The status and distribution of the Red-cockaded Woodpecker in Arkansas

Critical habitat must be designated and protected to prevent a continued decline in the population of the species

Fred L. Burnside

ABSTRACT

BECAUSE OF RECENT forest management practices, land clearing for agricultural purposes and urbanization, suitable habitat for the Red-cockaded Woodpecker *(Picoides borealis)* has been declining. This species, endemic to the southern pine forests of the United States, is totally dependent on mature pines of several species for roosting, nesting, and foraging. This study provides information concerning the distribution and abundance of the Red-cockaded Woodpecker in Arkansas.

In Arkansas, the Red-cockaded Woodpecker is limited to the Gulf Coastal Plain, Ouachita Mountains, and to one county in the Mississippi Alluvial Plain. Greatest densities are found in Ashley, Drew, Bradley, and Union Counties (southeastern Gulf Coastal Plain). The estimated population comprises 100-120 colonies of Red-cockaded Woodpeckers and 200-400 birds in Arkansas. Approximately 89% of all colonies occur on forest lands owned by timber industry, whereas only 8.5% occur on publicly owned lands. Since private industry is not obliged to protect the species under the mandate of the Endangered Species Act of 1973, the number of Red-cockaded Woodpeckers in Arkansas will likely decline in the future.

INTRODUCTION

THE PLIGHT OF THE Red-cockaded Woodpecker *(Picoides borealis)* is well known. Because of recent forest management practices and land clearing for agricultural and urban uses, suitable habitat available for use by the Red-cockaded Woodpecker has been severely reduced, and the population of the species has declined (Thompson 1976). In 1973, the Red-cockaded Woodpecker was placed on a list of Endangered Species compiled by the Fish and Wildlife Service (U.S. Department of Interior 1973) and remains on that list today.

Information concerning the distribution and abundance of an endangered species is essential if effective management guidelines are to be developed to enhance populations of that species in the future. Most information concerning the status of the Red-cockaded Woodpecker has been compiled by Jackson (1971, 1978a). However, information concerning the status of this species in Arkansas was limited. The present research provides a compilation of all known records of Red-cockaded Woodpecker cavity trees in the state. These records were used in conjunction with extensive field searches to determine the status of the Red-cockaded Woodpecker in Arkansas.

These data represent the first part of a two-part study that was designed to determine 1) the status of the species in Arkansas, and 2) critical habitat needs of the species. Research has been completed regarding the critical habitat portion, and results will be reported at a later date. Data collection was begun in October 1977 and was completed in July 1981.

STUDY AREA

PINE FORESTS OCCUR naturally in the Ozark and Ouachita Mountains (Fig. 1), Gulf Coastal Plain, and in a localized area on the Mississippi Alluvial Plain of Arkansas (Foti 1974). The pine forests in the Ozark Mountains were cut extensively around the turn of this century and have not regenerated sufficiently for use by Red-cockaded Woodpeckers. Several small tracts of loblolly pines, ranging from 5-80 acres, are located in Monroe County on the Mississippi Alluvial Plain, but only one colony of Red-cockaded Woodpeckers has been found in the area. Thus, the shortleaf pine-loblolly pine-hardwood forests of the Ouachita Mountains and Gulf Coastal Plain provide the most suitable habitat for the Red-cockaded Woodpecker in Arkansas. During this study, field research was conducted mainly in five counties located in the southeast portion of the Gulf Coastal Plain: Ashley, Drew, Bradley, Calhoun, and Union. Surveys were conducted in each Arkansas county within the Ouachita Mountains and Gulf Coastal Plain, but the densities of Red-cockaded Woodpeckers in these counties were noticeably lower than those densities noted in southeastern Arkansas

METHODS

INFORMATION CONCERNING THE locations of cavity trees in Arkansas was obtained from timber companies, U S Fish and Wildlife Service, U.S. Forest Service, Arkansas Natural Heritage Commission, Arkansas Game and Fish Commission, Arkansas Audubon Society, and from private citizens. Most cavity tree locations received, espe-

