

Appendix B. Threatened and Endangered Species

This appendix summarizes information on population and habitat trends to date for Federally-listed T&E (threatened and endangered) species with the potential to occur on the NFGT during FY 09. Habitat and population trends are evaluated in relation to the *Plan's* requirements, forest and USFWS (United States Fish and Wildlife Service) Recovery Plan implementation and risks to the species. The following table summarizes the status and location of those Federally-listed T&E or (C) candidate species that could potentially occur on the NFGT during FY 09. This table is derived from a combination of information from the USFWS, U.S. Forest Service and other natural resource information. It shows which species are known to occur or have potential to occur near (within counties surrounding) the NFGT. The table is used by NFGT personnel to identify those species potentially present on each respective unit that must be considered during site-specific project analysis. In a letter dated January 8, 2008, the NFGT requested concurrence from the USFWS to no longer consider the following species in Biological Evaluations prepared for projects on the NFGT: Texas Trailing Phlox, American Chaffseed, Houston Toad, Whooping Crane, Interior Least Tern, and the Piping Plover. These species or their habitat were not known to occur on NFGT lands. Concurrence was received from the USFWS on February 8, 2008.

Table 1. NFGT Potential Endangered and Threatened Species

Species	Scientific Epithet	Status	SAB	ANG	DC	SH	CADDO	LBJ
Ouachita Rock Pocketbook	Arkensia wheeleri	E					X	
American Burying Beetle	Nicrophorus americanus	E					X	
White Bladderpod	Lesquerellia pallida	E	X					
Earthfruit	Geocarpon minnum	T			X			
Navasota Ladies' -Tresses	Spiranthes parksii	E		X				
Texas Prairie Dawn	Hymenoxys texana	E			X			
Bald Eagle	Haliaeetus leucocephalus	T	X	X	X	X	X	X
Red-cockaded Woodpecker	Picoides borealis	E	X	X	X	X		
Louisiana Black Bear	Ursus americanus luteolus	T	X	X				
Black-capped Vireo	Vireo atricapillus	E						X
Louisiana Pine Snake	Pituophis ruthveni	C	X	X				

E – Endangered, T – Threatened, C - Candidate X – Occurs or has potentially suitable habitat on this forest or grassland.

Suitable Threatened and Endangered Species Habitat Inventoried

Each year, suitable habitat outside of the known locations of certain Threatened, Endangered or Candidate species that occur on the NFGT are inventoried /surveyed before planned management actions or other ground-disturbing activities may proceed. If no action is proposed in suitable habitat, surveys for a species may not be conducted that year. The acres associated with such surveys are reported for these selected species on an annual basis to the USFWS. The species below were specifically surveyed for and reported to USFWS. Table 2 identifies those acres of suitable habitat on NFGT that were

surveyed/inventoried for presence/absence of these selected T&E or Candidate species. This table displays the Number Captured as species that have been handled, banded, etc. and released. Numbers Collected are species that have been captured and placed in a museum or other appropriate place.

Table 2. Inventoried Habitat Calendar Year 2009

Federally Listed Threatened or Endangered	Forest or Grassland/ Suitable Habitat Inventoried/ Surveyed (Acres)	Number Collected	Number Captured
Red-cockaded Woodpecker	<i>Sabine NF – (3,593) Angelina NF – (3,025.2) Davy Crockett NF – (12,004.25) Sam Houston NF – (5,956.8)</i>	None	288
Bald Eagle	<i>Sabine NF – (10,671) Angelina NF – (35.2) Davy Crockett NF – (500) Caddo NG – (700) Sam Houston NF – (7,000)</i>	None	None
Louisiana Black Bear	<i>Sabine NF – (679) Angelina NF – (37.2)</i>	None	None
American Burying Beetle	<i>Caddo- (6,000)</i>	None	None
Navasota Ladies'Tresses	<i>Angelina NF – (0)</i>	None	None
White Bladderpod	<i>Angelina NF – (0)</i>	None	None
Texas Prairie Dawn	<i>0</i>	None	None
Louisiana Pine Snake	<i>Sabine NF – (1850 trap days) Angelina NF – (2590 trap days)</i>	None	None
Black-capped Vireo	<i>LBJ NG – (5, 000)</i>	None	None

