

## Appendix I

### Comments Concerning Federally Listed Endangered Species

The following information and management guidelines are from the 130 page book "Endangered and Threatened Animals of Texas - Their Life History and Management", by Linda Campbell. Published by the Texas Parks and Wildlife Press, Austin, Texas in 1995. Distributed by the University of Texas Press, Austin, Texas, and revised in 2003 as an electronic book available on the TPWD website at [www.tpwd.state.tx.us](http://www.tpwd.state.tx.us).

## Red-cockaded Woodpecker

Scientific Name: *Picooides borealis*  
Federal Status: Endangered, 10/13/70 •  
State Status: Endangered

### Description

The Red-cockaded Woodpecker is an eight-inch long woodpecker with a solid black cap and nape, and prominent white cheek patches. The male has a tiny red streak behind the eye and near the ear (the cockade). The cockade is seldom visible in the field, making it difficult to distinguish males from females. The Red-cockaded Woodpecker is similar to the Downy and Hairy Woodpeckers in general appearance, except that it has a barred back, spotted breast, and the male has red on either side of the head rather than on the nape.



### Habitat

The Red-cockaded Woodpecker is found in mature pine forests of east Texas and the southeastern United States. It is the only species of woodpecker that excavates its cavities exclusively in living pines. In Texas, cavities have been found in longleaf, loblolly, shortleaf, and slash pines.

Most cavities are found in trees 60 to 70 years of age or older. The tree must have enough heartwood (older, non-living, inner portion of wood) to contain the roosting chamber, since a chamber in sapwood (younger, living portion of wood) would fill with resin. Since heartwood is very hard, a large percentage of cavities are found in pines infected with a heart rot fungus called red heart. This fungus weakens the heartwood and makes cavity excavation easier.

A cluster is a stand of trees containing and surrounding the cavity trees in which a group of Red-cockaded Woodpeckers nest and roost. Preferred cluster sites are mature, park-like pine stands with 50 to 80 square feet of basal area per acre (about 90-145 trees averaging 10 inches in diameter). Ideally, clusters should have a grassy or herbaceous understory with few or no midstory hardwood or pine trees above 6 feet in height. Controlling midstory growth is especially critical within 50 feet of all cavity trees. Once the midstory grows to the level of the cavities (20-

50 feet above the ground), a high rate of cavity abandonment occurs. A few widely scattered hardwood trees and shrubs do not harm the woodpeckers and are beneficial to other wildlife. However, control of dense thicket-like midstory vegetation is essential to maintain the cluster site.

An important function of the cluster site is to provide a source of new cavity trees. Cavity trees are generally used for several years, but an average of 5% of loblolly and shortleaf, and 1% of longleaf pines die each year. Some causes of mortality include infestation by bark beetles, wind snap, and fire. Also, cavity enlargement by Pileated Woodpeckers often makes cavities unusable by the Red-cockaded Woodpecker. Clusters should be at least 10 acres in size, with 10-30 mature pines, to ensure cavity trees for the future.

The best cluster site will not be used if the foraging or food gathering habitat is not suitable. Red-cockaded Woodpeckers exhibit a distinct preference for large living pines as foraging sites. Good foraging habitat consists of pine stands with trees 10 inches and larger in diameter measured at 4.5 feet above the ground. These birds also forage in pole stands, consisting of pines 4 to 10 inches in diameter. However, little use is made of sapling stands, which contain pines less than 4 inches in diameter. Red-cockaded Woodpeckers are also known to actively seek and forage extensively on pines infested by southern pine beetles (bark beetles). The quality of the foraging habitat determines the amount needed to support a group of woodpeckers. While 125 acres of well-stocked (100-140, 10-inch or larger diameter trees per acre) mature pine is sufficient for some groups; where habitat conditions are less ideal, groups may require several hundred acres to meet their foraging needs.

## **Life History**

The Red-cockaded Woodpecker has a complex social system. These birds live in groups, which usually have two to six birds, although as many as nine birds have been observed. The group may consist of only a mated pair; a mated pair with their current year's offspring; or a mated pair, their current year's offspring and helpers. These helpers are one to three year old adult birds, typically sons of one or both of the breeders. Helpers assist in incubating the eggs, feeding young, constructing new cavities, and defending the group's territory.

Although Red-cockaded Woodpecker groups may consist of a number of adult birds during the nesting season, there is only one mated pair. A breeding male may live for several years; and when he dies, one of his helper sons generally becomes the breeding male.

A woodpecker group roosts and nests in a cluster of cavity trees. The cluster may include 1 to 30 cavity trees. Most clusters have some cavities under construction, some completed and in use, and some abandoned, often occupied by competitors.

Generally, each member of a woodpecker group has its own cavity for roosting. Red-cockaded Woodpeckers defend their cavities from members of other groups and from other animals. Major competitors for nest cavities include other woodpeckers (Red-headed, Red-bellied, and Pileated) and flying squirrels. From an ecological perspective, the Red-cockaded Woodpecker is largely responsible for the majority of initiation and excavation of cavities within pine dominated forests of the southeast, and their abandoned cavities provide nesting and roosting cavities for a number of other animal species like screech owls.

Red-cockaded Woodpeckers nest from April through July. Group members assist with incubating the eggs during the day, and the breeding male stays with the eggs at night. The eggs hatch in 10 to 12 days. Young birds leave the nest in about 26 days, but remain with the

group. Studies have shown higher nestling survival at nests attended by helpers.

The diet of the Red-cockaded Woodpecker consists mainly of insects (85%), but also includes small fruits and seeds (15%). The birds concentrate their search for food on the trunks and limbs of live pine trees. They scale the bark and dig into dead limbs for insects and larvae.

Compared to decayed wood, the sapwood and heartwood of a living pine is very hard and difficult to excavate. The average time required to excavate a cavity is 1 to 3 years for loblolly and shortleaf pine, and 4 to 7 years for longleaf. Once the sapwood is penetrated, the abundant resin flow that occurs creates another barrier. Most of the work on cavities occurs in summer after the young leave the nest. Cavity excavation occurs primarily in the morning, but can occur any time during the day. Once completed, a cavity is used for several years. Cavities in longleaf pine are sometimes used for 20 and even 30 years.

Cavities are constructed by tunneling at an upward slope through the sapwood so that the resin or pitch will drain from the hole. Once the birds have tunneled into the heartwood a sufficient distance, they excavate downward, forming a gourd-shaped chamber about 6 to 10 inches deep and 3 to 5 inches wide. Near the cavity entrance, numerous small holes called resin wells are chipped through the bark. The birds regularly peck at resin wells to keep resin flowing.

Red-cockaded Woodpeckers maintain open cavity holes by removing the growing tissue from around the holes. Eventually, the birds expose the sapwood for several inches around the entrance. This exposed area is called the plate. Pitch from the plate and resin wells coats the trunk of the cavity tree. The continuous flow of resin deters predators, especially snakes. Actively used trees have clear, sticky pitch, and freshly chipped, reddish bark around the resin wells and plate. These cavity trees, with resin flowing down their boles or trunks from the plate and resin wells, have an appearance similar to “melting candles” within the forest.