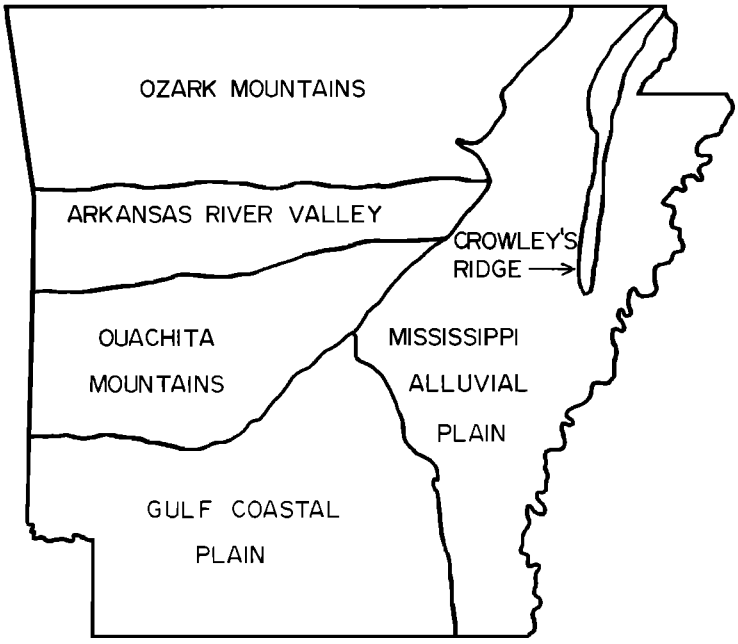

Figure 1. Physiographic regions of Arkansas.

cially from forest industries, were very accurate, and cavity trees could usually be plotted within a 10-acre forest area on a county map. Forest areas having one or more Red-cockaded Woodpecker cavity trees will be referred to as "cavity tree sites." In this study, a cavity tree site separated from all others by a distance of one mile (1.6 km) or more was considered to be a separate colony site (Jackson *pers. comm.*).

Locating cavities of Red-cockaded Woodpeckers involved drives to designated areas followed by ground searches. At each site, the following data were recorded: number of cavity trees, number of cavities and starts (cavities being excavated) in each tree, number of cavities in active use by the woodpeckers, general habitat descriptions, and notes on Red-cockaded Woodpeckers seen. Active cavities were recognized using the Jackson (1977, 1978b) method based on pine bark redness and fresh pine resin exuding from around cavities at resin wells.

RESULTS

SEARCHES WERE MADE for 991 reported cavity trees of which 599 (60%) were found. Of those 599 cavity trees, 254 (42%) were actively being used by Red-cockaded Woodpeckers (Fig. 2). Jackson (1978) visited 172 colonies that were reported as active or as status unknown. All were on Federal lands in five states. He found that only 77 (44.7%) of the colonies could be considered active. This percentage (44.7%) is very similar to the 42% figure of active versus reported cavity trees visited in my study. Of all cavity trees, 1.2% occurred on privately owned lands, 1.3% on national forest lands, 10.2% on national wildlife refuges, and 87.3% occurred on lands owned by timber industries. A total of 167 Red-cockaded Woodpeckers was seen in the areas of active use.

An estimate of the number of colonies of Red-cockaded Woodpeckers in Arkansas was made using a method suggested by Jackson *(pers. comm.)*. It is estimated that 100-120 Red-cockaded Woodpecker colonies exist in the state (Fig. 3). Each colony consists of at least two, and often three or more woodpeckers (Jackson 1971, Ligon 1970), with a conservative estimate of 200-400 individuals.

There were no recent reports of Red-cockaded Woodpeckers in the Ozark Mountain region of northern Arkansas (Fig. 2). Howell (1911) reported Red-cockaded Woodpeckers breeding near Clinton, Van Buren County, as late as 1910. Only two active colonies were found in the Ouachita Mountain Region in westcentral Arkansas. One active colony was found in Monroe County on the Mississippi Alluvial Plain, eastern Arkansas. Most Red-cockaded Woodpecker colonies were found in the southeastern portion of the Gulf Coastal Plain in Ashley, Drew, Bradley, and Union Counties (Fig. 3).

