Red-cockaded Woodpecker

Scientific Name: *Picoides 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.

Male (left) and female Red-cockaded Woodpeckers

Habitat

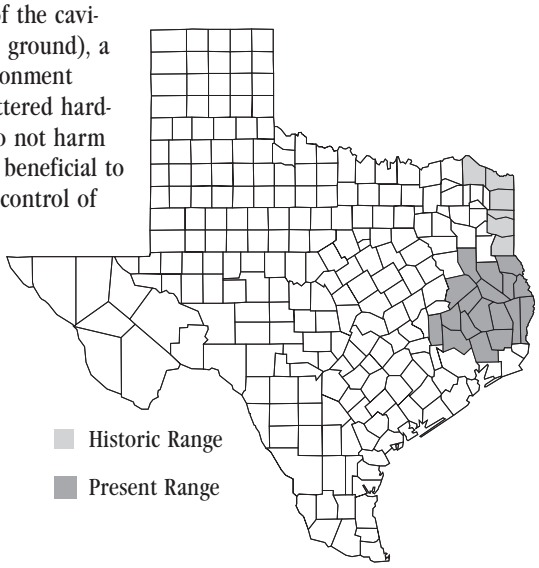
The Red-cockaded Woodpecker is found in mature pine forests of east Texas and the southeastern United States. It is the only species of woodpecker that excavates its cavities exclusively in living pines. In Texas, cavities have been found in longleaf, loblolly, shortleaf, and slash pines. Most cavities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

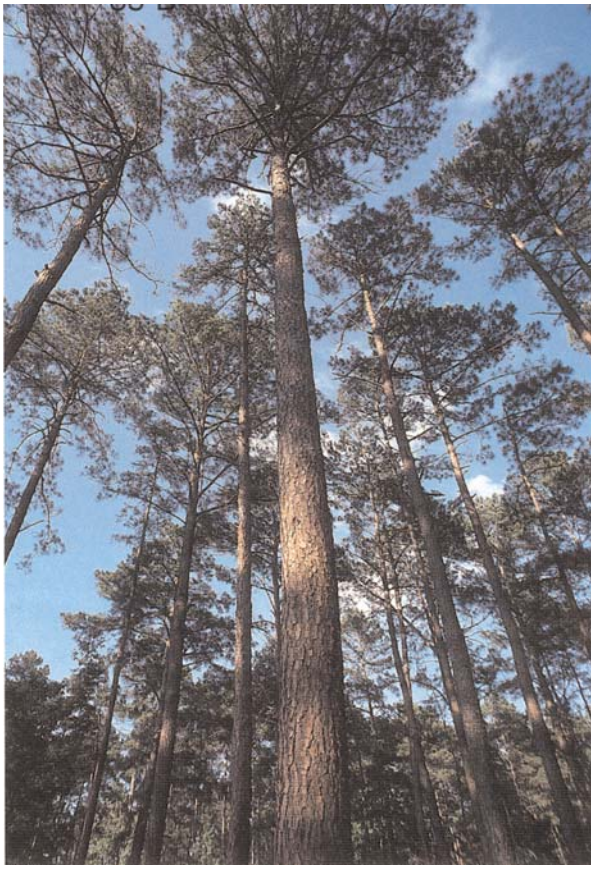
Red-cockaded Woodpeckers maintain open cavity holes by removing the growing tissue from around the holes. Eventually, the birds expose the sapwood for several inches around the entrance. This exposed area is called the plate. Pitch from the plate and resin wells coats the trunk of the cavity tree. The 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 understory 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.

Red-cockaded Woodpecker at cavity
© TPWD Glen Mills

Active cavity with resin flow
© R. N. Conner



Habitat with tall, large widely-spaced pines
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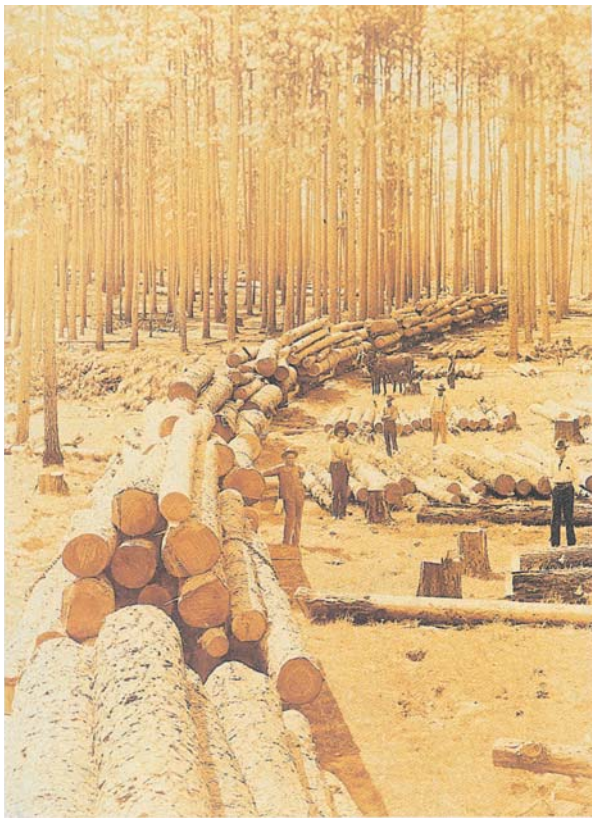


Old growth logging
© TPWD

Midstory encroachment leads to cavity abandonment
© Brent Ortego

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 Red-cockaded Woodpecker in the East Texas Pineywoods (Regional RCW-HCP). 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.

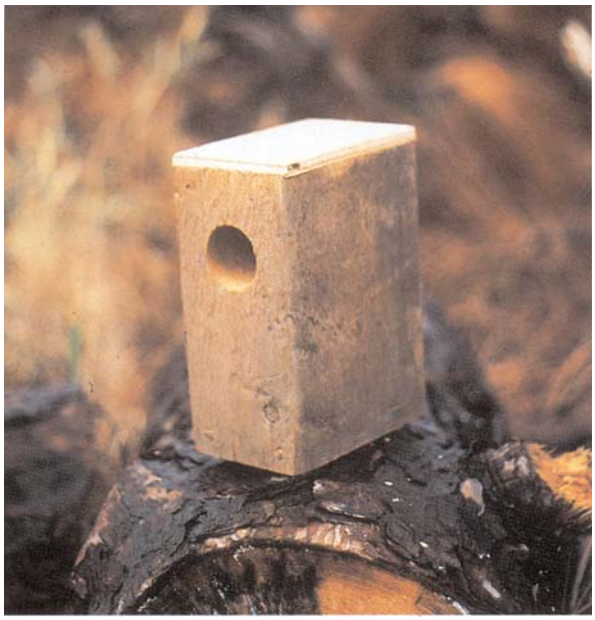
The first two landowners within the State to enroll in the Regional RCW-HCP were Champion International Corporation (1,038,000 acres), and Temple-Inland Forest Products Corporation (1,247,260 acres). These companies enrolled jointly in the program in March, 1999. Temple-Inland established a baseline 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.

Red-cockaded Woodpecker cavity enlarged by a raven
© Brent Ortego

Cavity hole restrictor plate
© Brent Ortego

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 cor-



Artificial cavity nest box
© R. N. Conner

Artificial cavity nest box with restrictor plate installed
© R. N. Conner

ridors 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 Lonestar 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 midstory 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 understory 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

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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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