## **Threats and Reasons for Decline**

The main threat to the survival of the Red-cockaded Woodpecker is the decrease in the quality and quantity of old growth pine forest nesting habitat, primarily due to short rotation (harvest cycle) timber management. Fire suppression has also been detrimental due to the importance of fire events in controlling the mid-story vegetation in Red-cockaded habitat. Additional research has shown that the well developed grassy-herbaceous plant under-story characteristic of fire-influenced ecosystems plays an important role in producing arthropod (spider) and insect populations utilized as food sources. Because of this bird’s requirement for older mature pines, habitat loss takes a long time to rectify. It may take 60 to 70 years to begin to provide suitable nesting habitat. Ideally, rotation ages of 100 years for loblolly, and 120 years or more for shortleaf and longleaf pine are needed to produce trees with the required amount of heartwood and frequency of red heart fungus.

Some of the potential adverse effects of current forest management practices on Red-cockaded Woodpecker habitat can include: (1) short timber rotations (25-45 years) result in loss of suitable nesting and roosting habitat, (2) leaving only cavity trees and cutting all others within a cluster reduces foraging habitat and does not allow for cavity tree replacement, (3) leaving isolated clusters surrounded by harvested areas reduces foraging habitat and may increase predation by forcing birds to cross large open areas, (4) removing all dead and dying trees results in loss of habitat for other cavity-nesters, thereby increasing competition for Red-cockaded nest cavities, (5) preserving cavity trees and removing other dominant trees in a cluster makes the cavity tree the tallest in the area and subject to lightning strikes and wind damage, (6) careless use of pesticides may poison the birds directly or decrease their food

supply below the minimum level needed for reproduction, and (7) noise and activity of logging operations in the vicinity of a cluster during the breeding season can disrupt nesting success.

Southern pine beetle infestations have been found to be a major cause of cavity tree loss in Texas. This is particularly true during southern pine beetle epidemics, such as the one that occurred on the Sam Houston National Forest in 1983 following hurricane Alicia. Active management is needed to reduce the loss of cavity trees and foraging habitat to southern pine beetles.

Another threat to Red-cockaded Woodpecker cavity trees is damage from meteorological events like hurricanes, tornadoes and sheer winds. A large-scale sheer wind event that occurred in February, 1998, on the Sabine National Forest resulted in loss of the majority of cavity trees. Cooperative efforts to install artificial cavity inserts to replace lost cavity trees were initiated immediately to conserve the Red-cockaded Woodpecker groups, and this effort was highly successful. However, this event reinforces the need to conserve and increase the number of groups across the region, and throughout the range of the species.

In 2002, there were 342 known active Red-cockaded Woodpecker clusters in east Texas, including 277 (81%) on National Forests, 19 (5.5%) on state lands, 29 (8.5%) on forest products company lands, and 17 (5%) on non-industrial private landowner properties. These clusters were distributed within 15 counties of the Pineywoods Region of eastern Texas.

## **Recovery Efforts**

Despite the problems facing the Red-cockaded Woodpecker, recovery efforts are proceeding on federal, state and private properties in Texas. There are a number of management strategies that have been implemented since the first edition of this publication that are contributing significantly to the recovery of this species within eastern Texas, and across the West Gulf Coastal Plain.

As shown above, the majority of the known Red-cockaded Woodpecker clusters within eastern Texas occur on federal lands within the National Forests of Texas; including the Angelina, Davy Crockett, Sabine and Sam Houston National Forests. Under the recently revised (January, 2003) U.S. Fish and Wildlife Service Red-cockaded Woodpecker Recovery Plan, the Red-cockaded Woodpecker population on the Sam Houston National Forest has been designated as a Recovery Population in the Upper West Gulf Coastal Plain. The Angelina and Sabine National Forest populations are functionally one population, and have been designated as such under the plan as a Recovery Population in the West Gulf Coastal Plain. The Davy Crockett National Forest population has been designated in the plan as a Support Population in the West Gulf Coastal Plain. In 1996, the National Forests in Texas designated over 288,000 acres as a Habitat Management Area (HMA) to provide for recovery of this species and its ecosystem in the West Gulf and Upper West Gulf Coastal Plain of Texas. The overall established population goal for these lands is 1,385 active clusters with goals of 541 clusters on the Sam Houston, 514 on the Angelina/Sabine, and 330 on the Davy Crockett National Forests.

There are currently three state properties with active Red-cockaded Woodpecker clusters in east Texas. The Texas Forest Service manages populations on the W. Goodrich Jones State Forest near Conroe, Texas, and on the I.D. Fairchild State Forest near Rusk, Texas. There is an active group as well on the Sam Houston State University Biological Research Facility near Huntsville, Texas. Red-cockaded Woodpecker groups from the W. Goodrich Jones State Forest and The Sam Houston State Biological Research Facility contributes to, or is functionally part of

the overall Sam Houston National Forest Recovery Population.

The remaining Red-cockaded Woodpecker groups within the region occur on private property; forest products corporation lands, and non-industrial private forest landowner properties. State and federal agencies are working cooperatively with these private landowners to conserve existing Red-cockaded Woodpecker groups and their nesting and foraging habitats, and to restore native ecosystems beneficial to the species across the Pineywoods landscape of east Texas.

A cooperative effort was initiated in 1994 to develop a strategy for the management of Red-cockaded Woodpecker populations on private properties within the Pineywoods of eastern Texas. This effort involved federal and state biologists and resource managers, forest product corporation biologists and resource managers, non-corporate private landowners and land managers, conservation organizations, and university academicians. These entities were divided into two working groups, a steering committee and a scientific advisory board. The work of these diverse individuals resulted in the development of a Regional Habitat Conservation Plan for Redcockaded Woodpecker in the East Texas Pineywoods (Regional RCWHCP). A Section 10(a)(1)(B) incidental take permit was issued jointly to the Texas Parks and Wildlife Department and the Texas Forest Service by the U.S. Fish and Wildlife Service on February 20, 1998.

The basic concept of the Texas Regional RCW-HCP, is that cooperating landowners properties are surveyed for existing RCW groups, and then a baseline responsibility is established to maintain the number of existing RCW clusters occurring on the private property at the time of survey. The private landowner then develops a Conservation Agreement with the State to manage existing, or baseline RCW groups, and their necessary nesting and foraging habitat into the future. The benefit to the RCW groups on these properties is easily understood, and the existing number of RCW groups is conserved for the future. The primary benefit to the private landowner, who is already responsible for management of existing RCW groups on their property under the Endangered Species Act, is that the establishment of a baseline condition provides certainty for future land management. By working cooperatively with the State, and through the use of modern technology used in RCW management, forest management objectives and RCW conservation objectives can be integrated. This integrated management provides a "win-win" situation for the landowner and the RCW groups. In addition, landowners enrolled in the program can produce "RCW-friendly" pine forest habitat without the fear of loss of control of the property.

