

# Enhancing Cavity Resources for the Red Hills Population of Red-cockaded Woodpeckers

*A Final Report Submitted to the Bill Terrell Avian Conservation Grant Committee of the Georgia Ornithological Society*

James Cox  
Stoddard Bird Lab  
Tall Timbers Research Station and Land Conservancy  
13093 Henry Beadel Dr.  
Tallahassee, FL 32312

The Red Hills physiographic region of south Georgia is a 120,000-ha (306,000-acre) landscape dominated by approximately 110 privately owned properties (Fig. 1). Long-rotation timber management and widespread use of frequent prescribed fire are common on these properties. As a result, the region supports some of the finest examples of longleaf pine forests remaining anywhere (Means 1996), as well as the largest population of Red-cockaded Woodpeckers (*Picoides borealis*) remaining on private lands (ca. 170 territories; Fig 1).

The global population of Red-cockaded Woodpeckers is below the number deemed appropriate for long-term security (U.S. Fish and Wildlife Service 2003), but many populations have stabilized or increased in recent years. These positive trends are linked closely to the development of methods for constructing artificial cavities in areas where cavity resources are limited (Copeyon 1990; Allen 1991). Suitable cavity trees represent a critical resource for this imperiled species and are essential for sustaining woodpeckers in areas that otherwise contain high-quality foraging habitat (Copeyon et al. 1991).

Since 2001, 389 artificial cavities have been installed in the Red Hills Region to help stabilize or expand woodpecker populations. Construction of artificial cavities is especially important in this private-lands setting where timber extraction is used to offset management expenses. Although artificial cavities can help to stabilize or expand woodpecker numbers quickly, they also require infrequent maintenance to maintain their effectiveness (Saenz et al. 2004). Saenz et al. (2004) found that artificial cavities degrade within three years and eventually reach a point where many are not usable. Artificial cavities suffer from accelerated rotting as a result of rain water seeping into the structures, and the structures also may be enlarged by other woodpecker species and by other cavity-dependent species (e.g., Southern Flying Squirrels, *Glaucomys volans*).

Artificial cavities are excavated regularly in the Red Hills region, but the last comprehensive effort to replace or refurbish artificial woodpecker cavities over large areas took place in 2008 with support provided by the *Bill Terrell Avian Conservation Grants* of the *Georgia Ornithological Society* (GOS). The support provided previously enabled us to refurbish and replace 62 artificial cavities on seven properties and perform baseline surveys for Safe Harbor agreements on four properties. Since then, most cavity construction has taken place in Florida in

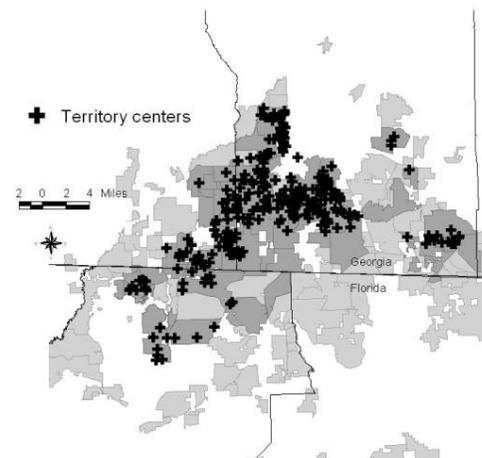


Fig. 1 Red Hills physiographic region and known woodpecker territories (black crosses).

association with an attempt to reintroduce the woodpecker to *Tall Timbers Research Station* (TTRS). Given the critical importance of cavity resources to this imperiled species, the goal of this project was to complete a more comprehensive replacement, enhancement, and refurbishing of the artificial cavity resources available in Georgia for the Red Hills population of Red-cockaded Woodpeckers.

### Objectives

The original December 2013 proposal submitted to the *Bill Terrell Avian Conservation Grants* sought to replace or install  $\geq 120$  artificial woodpecker cavities in the Red Hills region. The amount granted for the project was less than that requested (but also enabled GOS to cover other important conservation initiatives). Nonetheless, we came close to fulfilling the original goal and were able to install or replace 116 cavities with the funding provided.