Surveys are planned/conducted throughout the field year season for the majority of the species listed as T&E. It is very important to note that, even though specific survey dates for these species were listed in the narratives, all species are considered and surveyed for every time a trip was made into the field. These surveys occurred where suitable habitat for that species was present and it happened to be the correct time of the year for that species to be observed.

The following is a summary (by species) for inventory results for FY 09. Threatened and Endangered Species Red-cockaded woodpecker and the Navasota ladies'-tress were also chosen as management indicators. They are discussed in detail in Appendix A and were not included here.

Background information and detailed monitoring techniques for T&E species are found in previous M&E reports and not repeated in the summaries below.

Ouachita Rock Pocketbook (*Arkensia wheeleri*)

The Ouachita rock pocketbook, previously known as Wheeler's pearly mussel, is a large (reaching approximately 110 mm in length) freshwater mussel with a silky, chestnut brown to black shell (USFWS 1991¹). Like other freshwater mussels, the Ouachita rock pocketbook feeds by filtering food particles from the water column. On October 23, 1991, the Ouachita rock pocketbook was designated as endangered throughout its entire range in Arkansas and Oklahoma (USFWS 1991).

Little is known about its habitat requirements. Historically, it has been found in muddy or rocky substrate, in stream-side channels and backwaters with little or no flow and near riffles. The species appears to be more abundant in pools than in backwaters and to prefer a stable substratum containing a mixture of cobble and gravel. Its range has been seriously reduced by the construction of reservoirs, water quality degradation, and other impacts to its habitat (USFWS 1991). This species may have potential habitat on the Caddo National Grasslands, but efforts to locate it have been unsuccessful.

American Burying Beetle (*Nicrophorus americanus*)

The American burying beetle (ABB) was known historically in at least 150 counties in 35 states in the eastern and central United States as well as portions of Canada. Populations have declined to the point that the species is currently known in only four states: Arkansas, Oklahoma, Nebraska, and Rhode Island. The species was placed on the Federal Endangered List in 1989.² While specific habitat requirements are not known, the habitats where they are known to occur are mostly undisturbed areas characterized by grassland prairie, forest edge and scrubland.

In 2009, surveys for ABB were conducted by Entomologist Stephen Clarke and district personnel. No ABB were found on the Caddo National Grasslands.

¹ U.S. Fish and Wildlife Service. 1991. Endangered and threatened wildlife and plants; final rule to list the Ouachita Rock-Pocketbook (Mussel) as an endangered species. Federal Register 56(205): 54950-54957.

² <http://ngp.ngpc.state.ne.us/wildlife/beetle.html>

Figure 1. American Burying Beetle.³



White Bladderpod (*Lesquerella pallida*)

The white bladderpod is a Federally- and Texas-listed Endangered Species first listed in 1987. Initially discovered in 1830, it was not found again until 1981. It is an erect to spreading annual in the mustard family and plants range from 2 to 25 inches tall. The leaves are alternate, yellowish green to grayish green, slightly hairy, linear to oblong in shape, with smooth, toothed or sometimes wavy margins.

White bladderpod occurs in grassy openings, or on the open edges, of oak-hickory-pine woodlands of East Texas on seasonally wet, non-acidic soils. The range of this species is extremely limited with only seven known populations, all of which occur in San Augustine County, Texas. Its habitat appears to be restricted to seasonally wet, basic soils in naturally treeless glades within pine-oak forests on top of the Weches Geologic Formation.⁴ However, current populations also occur in pastures and along road right-of-ways.⁵ Suitable habitat for this species may occur on the central Sabine NF where outcrops of the Weches Formation occur, but no individuals or populations have been discovered to date.