The first two landowners within the State to enroll in the Regional RCW-HCP were Champion International Corporation (1,038,000 acres), and Temple-Inland Forest Products Corporation (1,247,260 acres). These companies enrolled jointly in the program in March, 1999. Temple-Inland established a baseline of 14 RCW groups and designated 3,000 acres specifically for RCW at its Scrappin' Valley Habitat Management Area in Newton County, Texas. Champion established a baseline of 4 RCW groups and designated 2,000 acres specifically for RCW at its Brushy Creek Experimental Forest. Temple-Inland has actually performed significant RCW management actions at Scrappin' Valley, and corporately has RCW groups that are presently in excess of their baseline condition. Champion International subsequently sold their properties to International Paper Company, and International Paper assumed their obligations under the Regional RCW-HCP. Subsequently, and presently, International Paper is divesting itself of a number of properties within Texas. The RCW Habitat Management Area at Brushy Creek Experimental Forest has been assumed by the Heartwood Forestland Fund IV Investment Group, and they have assumed baseline responsibilities under the Regional RCW-HCP.

Currently active RCW management tasks are being performed there, and current RCW groups exceed the original baseline initially established by Champion International. Both of the RCW Habitat Management Areas previously discussed provide habitat linkages or corridors across the landscape to existing RCW population centers on National Forest and State Forest lands.

In addition, to these corporate properties, there are presently 17 non-industrial private forest landowners enrolled in the Regional RCW-HCP. These landowners have a combined total of 8,477 acres enrolled in the program, with a combined baseline of 14 groups. One of these properties enrolled, Cook's Branch Conservancy in Montgomery County, Texas, contains approximately 5,600 acres of mature pine forest habitat, and has a baseline of 13 active RCW groups. In addition to providing habitat linkages or corridors to existing RCW population centers, this property contains the largest number of active RCW groups on a non-industrial private forest west of the Mississippi River. This landowner's overall goal is conservation of the RCW and the natural ecology of the property. Their management plan includes active forest management, wildlife management and recreation management. This property was awarded a Texas Lone Star Land Steward Award for its efforts.

Most of these non-industrial forest landowners have RCW baseline conditions of 0 (zero), but have properties in close proximity to existing RCW core populations. Enrollment in the program will encourage these landowners, through active forest management, to produce suitable nesting and foraging habitat for RCW, and could prevent a number of them from taking their properties out of forest production resulting in significant loss of critical RCW foraging habitat near RCW population centers. The cooperative atmosphere between RCW biologists and landowners will enhance adaptive management strategies to utilize any RCW groups that may occur on these lands with baseline conditions of 0 (zero). Ultimately, these landowner's maintain control of these properties in their baseline condition, and any further provisions for RCW on their part are voluntary.

Overall Red-cockaded Woodpecker populations across the region are mostly stable or increasing as a result of active management through habitat improvements (removal of mid-story vegetation, and prescribed burning), insertion of artificial cavity inserts (nest boxes placed on the inside of the tree), and relocation strategies known as augmentations or translocations. These relocation strategies involve moving young females or males to single bird clusters or pairs to established recruitment clusters in suitable habitat in an effort to conserve existing clusters and to start new clusters. Recent techniques such as artificial cavities and augmentation are helping to prolong the useful life of some cavities, to create man-made cavities where suitable natural cavities are limited, and to address short-term problems of isolation and fragmentation. Texas participates in an annual interstate effort known as the West Gulf Coastal Plain RCW Augmentation/Translocation Cooperative with the states of Arkansas, Louisiana and Oklahoma. The purpose of this effort is to increase RCW populations, and ultimately recover all RCW populations west of the Mississippi River.

State and federal agencies are working with private landowners interested in developing Red-cockaded woodpecker conservation and habitat management plans for their property. Conservation planning and habitat management, providing information to landowners and the public, and monitoring woodpecker populations are all important parts of the recovery process. In addition to these tasks, both the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service are providing monetary incentives to private landowners that are managing properties for RCW. The Department has a program entitled the Landowner Incentive Program, and the Service has a program entitled Partners for Wildlife that provide challenge cost-share grants to landowners in the performance of management for habitats of rare species like the

RCW, and native ecosystems that are in decline.

## **Where To See Red-cockaded Woodpeckers**

A number of state and federal properties offer opportunities to see and learn more about Red-cockaded Woodpeckers. These include the Alabama Creek, Bannister, and Moore Plantation Wildlife Management Areas; the W. Goodrich Jones and I.D. Fairchild State Forests; the Angelina, Davy Crockett, Sabine and Sam Houston National Forests.

## **How You Can Help**

There are a number of things that you can do to help with conservation of the Red-cockaded Woodpecker in eastern Texas. First, if you own mature pine, and pine-hardwood forests in eastern Texas, you can consider forest management strategies that promote the mature forest conditions preferred by this rare species. In managing these forests, strategies that promote open, "park-like" forest conditions like thinning and prescribed burning will provide habitat. The importance of fire events in the ecology of the upland pine ecosystem of Texas, particularly in the herbaceous/grassy layer of the under-story in these forests, is paramount in restoration and conservation of this ecosystem. In addition, forest landowners within the habitat of the RCW, can take advantage of the Regional RCW-HCP, the Landowner Incentive Program and the Partners for Wildlife Programs, for assistance in management of these upland pine habitats.

Conservation organizations in Texas also welcome your participation and support. Finally, you can encourage and support private landowners who are managing their land to protect endangered species and their habitat.

## **For More Information Contact**

Texas Parks and Wildlife Department  
Wildlife Diversity Program  
4200 Smith School Road  
Austin, Texas 78744  
(512) 912-7011 or (800) 792-1112

or

Texas Parks and Wildlife Department  
Regional Wildlife Diversity Biologist  
P.O. Box 4655, SFA Station  
Nacogdoches, Texas 75962  
(936) 564-0234

or

U.S. Fish and Wildlife Service  
Ecological Services Field Office  
10711 Burnet Road, Suite 200  
Austin, Texas 78758  
(512) 490-0057

or

U.S. Fish and Wildlife Service  
East Texas Field Office  
701 N. First Street  
Lufkin, Texas 75901  
(936) 639-8546

Management guidelines are available from the Texas Parks and Wildlife Department and U.S.

Fish and Wildlife Service for landowners and managers wishing to manage timberlands to benefit the Red-cockaded Woodpecker.

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## Management Guidelines for the



# Red-cockaded Woodpecker

Landowners with Red-cockaded Woodpeckers can implement management practices that enhance survival, regardless of the size of their property. However, because these birds forage over large areas, forest conditions on adjacent land may ultimately determine the fate of the birds. On larger tracts, particularly those 200 acres or larger, these birds can be maintained with greater assurance. Successful management for Red-cockaded Woodpeckers must do five things: (1) retain existing cavity trees, (2) provide trees for new cavities, (3) provide adequate foraging habitat, (4) control hardwood and pine mid-story in the cluster site, and (5) provide for future cluster sites.

## Cluster Site

Do not remove or damage active cavity trees. Selective cutting within cluster sites can be used to maintain the desired basal area. However, thinning within a cluster site should not be done if stocking is below 50 square feet of basal area per acre of stems 10 inches DBH or larger. Also, all potential cavity trees (older, relict pines) within the cluster should be retained for replacement cavities. Do not isolate cluster sites from foraging areas of pines 4 inches or greater in diameter.