Principal Investigator (PI) Cox visited 10 properties in 2014-15 to assess cavity resources and discuss cavity replacement and enhancement options with landowners (Fig. 2). Detailed maps were prepared prior to each visit to show locations of older inserts on the property or the locations where new recruitment clusters might be established to help encourage population growth. Replacements were recommended where territories had  $<3$  usable cavities (artificial or natural) and existing artificial inserts appeared to be enlarged or dilapidated. The focus narrowed on six properties that contained a large number ( $>20$ ) of artificial cavities excavated prior to 2009 and two properties (A and B) that recently entered Georgia Department of Natural Resources' (GADNR) Safe Harbor Program. New Safe Harbor properties provide great opportunities for expanding the Red Hills woodpecker population

Once approval was granted, PI Cox escorted two local contractors (Michael Keys, North Florida Wildlife LLC, and Joe Burnham, instructor at Southwest Georgia Technical College) to the properties to review sites and discuss cavity replacement and cavity excavation. Both contractors have over 10 years of experience excavating artificial cavities and are highly regarded for their craftsmanship.

Support provided by the 2014 *Bill Terrell Avian Conservation Grant* enabled us to create eight new recruitment clusters that each contained four artificial cavities. We also replaced 84 old, dilapidated cavities distributed among 33 established woodpecker territories. New recruitment clusters excavated on properties "A," "B," and "T" in Fig. 2 have now been colonized by adult Red-cockaded Woodpeckers. Property "B" in particular will provide a wonderful opportunity to add 6-10 additional woodpecker recruitment clusters over the coming years. A complete listing of activities conducted on the different properties is provided in Table 1.

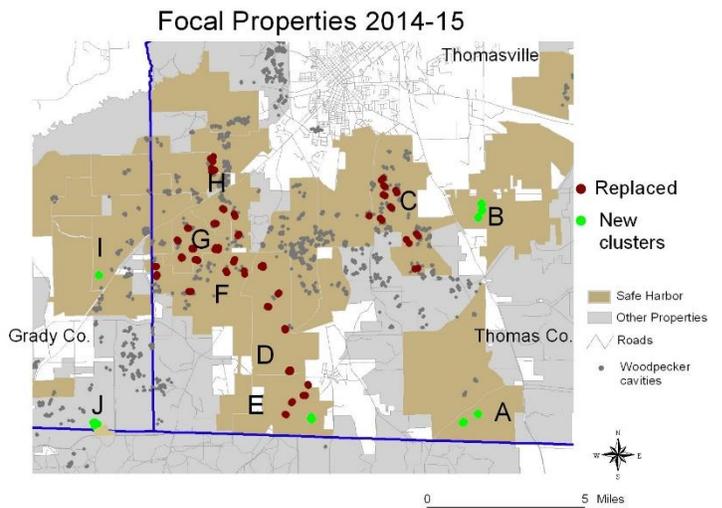


Fig. 2 Locations of sites where new recruitment clusters were created or dilapidated cavities were replaced.

Table 1. Distribution of artificial cavities among 10 properties in the Red Hills region of Georgia. Replacement cavities generally were provided in pairs to territories where cavity resources appeared to be diminished.

Property	New recruitment clusters	Replacement cavities
<i>A</i>	8	
<i>B</i>	12	
<i>C</i>		18
<i>D</i>		14
<i>E</i>	4	10
<i>F</i>		16
<i>G</i>		16
<i>H</i>		10
<i>I</i>	4	
<i>J</i>	4	
Totals	32	84

The project also sought to secure new machinery to make additional artificial cavities easier to produce by the GADNR. The agency believed the installment of a new drill stationed at the River Creek Wildlife Management Area (Thomasville, GA) could be used to construct insert cavities for areas in Georgia for many years, but additional inquiries suggested the best use of funds might be simply to purchase the materials needed to make artificial cavities using existing equipment. Accordingly, Tall Timbers provided GADNR with \$4,500 to purchase enough materials to construct over 225 new artificial insert cavities (Appendix 1). The new cavities manufactured by GADNR were not used in this project, but will be used to support woodpecker management on Silver Lake and River Creek Wildlife Management Areas, as well as additional sites on private lands in the Red Hills region.

Successful completion of this project was facilitated by the great relationships that TTRS maintains with private landowners in the region. In 2013, Cox conducted site visits on 15 properties and also led field trips for the family members associated with 10 ownerships. In addition, the recurring cavity tree inventory performed by TTRS provides up-to-date information on where construction of artificial cavities will be most effective in maintaining or expanding woodpecker numbers. The most recent inventory completed in 2012 involved assessments of 3268 cavity trees distributed among 223 territorial groups (Fig. 1). The next regional inventory will take place in 2016-17.