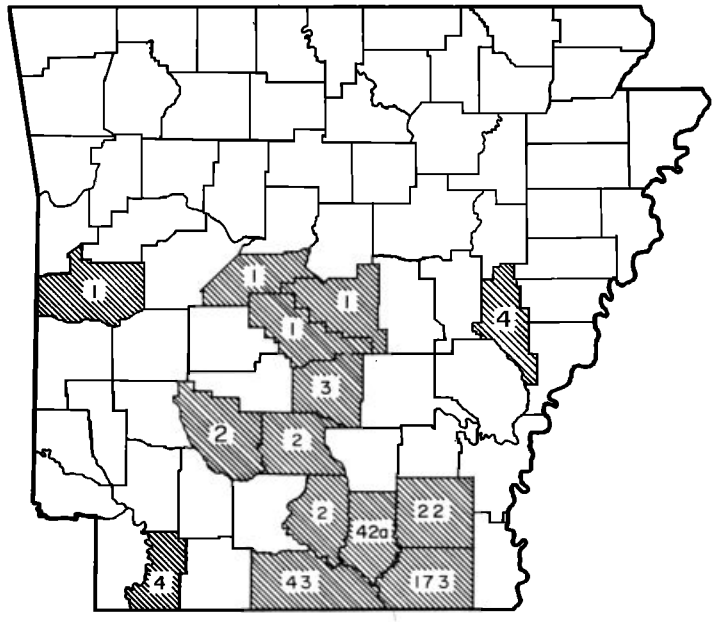

Figure 2. Map of Arkansas showing the numbers of Red-cockaded Woodpecker cavity trees in each county. The letter *a* refers to cavity tree records received from Potlatch Lumber Company which were not verified during this study.

Table 1. A comparison between data gathered by Jackson (1978) and that of this study concerning numbers of Red-cockaded Woodpecker colonies accordiing to land ownership in Arkansas.

Results from:	Number of Colonies	Number of Colonies/Land Ownership N.F.*	N.W.R.	I.N.D.	PRIV	UNK
Jackson (1978)	94	39	16	35	2	2
Burnside (present study)	106	2	7	95	2	0

*N.F. = National Forest, N.W.R. = National Wildlife Refuge, I.N.D. = Forest Industry, PRIV = Private ownership other than forest industry, UNK = ownership unknown.

DISCUSSION

THE RESULTS OF this study document the existence of a much larger population of the species than had been reported before. Despite this fact, the outlook for continued existence of the Red-cockaded Woodpecker in Arkansas is not good. Jackson (1971) estimated the total number of Red-cockaded Woodpeckers in Arkansas to be 46, which is considerably below the estimate of 200-400 presented here. Jackson's estimate was based on the number of colonies known at the time (13) multiplied by 2. More recent information by Jackson (1978a) indicated that there were 94 colonies in Arkansas, and the distribution of these colonies according to land ownership can be seen in Table 1.

Questionnaires were sent to land owners and knowledgeable individuals in Arkansas by Jackson, and the data seen in Table 1 reflect their responses to it. Because Jackson was dealing with the entire range of the Red-cockaded Woodpecker, subsamples were taken in various states to determine the validity of reports and the status of cavity trees; but none were taken in Arkansas. Also, Table 1 compares the results of my study regarding the distribution of colonies according to land ownership to Jackson's study. The United States Forest Service reported 39 colonies from their lands in the state, but I located only two active, and one inactive colonies on these lands. Timber industries reported a total of 35 colonies statewide, while I found 94. The overestimation of colonies by the Forest Service and the underestimation by forest industries provide a much different set of results from my own. Over the entire range of the species, Jackson noted that approximately 84% of all known colonies occurred on federally owned lands. In comparison to this, Arkansas seems to have an inverse relationship, with approximately 89% of all known colonies occurring on lands owned by forest industries.

Felsenthal National Wildlife Refuge, located in portions of Union, Bradley, and Ashley Counties in southeastern Arkansas, harbors 6-10 colonies of Red-cockaded Woodpeckers (James and Burnside 1979). The Ouachita National Forest in westcentral Arkansas has two active woodpecker colonies, but several more undoubtedly exist in this region of the state. These two large tracts of public land offer the only refuge for the species in Arkansas known at this time. Although other State and Federal lands do exist, none seem suitable for habitation by the woodpeckers Thus, approximately 8.5% of all colonies in Arkansas are found on public lands, while 89% are located on lands owned by forest industries.