Burning or otherwise treating cluster areas to control mid-story vegetation is vital. Do not allow mid-story to exceed 6 feet in height, especially within 50 feet of the cavity trees. In cluster sites lacking past hardwood control, the fuel load may be too great to burn without destroying the cavity trees. In these cases, it may be necessary to remove them by cutting or use of herbicide. Raking to remove mulch at the base of cavity trees is also helpful in preventing fire damage. Regular, periodic prescribed burning should be implemented to control mid-story growth and maintain the open forest preferred by the birds.

Pine stands surrounding cluster sites should be thinned to 50 to 80 square feet of basal area per acre. Maintain groups of larger pines (10 to 12 inches or larger DBH) within the surrounding forest for future cluster sites. Leave some dead and abandoned cavity trees of both pine and hardwood for other cavity nesters, to reduce competition for the Red-cockaded cavities. Maintain a spacing of 20 to 25 feet between trees to maintain stand vigor and minimize the probability of southern pine beetle infestation and spread.

## Foraging Area

Provide adequate foraging habitat to support existing clusters and to facilitate establishment of new territories. A minimum of 3,000 square feet of pine basal area (10-inch DBH or larger) should be provided on at least 60 acres and up to 300 acres for each active cluster. Avoid isolating cluster sites from foraging areas. Most of the foraging acreage should be adjacent to (within 300 ft.) or within 1/4 mile of the cluster site. Thin sapling and pole stands to improve diameter growth and open the pine stand to a condition more favorable for the woodpecker. Prescribe burn for hardwood control. When regenerating stands, plant pines at 10x10 or 12x12 foot spacing to encourage rapid stand development. Use natural regeneration, such as seed tree, shelterwood, and group selection to develop an open park-like stand of pines. Favor longleaf pine over loblolly and shortleaf whenever possible.

## Rotation Age

Generally, the longer the rotation age, the greater the opportunity the Red-cockaded Woodpecker has to maintain existing clusters and to create new ones. Rotation cycles of 80 to 120 years are encouraged. When it is not feasible to have long rotations over the entire

ownership, setting aside smaller acreages of older pines will benefit the bird. Also, leaving old-growth remnant groups of trees well distributed throughout younger stands, and maintaining small remnant stands or patches of old-growth pines throughout the forest are helpful.

### **For More Information Contact**

For detailed timber management guidelines, private landowners are referred to the U.S. Fish and Wildlife Service, Draft Red-cockaded Woodpecker Procedures Manual for Private Lands, by Ralph Costa. A number of management options are available for landowners with Red-cockaded Woodpeckers on their land. Contact the Texas Parks and Wildlife Department at (800) 792-1112 (Austin), (512) 912-7011 (Austin), or (409) 564-7145 (Nacogdoches); or the U.S. Fish and Wildlife Service at (409) 639-8546 (Lufkin) for more information.

# Bald Eagle

Scientific Name: *Haliaeetus leucocephalus*

Federal Status: Threatened • State Status: Threatened

## Description

The Bald Eagle is one of nature's most impressive birds of prey. Males generally measure 3 feet from head to tail, weigh 7 to 10 pounds, and have a wingspan of 6 to 7 feet. Females are larger, some reaching 14 pounds with a wingspan of up to 8 feet. Adults have a white head, neck, and tail and a large yellow bill. First year birds are mostly dark and can be confused with immature Golden Eagles. Immature Bald Eagles have blotchy white on the under wing and tail, compared with the more sharply defined white pattern of Golden Eagles. While gliding or soaring, Bald Eagles keep their wings flat, and their wing beats are slow and smooth. In contrast, Turkey Vultures soar with uplifted wings, and they fly with quick, choppy wing beats. Bald Eagles require 4 or 5 years to reach full adult plumage, with distinctive white head and tail feathers.



## Distribution and Habitat

The Bald Eagle, our National Symbol, occurs throughout the United States, Canada, and northern Mexico. Bald Eagles are present year-round throughout Texas as spring and fall migrants, breeders, or winter residents. The Bald Eagle population in Texas is divided into two populations; breeding birds and nonbreeding or wintering birds. Breeding populations occur primarily in the eastern half of the state and along coastal counties from Rockport to Houston. Nonbreeding or wintering populations are located primarily in the Panhandle, Central, and East Texas, and in other areas of suitable habitat throughout the state.

The Bald Eagle in Texas formerly nested in the Panhandle, throughout East Texas, and at localized sites in central Texas. Populations declined throughout the lower 48 states during the 1900's with habitat destruction and use of pesticides detrimental to the species. Nesting populations are now increasing in most areas of the country. Active nests in Texas increased from 13 in 1982 to 117 in 2003. Breeding territories are located mostly along rivers and near reservoirs in East Texas, the Post Oak region, and the Gulf Coast. The nesting near reservoirs by Bald Eagles is a rather recent event, since this habitat type was not available to eagles historically. As of 2003, Bald Eagle nests are known to occur in Angelina, Austin, Bastrop, Bell, Bosque, Brazoria, Burleson, Calhoun, Cass, Chambers, Colorado, Fayette, Fort Bend, Freestone, Goliad, Grimes, Harris, Henderson, Jackson, Jasper, Kaufman, Lavaca, Liberty, Limestone, Llano, Marion, Matagorda, Montgomery, Nacogdoches, Navarro, Navasota, Newton, Panola, Polk, Refugio, Robertson, Rusk, Sabine, San Augustine, San Jacinto, Shelby, Smith, Trinity, Victoria, Walker, Wharton, and Wood counties.

In Texas, Bald Eagles nest in areas along river systems, reservoirs or lake shores with large, tall

(40- 120 ft.) trees for nesting and roosting. Nests are usually located within 1 mile of water, such as lakes, reservoirs, creeks or rivers, and are often located in the ecotone or edge between forest and marsh or water. Bald Eagles often build their nests in the tallest trees in an area, providing an unobstructed view and flight path to the nest. Nests are built in a variety of tree species. Eagles nest primarily in loblolly pine in East Texas.

Throughout the rest of its Texas breeding range, nests are found in a variety of trees, including bald cypress, water oak, live oak, American elm, cottonwood, sycamore, and pecan. Open water or wetland areas located within approximately 1 mile of nesting habitat are needed to provide feeding areas.

Most of the Bald Eagles seen in Texas breed in the northern states and spend the winter (December through March) in Texas. Wintering populations may occur statewide, but generally are found near large lakes and reservoirs, such as Lake Meredith, Buffalo Lake, Lake Texoma, Wright-Patman Lake, Lake O' the Pines, Lake Fork, Lake Tawakoni, Lake Whitney, Lake Fairfield, Toledo Bend Reservoir, Sam Rayburn Reservoir, Lake Livingston, Lake Conroe, Lake Buchanan, Lake Cooper, Lake Palestine, Lake Pat Mayse, Lake Warren, and Palo Duro Lake, or in the rice growing region hunting waterfowl.

