mountain ranges. Arctic Peregrines migrate through Texas twice a year to and from their wintering areas in South America. They stop on the Texas coast to feed before continuing their migration. In Big Thicket, peregrines (most likely the arctic subspecies) have been documented during spring and fall migrations along the Neches River and in or near the Turkey Creek and Hickory Creek Units.

Brown Pelican (*Pelicanus occidentalis*)

The Brown pelican (state and federally listed as Endangered) is an uncommon permanent resident of the Texas coast. Preserve staff have observed pelicans near the terminus of the Neches River at Sabine lake and at High Island southeast of Port Arthur; however no pelicans

have been documented in the Preserve. Pelicans might venture up the Neches River into the Beaumont Unit of the Preserve, but this would be a rare occurrence.

Piping Plover (*Charadius melodius*)

Piping plovers (federally Threatened and state Endangered) are uncommon winter residents along the Texas coast and are considered rare to casual transients in winter in the eastern third of the state. Piping plover habitat includes sand and gravel shorelines, river sandbars and islands. No piping plovers have been documented in the Preserve; however, the lower Neches river provides a potential corridor for movement of plovers inland from their coastal habitat. In addition, the large sandbars along the Neches river could provide nesting habitat.

Red Cockaded Woodpecker (*Picoides borealis*)

Red cockaded woodpeckers (federally Endangered, state Endangered) are year-round inhabitants of the Pineywoods of east Texas. Red cockaded woodpeckers prefer open, park-like stands of mature pine maintained by frequent fire. Little of this habitat remains in the Preserve due to the lasting impacts of logging and fire suppression. In time, however, pine forest regeneration and periodic prescribed fire should create more favorable habitat in uplands throughout the Preserve. Until recently, active colonies existed in upland pine forests in the Big Sandy Unit. These colonies became inactive in the mid-1990's, but the cavity trees and associated habitat remain and could be recolonized in the future.

White-Faced Ibis (*Plegadis chihi*)

The white-faced ibis (state Threatened) is predominately a coastal species that inhabits a wide variety of freshwater and estuarine environments. The south Texas coast appears to be the northern limit of the ibis's breeding range. This species is considered a rare transient in the eastern third of Texas during spring and fall migration (Rappole and Blacklock, 1994), and could be found in the Preserve. To date, no sightings of white-faced ibis' have been documented in the Preserve .

Wood Stork (*Mycteria americana*)

Wood storks (state Threatened) have been seen in a variety of wetland and riverine locations throughout the Preserve, including along the Little Pine Island bayou in the Lance Rosier Unit, the Beaumont Unit, and the Lower Neches River Corridor Unit. Storks in the Preserve are

believed to be post-breeding transients from populations in southern Mexico. While these populations are considered stable, storks from separate breeding populations in Florida are listed as federally endangered due to habitat loss and low numbers. Storks may have bred historically in Texas, but no breeding populations are currently believed to exist. Preferred inland habitat for storks includes large lakes and forested wetlands (Rappole and Blacklock, 1994).

Fish

Blue Sucker (*Cycleptus elongatus*) and Creek Chubsucker (*Erimyzon oblongus*)

No federally listed fish species are believed to inhabit the Preserve. However, three state listed species have been documented during past fish inventories and research projects: the blue sucker (*Cycleptus elongatus*), creek chubsucker (*Erimyzon oblongus*), and the paddlefish (*Polyodon spathula*). The blue sucker and creek chubsucker are both listed as state Threatened. Creek chubsuckers have been found in relatively high abundances in the upper portions of Big Sandy creek in the Big Sandy Unit and in Beech creek in the Beech creek unit. Both of these creeks are clean, low-order (ie. small, low flow) black water systems. In contrast to the abundance of creek chubsuckers, only one blue sucker has been documented in the Preserve. It was found in the Neches river near highway 1013 (Suttkus and Clemmerer, 1979; Evans, 1977).

Paddlefish (*Polyodon spathula*)

Paddlefish (federal Species of Concern) generally inhabit large rivers in the Mississippi river drainage and adjacent Gulf coastal plain. Paddlefish have been documented in the Lower Neches river and at the confluence of the Neches river and Little Pine Island bayou (Seidensticker, 1994). Unlike most large riverine fish, paddlefish are planktivorous as opposed to piscivorous. Paddlefish require cool temperatures, large flows ($>275 \text{ m}^3/\text{s}$), and gravel bottoms for spawning (Rosen, R. A. & D. C. Hales, 1981). The lower Neches River does not typically have flows of sufficient magnitude and gravel substrate is uncommon, so spawning habitat is considered marginal. Nonetheless, the backwaters of the Neches could provide important feeding areas for paddlefish during the summer months. Texas Parks and Wildlife recently developed a recovery plan for paddlefish in the Neches River that included annual stocking of paddlefish below Dam B on the Upper Neches River corridor. The effectiveness of paddlefish recovery has yet to be documented.