Thompson (1976) monitored 312 Red-cockaded Woodpecker colonies located in 10 states and reported a decrease in active colonies to 271 (a 13% drop) over a 4-year period. Of the 41 colonies that were destroyed or abandoned by the woodpeckers, 20 (49%) were inactive due to timber harvest. Direct protection of the species by forest industries cannot be expected unless it is made economically feasible. Because these industries are not recipients of federal funding, they are not legally obliged to protect the Red-cockaded Woodpecker under the provisions of the Endangered Species Act of 1973. In recent years, forest industries in Arkansas have made an effort to protect the Red-cockaded Woodpecker by leaving cavity trees standing despite timber harvest activities. But, these mature trees are often left standing alone where wind and lightning damage causes the mortality rate to rise sharply. If cavity trees are surrounded by a forest area, usually they are 20-30 feet taller than surrounding, less mature trees; and lightning damage to them is common. Because forests are being harvested on shorter rotations than in the past, they are not

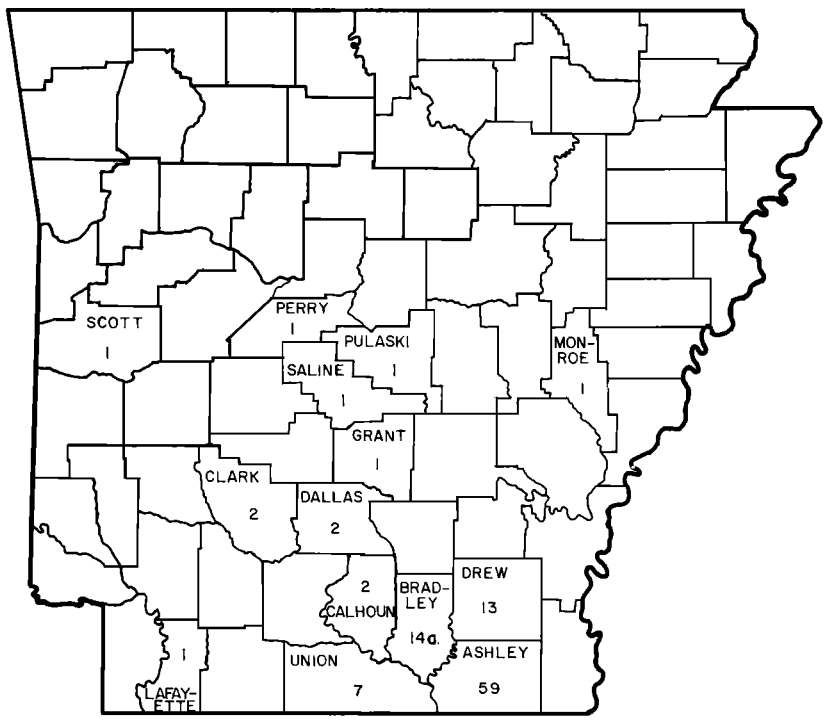

Figure 3. Map of Arkansas showing the numbers of Red-cockaded Woodpecker colonies in each county. The letter *a* refers to colony records received from Potlatch Lumber Company which were not verified during this study.

Female Red-cockaded Woodpecker with food at nest cavity/ Photo Levi Davis.

allowed to mature ecologically. Thus, when the cavity trees that are being preserved by forest industries die, there will be few replacement trees remaining for use by the species in the future. Because of the high morality rate in cavity trees and increasing shortages of mature pines to be used as replacement trees, I expect the population of Red-cockaded Woodpeckers in Arkansas to decline significantly in the future.

The information presented here will provide baseline data for future studies relating to population trends of the species in Arkansas. Upon request, I can provide researchers with information concerning the exact locations of Red-cockaded Woodpecker colonies in the state.

In conclusion, it is imperative that critical habitat for the Red-cockaded Woodpecker be designated by the United States Fish and Wildlife Service. Without this designation, the population of this species will continue to decline on private lands in Arkansas.

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