Bald Eagle wintering habitat is characterized by abundant, readily available food sources. Most wintering areas are associated with open water or waterfowl concentration areas, where eagles feed on fish or waterfowl. Wintering populations are also found on rangelands of the Davis Mountains, western Edwards Plateau, and the Panhandle, where eagles may take rabbits and feed on carrion.

The availability of night roost sites is often an important characteristic of wintering habitat. Bald Eagles may roost singly or in groups, and the same roosts are used from year to year. Roost trees are usually the oldest and largest trees in an area, and most have large horizontal limbs and open branching that allows plenty of room for takeoff and landing. Eagles generally choose roosts that allow unobstructed visibility to the surrounding areas, with a minimum of human activity in the immediate vicinity. Roost sites are often located near water, but eagles also roost on windbreaks and in secluded canyons well away from water.

## **Life History**

Bald Eagles are opportunistic predators. They feed primarily on fish, but also eat a variety of waterfowl and other birds, small mammals, and turtles, when these foods are readily available. Carrion is also common in the diet, particularly in younger birds. Bottom-dwelling fish tend to occur more frequently in the diet. It is thought that the downward visual orientation of bottom-feeding fish makes them more vulnerable to eagle attacks than surface sight-feeders, which are more aware of movements from above. Eagles capture fish by extending their talons a few inches below the water's surface. Therefore, live fish are vulnerable only when near the surface or in shallows. Studies in Texas have shown that eagles commonly eat coots, catfish, rough fish, and soft-shell turtles.

In Texas, Bald Eagles nest from October to July. Nests are constructed primarily by the female, with the male assisting. The typical nest is constructed of large sticks, with softer materials such as leaves, grass, and Spanish moss used as nest lining. Nests are typically used for a number of years, with the birds adding nest material every year. Bald Eagle nests are often very large, measuring up to 6 feet in width and weighing hundreds of pounds. Eagles often have one or more alternative nests within their territories.

Peak egg-laying occurs in December, with hatching primarily in January. The female lays a clutch of 1 to 3 eggs, but the usual clutch is 2 eggs. A second clutch may be laid if the first is lost. Incubation begins when the first egg is laid and usually lasts 34 to 36 days. The young generally fledge (fly from the nest) in 11 to 12 weeks, but the adults continue to feed them for another 4 to 6 weeks while they learn to hunt. When they are on their own, young Bald Eagles migrate northward out of Texas, returning by September or October.

Nest surveys in Texas from 1981-2003 have shown that greater than 80% of the active nesting territories successfully produced young, with production averaging greater than 1 young per active nest found. Studies show that at least 70% of the juveniles survive their first year. Causes of first year mortality include disease, lack of food, inclement weather, and human interference. Bald Eagles reach sexual maturity at 4 to 6 years of age; however, they have been known to successfully breed at 3 years. They are monogamous and are believed to mate for life; however, if one of the pair dies, the surviving bird will accept another mate. Bald Eagles are believed to live up to 30 years or more in the wild.

## **Threats and Reasons for Decline**

Habitat loss over the past 200 years is the factor most consistently associated with declines in Bald Eagle populations. Unfortunately for eagles, people also like to live and spend their leisure time near water. In recent decades, the accelerated pace of development along the coast and near inland rivers and waterways is a primary cause of habitat loss. There are, however, encouraging signs in Texas that a significant amount of new habitat has been created in the form of man-made reservoirs. Most reservoirs in eastern Texas, especially those bordered by national forests, are used by nesting eagles, and are also used to some degree by wintering birds. Hopefully, if human disturbance is kept to a minimum, a redistribution of nesting to reservoirs may offset some habitat loss in other areas. Shooting has long been recognized as a major human-caused factor in the decline of Bald Eagles. Although primarily fish and carrion eaters, eagles were thought to be a major threat to chickens, livestock, and game animals. As a consequence, many were killed by farmers, ranchers, and hunters. In 1940, Congress passed the Bald Eagle Protection Act, which made it illegal to shoot or harass eagles. In 1969, Bald Eagles gained further legal protection under federal endangered species laws. With heightened public awareness and sensitivity to the plight of the Bald Eagle, coupled with strict laws, shooting mortality has declined from 62% of total reported deaths from 1961-1965 to 18% from 1975-1981. Although this downward trend is encouraging, shooting mortality could still be a limiting factor, particularly in remote areas.

Human disturbance can also be a cause of population decline. Activities such as logging, oil exploration and extraction, construction, and recreational activity certainly do disturb eagles in some instances. However, the impact of these disturbances is highly variable, depending on the activity, its frequency and duration, its proximity to areas used by eagles, the extent to which the activity modifies the habitat or its use, and timing in relation to the reproductive cycle. Also, some birds are more tolerant of disturbance than others, with adults generally less tolerant than immature birds. Despite this variability, disturbance near nests has caused nesting failures.

Finally, the most dramatic declines in Bald Eagle populations nationwide resulted from environmental contaminants. Beginning in 1947, reproductive success in many areas of the country declined sharply, and remained at very low levels through the early 1970's. After several years of study, the low reproduction of Bald Eagles and many other birds was linked to widespread use of the insecticides DDT and Dieldrin. These insecticides were used extensively in agriculture and forestry beginning in 1947. As DDT entered watersheds, it became part of the

aquatic food chain, and was stored as DDE in the fatty tissue of fish and waterfowl. As eagles and other birds of prey fed on these animals, they accumulated DDE in their systems. Although occasionally causing death, DDE mainly affected reproduction. Some birds affected by the chemical failed to lay eggs, and many produced thin eggshells that broke during incubation. Eggs that did not break were often addled or contained dead embryos, and the young that hatched often died. Dieldren killed eagles directly rather than causing thin eggshells, but compared to DDT, Dieldren was probably not as important in overall Bald Eagle declines. In 1972, the EPA banned the use of DDT in the United States. Since the ban, DDE residues in Bald Eagle eggshells have dropped significantly, and a slow recovery of eagle productivity has occurred. Most populations appear to be producing chicks at the expected rate.

Of more recent concern is evidence that lead poisoning may be a significant cause of death in eagles. Chronic low levels of lead can produce nervous system disorders, affect behavior and learning, cause anemia, and increase susceptibility to disease. As laws requiring the use of steel shot to hunt waterfowl become effective, accumulation of lead in the food chain is expected to decline.

Since 1981, Texas Parks and Wildlife Department has conducted extensive aerial surveys to monitor Bald Eagle nesting activity. The 2003 survey identified 117 active nests which fledged at least 144 young. This compares with only 7 known nest sites in 1971. Midwinter Bald Eagle counts coordinated by TPWD and conducted by birding enthusiasts throughout the state reported 325 eagles in 2002. From 1986-1989, midwinter counts averaged less than 15 Bald Eagles per survey site. Since 1990, the average number of eagles per survey site has increased to 18. These numbers show encouraging trends for Texas. With continued vigilance, protection, and informed management, today's Texans can insure that future generations will have the opportunity to enjoy the sight of our majestic national symbol – the only eagle unique to North America.