Aquatic Invertebrates

Three species of aquatic invertebrates (all listed as federal Species of Concern) inhabit the Preserve: a caddisfly (*Phylocentropus harrisi*), a dragonfly (*Somatochlora margarita*) and a freshwater mussel (Texas Heelsplitter; *Potamilus amphichaenus*). *Somatochlora margarita*, commonly known as the Big Thicket emerald dragonfly, is endemic to the Pineywoods region of east Texas. *Phylocentropus harrisi* is endemic to the Gulf Coastal plain, and the Big Thicket region represents its western distributional limit. Little is known about the habitat preferences and locations of these species within the Preserve (Abbot and Stewart, 1997). The Texas heelsplitter (*Potamilus amphichaenus*) is a very rare mussel that has been found in the Neches River basin and most recently in B. A. Steinhagen reservoir, an impoundment on the Neches River immediately above the Upper Neches River Corridor Unit (Howells, 1996). This mussel has never been documented in the Preserve, but the hydrologic connectivity of the Neches River and B. A. Steinhagen Reservoir makes its occurrence possible.

Mammals

Only three listed mammals are believed to occur in or near to the Preserve: two species of bats and the Louisiana black bear. Since the turn of the century, several species of predatory mammals have been extirpated due to a variety of factors including predator control, over hunting and poaching, habitat loss and population isolation. These species include the jaguar, red wolf and ocelot.

Black Bear (*Ursus americanus ssp. luteolus*)

The closest known reproducing populations of Louisiana black bears are in the Atchafalaya basin in Louisiana. Occasional sightings of bears have been reported in east Texas, so occurrences of bears in the Preserve (especially wandering males) are possible. Two separate studies aimed at identifying potential habitat for black bear reintroduction have identified suitable habitat in the Jack Gore and Neches Bottom Units of the Preserve (Garner, 1996; Epps, 1997). This area could serve as core habitat for bears in the future, through reintroduction efforts or expansion of existing populations in Louisiana. However, any reintroduction effort would require the active participation and support of a number of public and private land management agencies and the public to ensure the provision of sufficient habitat and to prevent poaching and other bear-human

conflicts. Continued loss of habitat in the Big Thicket and surrounding region could eventually preclude the possibility of black bear reintroduction.

Rafinesque's Big-eared Bat (*Corynorhinus rafinesquii*)

Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) is federally listed as a Species of Concern, and is state listed as Threatened. This bat is easily distinguished from other bats by its immense ears. East Texas is considered the western distributional limit of this species. Preferred habitat for this species includes hollow trees, crevices behind bark, and dry leaves, although it is most frequently found in occupied and abandoned buildings (Davis, 1978). A temporary roost of Rafinesque's big-eared bats was documented in the Little Pine Island Unit in 1995 (Horner and Maxey, 1998), and occurrences elsewhere in the Preserve are likely (Schmidly et al, 1979).

Southeastern Myotis Bat (*Myotis austroriparius*)

The southeastern myotis bat (*Myotis austroriparius*) is federally listed as a candidate species. The southeastern myotis bat is a rather small bat with dense, dull, wooly fur. This rare species reaches its western distributional limit in east Texas. In the Big Thicket region it is typically found in crevices between bridge timbers, in culverts and drain pipes, structures and in hollow trees (Davis, 1978). The southeastern myotis bat is usually closely associated with water, and often feeds over ponds and streams. It has been documented in the Beech Creek Unit, Jack Gore and Neches Bottom Units, and the Loblolly Unit.

Plants

Navasota Ladies'-Tresses (*Spiranthes parksii*)

Navasota Ladies'-Tresses (*Spiranthes parksii*) is a federally endangered and state endangered species of orchid that is endemic to southeast Texas. Navasota ladies'-tresses grows in moist, sandy soils in small openings on gentle slopes and along intermittent tributaries of the Brazos, Navasota and Neches Rivers. The species has a limited range and low population numbers. Reasons for endangerment include habitat loss and degradation due to development and road construction (Fish and Wildlife Service, 1992). Most populations of Navasota Ladies'-Tresses have been documented in post oak savannah vegetation community types west of Big Thicket;

however, a separate population exists in northwestern Jasper county just east of the Upper Neches River Corridor Unit. Although this plant has not been documented in the Preserve, it could occur given the close proximity of the Preserve to the Jasper population and the existence of favorable habitat along upper Neches River.

Slender Gay Feather (*Liatrus tenuis*)

Slender gayfeather (*Liatrus tenuis*) is federally listed as a candidate species for Jasper and Tyler counties. This species is endemic to southeast Texas and is found infrequently in the Big Thicket region. Although slender gayfeather has not been documented in the Preserve, it grows in upland longleaf pine forests and these forests are scattered throughout the northern units of the Preserve (Ajilvsgi, 1979).