³ <http://www.sdgfp.info/wildlife/diversity/ABB/abb2004.jpg>

⁴ <http://www.tpwd.state.tx.us/nature/endang/plants/wbladder.htm>

⁵ U.S. Fish and Wildlife Service. 1992. White Bladderpod (*Lesquerella pallida*) Recovery Plan. USDI Fish and Wildlife Service, Albuquerque, New Mexico. 22 pp.

Figure 2. White Bladderpod⁶.



TPWD ©

Earthfruit (*Geocarpon minimum*)

Earthfruit was listed as threatened in 1987. It is a small (one to four cm tall), ephemeral, succulent winter annual plant that usually completes its life cycle within a four-week period in the spring (late February through March.) Young plants are grayish; mature plants reddish-purple. Flowers are inconspicuous.

Figure 3. Earthfruit⁷.



⁶ <http://www.tpwd.state.tx.us/huntwild/wild/species/wbladder/>

⁷ http://www.centerforplantconservation.org/ASP/CPC_ViewProfile.asp?CPCNum=2010

In Texas, it occurs in a saline barren complex at the vegetative (micro-flora) edge of saline 'slicks' (barren spots), just above the floodplain of the Neches River. It is normally found in southwestern Missouri, in three southeastern counties and one northwestern county in Arkansas. It has also been found in two locations in Louisiana. In early 2004, it was confirmed in northeast Texas (Anderson County).

No specific surveys for this species were conducted in FY 09; however, areas to be considered were identified. Currently, there is no known suitable habitat for this species on the NFGT. When this status changes or new information is received, additional surveys will be planned.

Texas Prairie Dawn (*Hymenoxys texana*)

Hymenoxys texana is an annual species belonging to the Asteraceae family. It is a diminutive plant, rarely exceeding 6 inches tall, and is characterized by its small but showy yellow flowers found singly at the end of each stem. The flowering period is late March to early April. It is most often found in poorly drained depressions or at the base of mima mounds (small (usually 10-50 ft. in diameter) low (usually less than 12 inches high) mounds of sandier soil than the surrounding flat area) in open grassland in almost barren areas with *Limnosciadium pumilum*, peppergrass, little barley, and nostoc. This species distribution is currently limited to 21 extant populations in Ft. Bend and Harris Counties west of Houston, and a single recently found disjunct population in the Boggy Slough Club owned by Temple-Inland in Trinity County.

Due to the close proximity of the Trinity County population to lands managed by the National Forests and Grasslands in Texas, surveys have begun in an effort to locate this species on the Davy Crockett NF, also located, in part, in Trinity County. Areas of potential suitable habitat in Compartments 116, 118, 120, and 121 were surveyed on 3/17 and 24/2005, 3/7-8/ 2006, and 3/22/2006. Additional areas of potential suitable habitat in Compartments 20, 21, 26, 114, and 116 were surveyed between 3/5-6/2007. No occurrences were discovered during these surveys and no areas of suitable habitat were documented. To date, there are no known populations of this species on the Davy Crockett NF.

Figure 4. Texas Prairie Dawn .



Hymenoxys texana Photo by Tom Philipps

Navasota Ladies’-Tresses (*Spiranthes parksii* Correll)

This plant species is a Texas endemic primarily known from two river drainages in east-central Texas and a separate disjunct location in east Texas on the Angelina National Forest. Although approximately 100 populations with a total of about 10,000 plants are known, many of the sites are threatened by strip mining and rapid urban encroachment on suitable habitat. This federal and state listed endangered species is endemic to the Post Oak Region of East Central Texas. Navasota Ladies’-Tresses were federally listed as endangered on May 6, 1982. The Global Status of the Navasota Ladies’-Tresses is classified as G3-Vulnerable, and S3-Vulnerable for the state of Texas (NatureServe 2008).