## **Recovery Efforts**

During the 1970's and 1980's, major efforts were directed toward captive breeding and reintroducing young birds into the wild. A total of 124 Bald Eagles were hatched at the Patuxent Wildlife Research Center in Maryland from 1976-1988. These captive-hatched eaglets were an important source for restocking wild populations. One successful reintroduction program placed young eaglets in the nests of adults whose own eggs were infertile or failed to hatch. The "foster" parents readily adopted the chicks and raised them as their own.

Another method, called "hacking" places young birds on man-made towers in suitable habitat where populations are low. The nestlings are kept in an enclosure and fed by humans that stay out of sight. When they are able to fly, the enclosure is opened and the birds are free to leave. Food is still provided at the release site until no longer used or needed by the young birds. Hacking has been used very successfully in at least 11 states.

In Texas, the greatest challenge for the future will be to prevent further destruction of habitat and retention of sufficient creek and river flows to support a food base for breeding and wintering eagles. The Texas Parks and Wildlife Department, in cooperation with landowners, other agencies and conservation groups, is continuing to monitor breeding and wintering Bald Eagle populations. Monitoring of nesting success is particularly important in detecting any problems associated with contaminants in the environment. Finally, appropriate management of nesting, feeding, loafing, and wintering habitat must be a priority if we are to maintain the current upward trend in Bald Eagle numbers in Texas.

## Where To See Bald Eagles

There are a number of State Parks where visitors have the opportunity to see and learn more about Bald Eagles. These include Lake Brownwood, Lake Livingston, Lake Texana, Lake Whitney, and Possum Kingdom State Parks. The Vanishing Texas Rivers Cruise, a privately operated excursion boat, also provides visitors with excellent opportunities to see wintering eagles on Lake Buchanan in Burnet and Llano Counties. Because the Bald Eagle is a protected species and sensitive to human disturbance, birders and other observers should carefully follow certain viewing ethics. Recorded calls of prey species should not be used to attract birds. Also, observers should be careful not to approach too closely or otherwise disturb or stress birds.

## How You Can Help

If you see a Bald Eagle nest, remember that eagles are vulnerable to disturbance throughout the nesting period (October to July in Texas), and are easily disturbed particularly during the first 12 weeks of nesting activity. Observers should remain a safe distance away from the nest (at least 750 feet) and keep noise and other human impacts to a minimum. Private landowners are encouraged to report new Bald Eagle nests to Texas Parks and Wildlife Department.

You can be involved in the conservation of Texas' nongame wildlife resources by supporting the Special Nongame and Endangered Species Conservation Fund. Special nongame stamps and decals are available at Texas Parks and Wildlife Department (TPWD) Field Offices, most State Parks, and the License Branch of TPWD headquarters in Austin. Conservation organizations in Texas also welcome your participation and support. Finally, you can encourage and support private landowners who are minimizing nest disturbance and managing their land to protect Bald Eagle habitat.

## For More Information Contact

Texas Parks and Wildlife Department  
Wildlife Diversity Branch  
4200 Smith School Road  
Austin, Texas 78744  
(512) 912-7011 or (800) 792-1112  
or  
U.S. Fish and Wildlife Service  
Ecological Services Field Office  
10711 Burnet Road, Suite 200  
Austin, Texas 78758  
(512) 490-0057

Management guidelines are available from Texas Parks and Wildlife Department or the U.S. Fish and Wildlife Service for landowners wishing to protect and manage Bald Eagle habitat.

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# Habitat Management Guidelines for Bald Eagles in Texas

The following guidelines were developed to help landowners and managers maintain or improve their land for the benefit of the Bald Eagle. Information is also provided so that landowners may recognize and avoid or minimize human-related disturbance to eagles, particularly nesting pairs.

## Nesting Habitat

The protection of an actual nest is important, but so is protection of the nest area and all the surrounding habitat factors that attracted the nesting pair to the area. Once the eagles establish a suitable breeding territory, they will return to the same area year after year, often using several nests within the territory during different years. When a given nest or the tree that it is in falls, a pair generally returns to the same territory to begin another nest. If one member of a pair dies, the nest may go unused for several years and then be recolonized by the surviving member returning with a new mate. Nesting territories can even be inherited by offspring. Therefore, protection of nesting territories should apply to "abandoned" nests for at least five consecutive years of documented nonuse.



The following habitat management guidelines are based on two management zones surrounding each nest site, with certain restrictions recommended for each zone.

## Primary Management Zone For Nest Sites

This zone includes an area extending 750 to 1,500 feet outward in all directions from the nest site. It is recommended that the following activities not occur within this zone:

1. Habitat alteration or change in land use, such as would result from residential, commercial, or industrial development; construction projects; or mining operations.
2. Tree cutting, logging, or removal of trees, either living or dead.
3. Use of chemicals labeled as toxic to fish and wildlife.
4. Placement of above-ground electrical transmission or distribution lines. Since collision with



powerlines and electrocution on powerline structures remain an important cause of death, placement of underground lines is recommended near Bald Eagle nests and winter concentration sites.

5. Helicopter or fixed-wing aircraft operation within 500 feet vertical distance or 1,000 feet horizontal distance of the nest site during the nesting season (October-July).
6. Activities which create minimal disturbance, such as hiking, fishing, camping, and bird-watching can be carried out safely during the nonnesting season if there is no physical alteration of the habitat within the zone. Traditional farming, ranching, and hunting activities which are existing practices and have occurred historically on the site can be carried out safely during the non-nesting season as long as habitat alteration is avoided.

Human presence within this zone should be minimized during the nesting season, especially during the early nesting period from October- April. Traditional agricultural activities and low impact recreational activities are generally not a problem even during the nesting season as long as they do not appear to be adversely affecting nesting success, there is no increase in the level of disturbance from historic levels, and physical alteration of the habitat is avoided. However, activities of any kind should be stopped if it becomes apparent that the birds are suffering from disturbance. The key point is whether the activities keep the breeding birds away from the nest, eggs, or young for extended periods of time. If they do, they are harmful. In general, it is important to protect the nest from human disturbance during very hot or very cold weather, since the parents' absence at these times can be particularly deadly for the eggs or young.

### **Secondary Management Zone For Nest Sites**

This zone encompasses an area extending outward from the primary zone an additional 750 feet to 1 mile. Recommended restrictions in this zone are intended to protect the integrity of the primary zone and to protect important feeding areas, including the eagle's access to these areas. The following activities are likely to be detrimental to Bald Eagles at any time, and in most cases should be avoided within the secondary zone:

1. Development of new commercial or industrial sites.
2. Construction of multi-story buildings or high-density housing developments between the nest and the eagle's feeding area.
3. Placement of electrical transmission or distribution lines between the nest site and the eagle's feeding area.
4. Construction of new roads, trails, canals, or rights-of-way which would tend to facilitate human access to the eagle nest.
5. Use of chemicals labeled as toxic to wildlife.

Certain activities that involve only minimal alteration or disturbance to the habitat can be carried out safely in the secondary zone during the non-nesting season. Examples of these activities include: minor logging or land clearing, minor construction, seismographic exploration employing explosives, oil well drilling, and low-level aircraft operation. However, these activities should avoid major alteration or loss of Bald Eagle habitat as much as possible. If logging is done, it is best to retain as many large trees as possible for roost and perch trees. Retention of at least 10 to 15 live trees per acre is suggested. Ideally, the trees left uncut should be the largest in the stand, preferably those with open crowns and stout lateral limbs. Selective forestry practices such as seedtree, shelterwood, and single tree selection are recommended over clear-cutting.

