U.S. Department of Defense and U.S. Fish & Wildlife Service

Red-cockaded Woodpecker

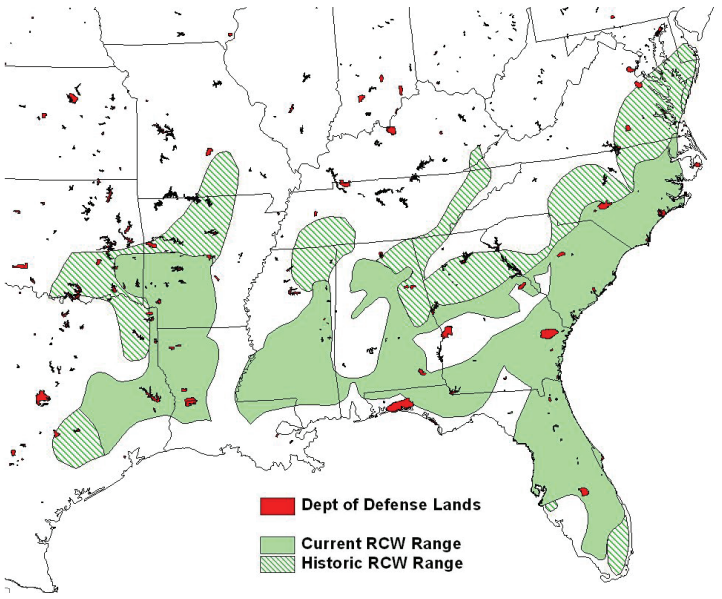
(Picoides borealis)

Prior to European settlement, it is estimated that the red-cockaded woodpecker (RCW) (*Picoides borealis*) population totaled approximately 1.0 to 1.5 million groups of birds. Its historic range extended from Texas north to Missouri and east through Kentucky and Virginia to Maryland, including all states to the south. With settlement, however, came the progressive loss of the virgin pine forests that dominated the Southeast, and the subsequent rapid decline in RCWs. Exploited for naval stores, logged for lumber, and cleared for agriculture, the 60+ million acres of longleaf pine were ultimately reduced to less than 3 million acres. By 1968, the RCW had declined to fewer than 10,000 individuals and was federally listed as endangered that year. Passage of the Endangered Species Act of 1973 provided official federal protection to the RCW.

Biology

A small woodpecker, the RCW is approximately 7 inches in length with a ladder-backed appearance. The most prominent feature is the presence of large, white cheek patches. The red cockade, which is rarely seen, is limited to a tiny patch of red feathers on the males located at the margin of the black cap and white cheek patch on each side of the head. The species evolved in the fire-maintained pine ecosystems of the Southeast, where RCWs emerged as the only bird species able to benefit from these living pines for nest cavities. Although they may forage on pines from pole size to mature trees, only the oldest trees become cavity trees. As the trees age, they become susceptible to fungi that work to soften the inner heartwood. RCWs are able to detect these weakened trees and select them for use as cavity trees. Once they penetrate the outer sapwood, the softened heartwood is gradually sculpted into a cavity, although this may take several months to a decade or more to complete. Coincident with this, the exposed sapwood exudes a sticky resin that coats the surrounding bark. Ultimately, RCWs evolved to make use of this trait by pecking many small "resin wells" into the bark in numerous locations to expose the sapwood and release the flow of resin around the cavity. This coats the tree in a virtually impenetrable barrier of resin which tends to deter most ground predators. RCWs avoid most of the resin by removing the bark to clear a bare "plate" around the cavity, which allows them to enter and exit with minimum exposure to the resin.

A red-cockaded woodpecker takes an insect back to its nest on Camp Lejeune.
Photo: Lance Cpl. Matthew K. Hacker



Range of red-cockaded woodpecker (NatureServe, 2003) and Dept. of Defense lands. Map: Chris Eberly, DoD PIF

RCWs exist in a cooperative social family structure called a "group." Each group has up to 10 birds but contains no more than 1 breeding pair. Each bird has its own roosting cavity. The collection of individual cavity trees is referred to as a "cluster." Although the bulk of the RCW's population occurs in longleaf pine forests, all of the southern pine species harbor RCWs. They forage almost exclusively on arthropods found on pine trees, prying off bark plates to expose prey beneath. Mixed-age stands can harbor birds, but there must enough older trees, typically 80 years or older, to support active and replacement cavities. Openness is another important stand characteristic. The species depends on almost park-like conditions, where the understory is low, and the midstory is minimal to non-existent. Many other birds are likely to inhabit RCW cavities, from bluebirds and nuthatches to all of the other woodpeckers, and most significantly, flying squirrels.