### *Evaluating Success*

A recurring inventory of the Red Hills population of Red-cockaded Woodpeckers provides one of the best measures of the importance of on-going cavity management (Cox et al. 2001). The

number of active breeding groups found in the Red Hills in 2012 was 171, a decline from the high count of 181 active groups in 2006, but consistent with the 171 active groups found in 2001. Woodpecker declines were noted for 41% of the properties surveyed; 32% of the properties showed no changes while 26% of the properties had increases. The largest increases occurred on seven properties where recent management of cavity resources had taken place, while the largest declines occurred on properties where no cavity management occurred.

Three of the eight new recruitment clusters created through this project are now being used by Red-cockaded Woodpeckers. Great promise exists for expanding woodpecker numbers even further on properties "A," "B," and "E." These three properties contain more than 4000 ha of suitable habitat, but an incremental approach needs to be taken to be most efficient. Artificial cavities that are not used quickly by Red-cockaded Woodpeckers suffer deterioration, so it's best to get the woodpeckers established in an area and then slowly add new recruitment clusters over several years.

A second quantitative measure of success was the number of artificial cavities constructed under this project (116) and the savings that took place as a result of the outside support provided by GADNR and TTRS. PI Cox provided equipment for the contractors and also invested several days of reconnaissance and planning. Volunteers working for GADNR constructed the artificial cavities used here.

#### *Literature Citations*

- Allen, D. H. 1991. An insert technique for constructing artificial Red-cockaded Woodpecker cavities. USDA, Forest Service, General Technical Report SE-73. Southeastern Forest Experiment Station, Asheville, North Carolina, USA.
- Copeyon, C. K. 1990. A technique for constructing cavities for the Red-cockaded Woodpecker. *Wildlife Society Bulletin* 18:303-311.
- Copeyon, C. K., J. R. Walters, and J. Carter III. 1991. Induction of Red-cockaded Woodpecker group formation by artificial cavity construction. *Journal of Wildlife Management* 55:549-556.
- Cox, J. A., W. W. Baker, and R. T. Engstrom. 2001. Red-cockaded Woodpeckers in the Red Hills region: a GIS-based assessment. *Wildlife Society Bulletin* 29:1278-1288.
- Means, D.B. 1996. Longleaf pine forest, going, going, .... Pages 210-229 in M.B. Davis, ed. *Eastern old-growth forests: prospects for rediscovery and recovery*. Island Press, Washington, D.C.
- Saenz, D., R. R. Schaefer, R. N. Conner, M. Best, D. Rudolph, and D. Carrie. 2004. Influence of artificial cavity age on Red-cockaded Woodpecker translocation success. Pages 426-429 *in* Red-cockaded Woodpecker: road to recovery (R. Costa and S. Daniels, Editors). Hancock House Publishers, Blaine, Washington, USA
- U.S. Fish and Wildlife Service. 2003. Red-cockaded Woodpecker recovery plan. U.S. Fish and Wildlife Service, Southeastern Region, Atlanta, Georgia, USA.

Appendix 1. Expenditures covered with support from the *Bill Terrell Avian Conservation Grant* of the *Georgia Ornithological Society*.

Name	Memo	Amount	Date	Cavities
North Florida Wildlife LLC	Woodpecker cavity excavation	\$ 4,160.00	7/19/2014	32
Joe Burnam	Woodpecker cavity excavation	\$ 1,250.00	11/1/2014	15
Putty, paint, and other supplies	Supplies	\$ 215.68	11/15/2014	
Joe Burnam	Woodpecker cavity excavation	\$ 925.00	2/28/2015	8
North Florida Wildlife LLC	Woodpecker cavity excavation	\$ 1,950.00	4/1/2015	16
North Florida Wildlife LLC	Woodpecker cavity excavation	\$ 1,040.00	4/27/2015	8
Putty, paint, and other supplies	Supplies	\$ 96.54	7/25/2015	
North Florida Wildlife LLC	Woodpecker cavity excavation	\$ 1,600.00	9/2/2015	13
Georgia DNR	Woodpecker cavity materials <sup>1</sup>	\$ 4,500.00	9/9/2015	
Joe Burnam	Woodpecker cavity excavation	\$ 500.00	9/24/2015	8
Joe Burnam	Woodpecker cavity excavation	\$ 1,760.00	10/2/2015	16
Total encumbrances		\$ 17,997.22		116

<sup>1</sup>GADNR constructed 225 new boxes.