Minimal disturbance recreational activities (hiking, fishing, camping, picnicking, bird-watching, hunting) and everyday farming and ranching activities that cause no new alteration of habitat

can be safely carried out in the secondary zone at any time.

### **Feeding Areas**

The use of toxic chemicals in watersheds and rivers where Bald Eagles feed should be avoided as much as possible. Where agricultural herbicides and pesticides are used within the watershed, label directions should be strictly followed, including those describing proper disposal of rinse water and containers. Alteration of natural shorelines where Bald Eagles feed should be avoided or minimized as much as possible. Degraded or eroded shorelines should be revegetated whenever possible.

### **Winter Roost Concentration Areas**

Logging or land clearing activity should be avoided within 1,500 feet of a roosting concentration area. Disruptive, noisy, or out-of-the-ordinary land use activities should be avoided near communal roost sites. Normal agricultural activities which have occurred traditionally on the land are generally acceptable near these roost sites as long as they do not appear to be affecting roosting eagles. However, it is best to avoid even normal activities during evening, night, and early morning hours.

### **For More Information**

Landowners and managers can contact the Texas Parks and Wildlife Department, U.S. Fish and Wildlife Service, U.S. Natural Resources Conservation Service (formerly Soil Conservation Service), or Texas Agricultural Extension Service for technical assistance in managing habitat and protecting Bald Eagle nest sites.

# Louisiana Black Bear

Scientific Name: *Ursus americanus luteolus*

Federal Status: Endangered, 2/17/92 • State Status: Threatened

## Description

The Louisiana Black Bear is one of 16 currently recognized subspecies of American Black Bear. This subspecies is a large, bulky mammal with long black hair and a short, well-haired tail. The facial profile is rather blunt, the eyes small, and the nose pad broad with large nostrils. The muzzle is yellowish-brown with a white patch sometimes present on the lower throat and chest. There are five toes with short, curved claws on the front and hind feet. Adult males may weigh 300 to 400 pounds or more, and adult females 120 to



over 180 pounds. Body length of adults ranges from 4 to 7 feet. Louisiana black bear skulls, when contrasted with other black bear skulls, are relatively long, narrow, and flat, and have proportionately large molar teeth.

## Distribution and Habitat

The Louisiana Black Bear was once a common inhabitant of forested regions of eastern Texas, Louisiana and Mississippi. According to the U. S. Fish and Wildlife Service Recovery Plan for the species (1995), the Louisiana Black Bear occurred in all Texas counties east of and including Cass, Marion, Harrison, Upshur, Rusk, Cherokee, Anderson, Leon, Robertson, Burleson, Washington, Lavaca, Victoria, and Refugio.

According to survey work by Bailey in 1905, black bears were considered as being rare throughout Texas at the beginning of the twentieth century. Their last strongholds in eastern Texas were in the swamps and thickets of the Big Thicket Region of southeast Texas. According to Schmidly (1983) the majority of the final remaining bears were exterminated from this area during the period between 1900, to 1940.

Presently the Louisiana black bear primarily occurs within the boundaries of the state of Louisiana. The largest concentrations are in the Atchafalaya and Tensas River Basins. There are occasional movements, primarily of solitary juvenile males, into western Mississippi, and eastern Texas. A resident breeding population does not currently exist in Mississippi or eastern Texas; however this could occur at some point in the future. Some professionals think that this subspecies may also occur in portions of southeast Arkansas. Ongoing genetics research will answer this question sometime in the near future.

Black bear populations in the neighboring states of Arkansas, Louisiana and Oklahoma are stable or increasing. Concurrently, the frequency of occurrence of black bears, primarily

dispersing juvenile males, within eastern Texas is on the increase. This has been documented in the Red River and Sulphur River Basins in northeast Texas, and at other locations in eastern Texas. There have been some 24 confirmed black bear sightings within eastern Texas since 1977. There have been reliable black bear sightings in the following counties: Anderson, Angelina, Bowie, Cass, Fannin, Franklin, Harrison, Henderson, Hopkins, Jasper, Lamar, Marion, Morris, Nacogdoches, Newton, Panola, Polk, San Jacinto, and Shelby Counties. Approximately 67 percent of these sightings have occurred since 1990. Additionally, approximately 70 percent of these sightings have occurred within the northeastern counties of eastern Texas. Several of these sightings involved direct observations of a black bears, and one involved a roadkilled black bear along Interstate Highway 30 east of Mount Vernon, Texas, on the Franklin-Hopkins County Line when a black bear was struck by a tractor-trailer rig in 1999.

Louisiana Black Bear (*Ursus americanus luteolus*), and American Black Bear (*U. americanus*) have been given the same protection within the historic range of the Louisiana black bear in eastern Texas, and both subspecies will essentially be treated as the *U. luteolus* subspecies. All free-ranging black bear subspecies within the historic range of Louisiana Black Bear are federally listed as threatened due to similarity in appearance, and given the same legal protection.

Key habitat requirements of black bears include food, water, cover, and denning sites spatially arranged across sufficiently large, relatively remote blocks of land. Louisiana black bears typically inhabit bottomland hardwood forests but also utilize other types of forested habitats. Other documented habitat types used include brackish and freshwater marshes, salt domes, wooded spoil levees along canals and bayous, and agricultural fields. Although black bears originally occurred throughout the lower southeastern coastal plain, bear densities were probably historically greater within bottomland hardwood and other forested communities where hard (acorns and nuts) and soft mast (berries and fleshy fruits) production was higher than in the fire-maintained, pine-dominated upland communities.

Remoteness is an important spatial feature of black bear habitat. In the southeast, remoteness is relative to forest tract size and the presence of roads. Forest tract size and the number of roads reflect the likelihood of human disturbance that can limit habitat suitability and use.

Quality cover for bedding, denning and escape is very significant as forests become smaller and more fragmented, and as human encroachment and disturbance to habitats increases. Black bears are adaptable and opportunistic, and can survive in proximity to humans if afforded areas of retreat that minimize chance of close contact or visual encounters.

The federal listing of the Louisiana Black Bear was made without formally designating critical habitat. In addition, a special rule was included allowing for normal forest management activities to continue within the bear's range.

### **Life History**

Although classified as carnivores, bears are not usually active predators, and have an omnivorous diet consisting primarily of vegetable matter. They are opportunistic feeders, eating almost anything that is readily available. Hard and soft masts like acorns and berries, carrion, and insect larvae found in dead and decaying wood are typical food sources. However, agricultural crops like corn, wheat and sugarcane may also be utilized. Bears are considered to be very intelligent animals. They are basically shy and secretive, and usually intentionally avoid contact with humans. Conversely, bears have a keen sense of smell, and will locate and feed on human garbage. This tendency can sometimes create problems with humans. Proper

management of human garbage, making it inaccessible to bears, can minimize this problem, and is paramount to successful conservation of this species.