Nest cavity cross-section
Photo: USFWS

Current Status and Trends

RCWs today are slowly regaining their foothold across much of their range. Innovative cavity replacement techniques initiated after the loss of hundreds of birds and thousands of acres of habitat in the aftermath of Hurricane Hugo in 1989 involved installing artificial nest boxes as well as drilling cavities. Cavity competitors were reduced by installing cavity excluder devices and tools were developed for removing unwanted squirrels from RCW cavities. In concert with these strategies, birds were successfully translocated from one population to another. Today, almost all RCW populations, currently estimated at 15,150 adults, are now being managed with a combination of these tools and techniques. Although still endangered, knowledge of RCW population dynamics and tools for management has expanded immensely, paving the way for continued recovery. The second revision of the U.S. Fish and Wildlife Service (FWS) RCW Recovery Plan, approved in 2003, sets a goal to downlist the RCW to threatened by 2050, with delisting by 2075. Delisting requires that RCW populations are not dependent upon continued installation of artificial nest cavities to remain at their recovery population size.

At present there are 18 Department of Defense (DoD) installations supporting RCWs. As of 2000, Eglin Air Force Base (FL) had 301 active clusters and Fort Bragg (NC) had 350 (only the Apalachicola Ranger District in Florida had more active clusters than Fort Bragg). All of these populations appear to be stable or increasing. Widespread declines among populations on military installations have been stabilized, but substantial increases in population sizes are still required for recovery. Early in the recovery phase of RCWs, the perception that military activities were a handicap to RCW conservation created tension between national defense requirements and endangered species management. However, RCWs have been shown to be more resilient to man's presence and activities than previously thought. The nature of live-fire and mechanized training in pine forest lands by default fosters the savanna type conditions conducive to RCWs. Studies have shown that

Installing an artificial nest cavity.
Photo: Vernon Compton

training noise, including live-fire, had no significant effect on RCW reproductive rates. With a renewed understanding of the species' ecological needs, the FWS and DoD have partnered to create long-term agreements to resolve RCW management conflicts and ease many restrictions on military training

The Military's Role

Military installations have a substantial role in recovery and continuing conservation of RCWs. DoD invested $67 million, the most spent on any single species, in RCW research and management from 1991 to 2004. There are 6 installations that contain all or part of 6 primary core RCW populations of the 13 required for delisting—Eglin Air Force Base, Fort Benning (GA), Fort Bragg, Fort Polk (LA), Fort Stewart (GA), and Marine Corps Base Camp Lejeune (NC). RCW populations increased by up to 50 percent from 1994 to 2002 at each of these installations. Delisting criteria states that these primary core populations will sustain at least 350 potential breeding groups. Avon Park Air Force Range (FL) is a designated essential support population, which is a population that represents unique or important habitat types that cannot support a larger, core population. Avon Park supports one of the largest remaining RCW populations in the ecologically unique South/Central Florida Recovery Unit. Dare County Range (NC) and Camp Mackall (NC) are also part of essential support populations because of their unique or important habitat types. Seven other installations contain significant support populations, which have a population goal of at least 10 active clusters. Significant support populations are important to bringing the RCW to recovery, but are not included in the delisting criteria.

Stewardship Success

The Revised RCW Recovery Plan notes that, in general, the military is managing RCWs very effectively. The Army's RCW Management Guidelines, developed in 1996, were considered significant for RCW recovery on Army installations. By 2004, 9 Army installations accounted for 1,055 active clusters. This represented the primary increase in RCW populations across all landholders during the 1990s. In 2005, Fort Bragg reached its recovery goal of 436 RCW groups; Fort Stewart will likely reach their goal within 10 years. Eglin Air Force Base has done extensive modeling on population projections, and along with Forts Benning, Stewart, Polk and Bragg, form a "translocation cooperative" that has supplied at least 110 birds to smaller, at-risk populations across the Southeast. Private lands cooperative agreements are supporting RCW management not only on the installation, but on adjacent private lands as well. Fort Bragg initiated the Private Lands Initiative with The Nature Conservancy and others—the first installation to enter into such an agreement. Camp Lejeune's Onslow Bight Initiative uses conservation easements to benefit both the RCW and the training mission. The symposium proceedings, "RCW: Road to Recovery," documents the vital role DoD installations continue to play in the ultimate recovery of the species.

Program Contacts:

Conservation Team Leader, Office of the Deputy Under Secretary of Defense (Installations and Environment)
703-604-0524
http://www.denix.osd.mil/conservation

Program Manager, Department of Defense Partners in Flight Program
540-349-9662
http://www.dodpif.org

Chief, Division of Partnerships and Outreach, Endangered Species Program, U.S. Fish and Wildlife Service
703-358-2390
http://www.fws.gov/endangered

August 2006