The 1990 TNHP Report noted populations in nine counties, including a disjunct population (one specimen recorded) on the Angelina NF in Jasper County. Though not noted as a Pineywoods plant species, the few hundred acres of barrens habitat and suitable soil conditions on the southern Angelina National Forest indicated more occurrences were possible. This possible site situation and the single known occurrence served as the baseline for the Plan and the potential to improve habitat conditions for more occurrences in barrens habitat in future years.

This species is monitored through ground surveys. Annual surveys are conducted for new populations of this species by Forest Service personnel, partners, and contractors. These surveys may be specific to this species or may be conducted as part of a broader survey effort in support of Forest planning. Information on new populations is recorded via GPS and entered into the Forest GIS database.

The known site and related barrens habitats have been protected and managed to restrict vehicles or other mechanical disturbances. Recent attempts to relocate the population have failed. Detailed research and monitoring is ongoing and will continue cooperatively between the USFWS, Forest Service Research Personnel, TPWD, and the NFGT.

Annual surveys are conducted in barrens habitats on the Angelina National Forest both where this species was found in the past and in other locations. This is a perennial species and it is possible that specimens may be found in the future.

Suitable habitat for the Navasota Ladies'-tresses is limited to areas of Catahoula pine barrens in Compartments 84, 76 and 86 on the Angelina NF. Surveys performed in Compartments 76 in the past have not detected the species. Orzell (1990) reported that the species was found in Compartment 84 on Catahoula formation barrens. Surveys were conducted for *Spiranthes parksii* in suitable habitat on the Angelina NF on October 24-25, 29, and November 7, 2005. No new occurrences for this species were found. Surveys conducted by Philipps in 2006 again failed to locate any representatives of this species. A survey conducted by Philipps, Singhurst, Walker, Loos, and Rudolph in the fall of 2007 again failed to relocate the species. There have been two element occurrence records for this species recorded, in 1986 and 1996. Both occurrences were located on the Angelina NF in Black Branch Barrens; however, all recent attempts to relocate this species have failed. Personal communications with several biologists indicate the species has been found on a barren(s) on Campbell Group forest properties between Compartments 84 and 86.

The two occurrences of Navasota ladies'-tresses on the Angelina NF are within an inclusional community surrounded by fire-maintained communities. This supports the belief that Navasota ladies'-tresses populations need fire as a management tool (MacRoberts et. al. 1997). Black Branch Barrens was prescribed burned in the spring of 2006 and again in 2007.

In addition to the preceding theory, it must be realized that orchids can remain dormant for many years until the particular conditions that trigger growth occur. Both past sightings of this species, in 1986 and 1996, were characterized by specific climatic conditions, specifically wet and cooler springs followed by temperate summers. Those conditions have never exactly been replicated since the last reported sighting, and may be a prerequisite for future occurrences

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle was first listed as a Federally Endangered Species in 1967. It is found throughout North America from northern Alaska and Canada, south to southern California and Florida. Breeding occurs throughout the same area. Nesting in the southeast United States occurs in three primary areas: peninsular Florida, coastal South Carolina, and coastal Louisiana. By 1963, only 417 nesting pairs were found in the lower 48 states.