Males typically have larger home ranges than females, and are usually solitary except during the breeding period. The breeding period occurs during the summer. Females usually begin breeding at 3 to 4 years of age. Female black bears undergo induced ovulation and delayed implantation, and have a gestation period lasting between 7 and 8 months. Usually 1 to 3 black bear cubs are born every other year around mid-January, to mid-February. An average litter size is typically 2 cubs, but 3- to 4-cub litters are not uncommon. Cubs remain with their mother the first year, and then disperse to establish their own territories usually during their second summer. Cubs are vulnerable to a number of threats, and juvenile mortality can be high.

### **Threats and Reasons for Decline**

Decline of this species, throughout its range, was due to depletion of populations through over harvest by humans, and to loss and fragmentation of suitable forested habitats. Presently human population density with its high potential for human/bear conflicts is probably the most significant threat. Continued alteration, conversion and fragmentation of forested habitats throughout its range, including eastern Texas, are equal, if not greater threats to the long-term survival of the species.

### **Recovery Efforts**

The U.S. Fish and Wildlife Service (Service) formally listed the Louisiana Black Bear as threatened on February 7, 1992. The Service published the Louisiana Black Bear Recovery Plan in 1995. This plan was designed to assure long-term conservation of the black bear and its habitat within Louisiana. This plan was basically designed to maintain current black bear populations within the Atchafalaya and Tensas Basins and adjacent areas, and to create suitable bottomland hardwood habitat corridors to link these two populations. The goal is for these populations to be connected, and self-sustaining.

Field studies by the Texas Parks and Wildlife Department from 1994 through 1996 (Garner and Willis, 1998) used a Habitat Suitability Index to analyze 4 potential habitat areas in eastern Texas for suitability for black bears. Area A included a significant portion of the Sulphur River and its tributary White Oak Creek; Area B included the Middle Neches River Corridor; Area C included the Lower Neches River Corridor; and Area D included the Big Thicket National Preserve. Each of these areas provided suitable habitat and food sources, but areas A, C and D had a high occurrence of potential human/bear conflict zones. Area B, the Middle Neches River Corridor, had a much lower potential for human/bear conflicts, and was thus the most suitable potential habitat for black bears identified in the study.

Additional ongoing measures by the Department, Service and their cooperators to assure conservation of this species in eastern Texas include: (1) Minimizing loss of suitable forested habitats, particularly mature bottomland hardwood forests; (2) Promoting reforestation programs (including TPWD's Landowner Incentive Program, the U.S. Fish and Wildlife Service's Partners for Wildlife Program, East Texas Wetland Project, and numerous USDA Farm Bill Programs) that create or restore areas of new habitat for the species; (3) Monitoring and documenting movements of black bears into Texas from populations in Arkansas, Louisiana and Oklahoma; (4) Developing management strategies to protect and conserve black bears that move into Texas from bordering states (in addition to current protection by federal and state law); (5) Continuing participation in the interstate Black Bear Conservation Committee as a conservation partner for the species throughout its range; and (6) developing and implementing programs to educate the public about this species, its biology, and its management.

Department staff and a coalition of partners including state and federal agency biologists, forest products industry biologists, non-governmental conservation professionals, citizen groups, landowners and a number of private sector stakeholders are currently engaged in preparing a management plan for black bears within eastern Texas. This is an on-going process that has had, and will continue to have input from a number of stakeholders that will ultimately provide well-defined guidelines and strategies for long-term conservation of this species within the region.

In addition to the efforts previously discussed, the Black Bear Conservation Committee (BBCC), formed in 1990, is a regional nongovernmental organization focused on the restoration of the Louisiana black bear throughout its historic range in Louisiana, Mississippi, and eastern Texas. The BBCC is a coalition of very diverse parties, or stakeholders with an interest in the Louisiana black bear, and has brought together people that previously had adversarial roles, and created a cooperative working environment. The BBCC, whose headquarters is in Baton Rouge, Louisiana, has been actively engaged in Louisiana black bear conservation for the past thirteen years. They have been actively working with governmental agencies, forest product companies, non-governmental organizations and private landowners within occupied black bear habitats, and habitats that could potentially become occupied. In addition to providing direct management assistance, the BBCC spends significant energies educating the public about the plight of this threatened species. BBCC is currently engaged in the coalition to prepare a management plan for black bear in eastern Texas. In addition, the BBCC published a Black Bear Conservation Plan in 1997 to restore this species throughout its entire historic range.

### **Where To See Louisiana Black Bear**

There are currently no well-defined populations of black bears within the boundaries of eastern Texas. Black bears in eastern Texas have largely been considered as nomadic wandering males visiting or moving in from adjacent states. A person wanting to see Louisiana black bears in the wild, a difficult task at best, would have greater chance of success by going to the Tensas River National Wildlife Refuge in Tallulah, Louisiana, or the White River National Wildlife Refuge in southeast Arkansas.

### **How You Can Help**

There are a number of things that you can do to help with conservation of the Louisiana Black Bear in eastern Texas. First, if you own bottomland property in eastern Texas, you can conserve existing mature bottomland hardwood forest, and restore retired bottomland agricultural lands back to bottomland hardwood forests. For managed bottomland hardwood forests, creative management strategies that maintain multiple age classes of preferred hard and soft mast species through time will assure long-term habitat needs for Louisiana black bear. For adjacent slope forests, and upland forests, it is critical to leave significant streamside management zones (SMZs). These SMZs, in addition to providing food and cover for bears, can be utilized to provide corridors or linkages between areas of suitable habitats. It is of critical importance in these bottomland hardwood forests, and within these SMZs to conserve mature hardwood trees with significant hollows that could be utilized by black bears as den trees. In addition to creation of black bear habitats through management of bottomland hardwood forests, it is important to minimize dumping of human garbage and foods near rural homes, and/or hunting camps. Bears are attracted to these areas, and can become acclimated to locating them for easy sustenance. This creates a situation that will lead bears into situations where they may actually be killed out of fear by some homeowners. In addition to problems with dumping, well-intentioned citizens, actually interested in bears near their homes, can create the same problem by actively feeding bears. The thing that must be avoided is training the bear to

associate man with food. The natural fear that a bear has of man must be maintained for the safety of both the bear and man.

In addition, you can become a member of the Black Bear Conservation Committee. You can become either a supportive, or active member, and become active in the conservation of this species throughout its range.

#### **For More Information Contact**

Texas Parks and Wildlife Department  
Wildlife Diversity Program  
4200 Smith School Road  
Austin, Texas 78744  
(512) 912-7011 or (800) 792-1112  
[www.tpwd.state.tx.us](http://www.tpwd.state.tx.us)

or

U.S. Fish and Wildlife Service  
Ecological Services Field Office  
10711 Burnet Road, Suite 200  
Austin, Texas 78758  
(512) 490-0057  
[www.usfws.gov](http://www.usfws.gov)

or

Black Bear Conservation Committee  
P.O. Box 4125  
Baton Rouge, Louisiana 70821  
(504) 338-1040  
[www.bbcc.org](http://www.bbcc.org)

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