Texas Trailing Phlox (*Phlox nivalis* var. *texensis*)

Texas Trailing phlox (*Phlox nivalis* var. *texensis*) is a federally endangered and state endangered plant species that is endemic to southeast Texas. Populations of phlox are only currently found in three counties: Hardin, Polk and Tyler. Texas trailing phlox is a fire-adapted plant species that grows in fire-maintained openings in upland longleaf pine savannas or post oak-bluejack oak woodlands on deep sandy soils. Considered very rare and imperiled less than a decade ago, its numbers have increased at some sites during the last few years. This trend may indicate that prescribed burning of its habitat, which allows more light to reach the ground and possibly influences nutrient availability, is essential to its continued survival and recovery. (Texas Parks and Wildlife, 1997; Ajilvsgi, 1979). Phlox currently grows in two locations in the Big Sandy Unit and in two locations in the Turkey Creek Unit. The population in the Turkey Creek Unit was established from cuttings taken from plants in Roy E. Larsen Sandylands sanctuary, owned and managed by the Nature Conservancy of Texas.

White Firewheel (*Gaillardia aestevalis* var. *winkleri*)

White Firewheel (*Gaillardia aestevalis* var. *winkleri*) is federally listed as a candidate species for Hardin county. Habitat for this species includes deep, well-drained sandy soils in open areas and unshaded margins of upland pine and oak forests (TOES, 1993). White firewheel has been documented in the Big Sandy Unit and Turkey creek unit of the Preserve. Both of these units

contain favorable habitat for white firewheel in the form of frequently burned upland pine and sandhill pine vegetation communities.

Reptiles

Alligator Snapping Turtle (*Macrolemys temminckii*)

The alligator Snapping Turtle (*Macrolemys temminckii*) is listed as Threatened by the state of Texas. Considered one of the largest freshwater turtles in the world, it lives in deep, fresh waters with muddy bottoms (such as rivers, lakes, oxbows, and sloughs) and occasionally enters brackish water. The species is rare mainly due to international and domestic demand for its meat, although it has also declined as a result of habitat loss from reservoir construction, channelization of streams and rivers, placement of dredge spoil on riverbanks, recreational use of riverbanks and sandbars, removal of snags and water pollution (FWS, 1991; Ernst and Barbour, 1972). Almost all of the units of the Preserve have excellent habitat for alligator snapping turtles. Alligator snappers have been documented in Turkey Creek, the Neches River and most recently (May, 1999) in Menard creek. The Menard creek specimen weighed 116 pounds and had a 26 inch diameter shell.

Louisiana Pine Snake (*Pituophis melanoleucus ruthveni*)

The Louisiana pine snake (*Pituophis melanoleucus ruthveni*) is federally listed as a Candidate species and state listed as Endangered. The Louisiana pine snake mainly uses small mammal (especially pocket gopher burrows) as shelter (Dr. Craig Rudolph, personal communication), and feeds chiefly on small mammals. The snake is limited to sandy soils in hardwood-conifer forests of Western Louisiana and east Texas. Within this broad ecoregion, upland longleaf pine savanna habitat appears to be preferred (Conant, 1975). To date only one Louisiana pine snake has been found in the Lance Rosier Unit of the Preserve, although favorable habitat exists as well in both the Big Sandy and Turkey Creek units.

Northern Scarlet Snake (*Cemophora coccinea copei*)

The northern scarlet snake is listed as Threatened by the state of Texas. The northern scarlet snake is considered by Texas Parks and Wildlife as rare or uncommon in the state. Preferred habitat for this species is sandy soil in both pine and hardwood forests. It will avoid wet areas,

but can be found along dry sandy ridges in close proximity to baygalls and floodplains (Tennant, 1998). This species has not been documented in the Preserve to date, but potential habitat exists in most of the units.

Smooth Green Snake (*Liochlorophis vernalis*)

The smooth green snake is listed as Endangered by the state of Texas. This species is found throughout the country and lives in a wide variety of habitats. The snake appears to prefer lowland environments, and the population in Texas appears to be limited to the lowlands and prairies of southeast Texas (Conant, 1975). No sightings of smooth green snakes have been documented in the Preserve.

Timber Rattlesnake (*Crotalus horridus*)

The timber rattlesnake (*Crotalus horridus*) is listed as Threatened by the state of Texas. In the past, two subspecies of timber rattlesnake were believed to be in east Texas: the canebrake rattlesnake and the timber rattlesnake (Conant, 1975). However, recent research suggests that the canebrake rattlesnake is simply a color variant and not a separate subspecies (Craig Rudolph, personal communication). Timber rattlesnakes have been documented in the Lance Rosier Unit, Turkey Creek Unit and Big Sandy Unit of the Preserve.

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