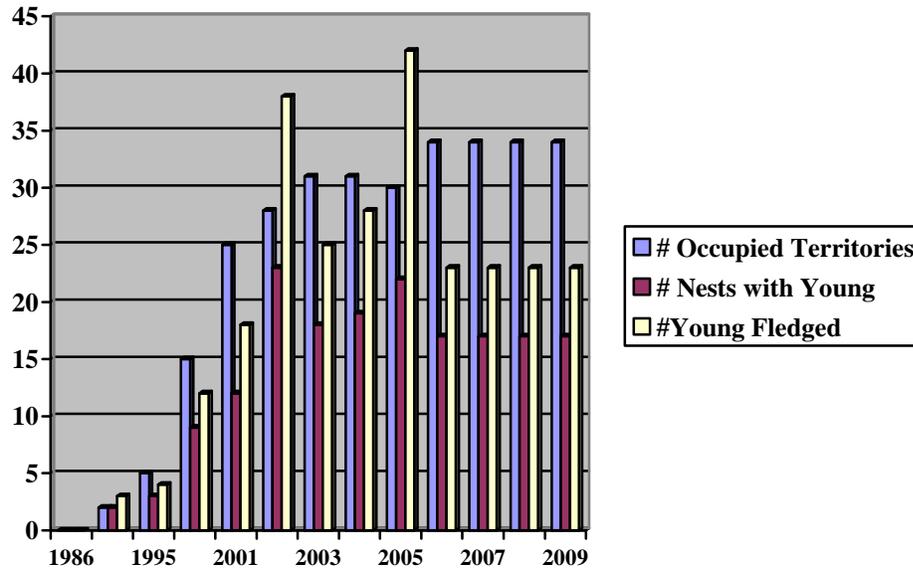
Recovery efforts led to a steady increase in the number of breeding pairs so that by 1998 there were 5,748 pairs in the lower 48 states. A population recovery goal of 40 occupied territories was established by the USFWS for Texas. Texas had just 13 breeding pairs in 1982, but by 1998 there were 62 breeding pairs. In July 1995, the USFWS reclassified the bald eagle from endangered to threatened throughout the lower 48 states (Federal Register, July 12, 1995). Then in July 1999, the USFWS proposed to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife due to continued increases in population levels. The Bald Eagle was delisted on August 9, 2007⁸. The NFGT continues to monitor Bald Eagle populations as a USFS sensitive species.

Bald eagle nest surveys have been conducted on the NFGT in cooperation with the TPWD since 1986, when only one nest was reported. Annual surveys indicate a slow but steady increase in the number of occupied territories, the number of nests observed, and the number of young fledged so that by 2009 there were thirty-four occupied territories, seventeen nests observed, and twenty-three young fledged. Nests sites are located in proximity to large bodies of water, and the Angelina, Sabine, and Sam Houston populations are found near Toledo Bend Reservoir, Sam Rayburn Reservoir, and Lake Conroe, respectively. The Davy Crockett NF has no known eagle nests, most likely due to the lack of any large bodies of water.

Bald eagle mid-winter and nesting surveys have been conducted throughout east Texas since the mid 1980s on private and public lands for any known or suspected bald eagle locations. The annual nesting survey is the most revealing data regarding bald eagles. The nesting survey is a combined effort by biologists from many agencies, coordinated through TPWD (Texas Parks and Wildlife Department).

⁸ <http://www.fws.gov/migratorybirds/baldeagle.htm>

Figure 5. NFGT Bald Eagle Population Trends.



Louisiana Black Bear (*Ursus americanus luteolus*)

The Louisiana black bear is a Federally- and Texas-listed Threatened Species that was first listed in 1992. Its historic range includes all of Louisiana, southern Mississippi, and East Texas. It is currently restricted mostly to the Atchafalaya and Tensas River basins in Louisiana, although the bears are wide-ranging and are occasionally seen in Mississippi. It is unknown whether breeding numbers occur outside of Louisiana. Their habitat consists primarily of bottomland hardwood forests in river basins and floodplains.⁹ Habitat reduction, modification, and fragmentation along with human-induced mortality are the primary causes of the species decline as well as the primary factors limiting its recovery.¹⁰

The National Forests in Texas are on the western edge of the range of the Louisiana black bear. Black bear sightings have increased in recent years, but none have been confirmed to be Louisiana black bear. Active involvement between U.S Forest Service and the U.S. Fish & Wildlife Service and Texas Parks & Wildlife Department on the East Texas Black Bear Task Force is developing management strategies for the future. Specific actions including public awareness, habitat delineation, management and research are being drafted as black bear sightings continue to rise in East Texas and proactive efforts to develop management strategies between agencies and partners is timely.

⁹ <http://endangered.fws.gov/i/a/saa9e.html>

¹⁰ <http://bluegoose.arw.r9.fws.gov/NWRSFiles/WildlifeMgmt/SpeciesAccounts/Mammals/LABlackBear/LABlackBearAck.html>

Figure 6. Louisiana Black Bear¹¹ .



© Photo S. C. Amstrup, USFWS

Black-capped Vireo (*Vireo atricapillus*)

The black-capped vireo (BCV) is a State- and Federally-listed Endangered Songbird that breeds from central Oklahoma, through the Edward's Plateau and Big Bend Region of Texas, and into central Mexico. It occurs in rangelands with scattered clumps of shrubs separated by open grassland. The species is believed to be endangered because the low growing woody cover it needs for nesting has been cleared or overgrazed by deer and cattle. In addition, range fires, which used to keep the grasslands open and the shrubs growing low to the ground, are not as frequent now as they were in pre-settlement times. Brown-headed cowbirds lay their eggs in vireo nests, causing the vireos to abandon their nest.¹² A pre-1900 record in Montague County exists for this species, but there are no recent records in Fannin, Montague, or Wise Counties.

The BCV breeds in specialized habitats in central Texas and into southwest Oklahoma. Historic records exist in areas around the Dallas – Fort Worth metroplex, north and northwest to include Wise and Montague counties where the LBJ Grasslands is located. One unit on the LBJ contains some habitat (less than 100 acres) that is similar to that used by the BCV in other areas of Texas and Oklahoma.

Annual efforts to locate singing males or nests have been conducted in recent years with no success. Surveys were conducted in FY 09. It is presumed by BCV experts that the small amount of habitat present on the LBJ and the isolation of this habitat from known populations of BCV make the possibility of BCV occurring on the LBJ remote. Unless significantly more habitat adjacent to the LBJ is managed for species like the BCV, occurrence during nesting season on the grasslands is unlikely.

¹¹<http://www.tpwd.state.tx.us/huntwild/wild/species/endang/animals/mammals/louisianablackbear/>

¹²<http://www.tpwd.state.tx.us/nature/endang/birds/bcv.htm>

Figure 7. Blackcapped Vireo¹³.



Louisiana Pine Snake (*Pituophis ruthveni*)

The Louisiana pine snake is a candidate for Federal listing and is considered a large snake, usually (4-5 feet) long, and exhibits a remarkably low reproductive rate, with the smallest clutch size (usually 4 but range of 3-5) of any similar North American snake, but also produces large hatchlings. The low reproduction rate magnifies threats to the species, and increases the potential for local extirpations. Louisiana pine snakes generally spend most of their time below ground and inactive in mammal burrows, and remain primarily subterranean virtually year-round. Pine snakes appear to be most active during spring and fall and least active in winter and summer. Pocket gophers appear to be the primary food source of pine snakes, although other reported food items have included other rodents, cottontails, amphibians, and ground-nesting birds and eggs.

The Louisiana pine snake is generally associated with sandy, well-drained soils, open pine forests, especially longleaf-pine savannah, moderate to sparse midstory, and a well-developed herbaceous understory dominated by grasses. Its activity appears to be heavily concentrated on low, broad ridges overlain with sandy, well-drained soils. The species historically occurred in portions of west-central Louisiana and extreme east-central Texas, roughly coinciding with a disjunct portion of the longleaf pine ecosystem situated west of the Mississippi River. It is commonly believed that fire suppression is a significant detriment to this species.

¹³ www.people.eku.edu/ritchisong/bcvireonest.jpg

Pocket gophers appear to be an essential component of Louisiana pine snake habitat. They create the burrow systems in which the pine snakes are most frequently found, and serve as a major source of food for the species. Habitat selection by pine snakes seemed to be determined by the abundance and distribution of pocket gophers and their burrow systems. Pocket gopher abundance is dependent upon an abundance of herbaceous ground-cover and loose, sandy soils and are more common in pine forests and open pine plantations, and less common in clear-cuts and other forest types. As habitat improvement continues on the southern Sabine and Angelina National Forests, numbers of Louisiana pine snake occurrences are expected to increase.