

Red-cockaded Woodpecker
(Picoides borealis)

5-Year Review:
Summary and Evaluation

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5-YEAR REVIEW
Red-cockaded Woodpecker (*Picoides borealis*)
Year completed: 2006

I. GENERAL INFORMATION

A. Methodology

This review was completed by Ralph Costa, Red-cockaded Woodpecker Recovery Coordinator/Field Supervisor from the U.S. Fish and Wildlife Service's Clemson Ecological Services Field Office (Clemson Field Office). No part of the review was contracted out to an outside party. All literature and documents used for this review are on file at the Clemson Field Office and listed in the References section of this document. Examples of materials used include the recovery plan, peer-reviewed manuscripts, symposium proceeding manuscripts, and the U.S. Fish and Wildlife Service's Annual Red-cockaded Woodpecker Property Data Report (Annual Report). All recommendations resulting from this review are a result of thoroughly reviewing all available information on the red-cockaded woodpecker and the reviewer's expertise as one of the leading experts on the species. Announcement of the review and public comment period was e-mailed to 480 individuals listed in the red-cockaded woodpecker contact data base maintained by the Clemson Field Office. Comments regarding the review were received from 7 parties, listed below by date received:

September 9, 2005 – Camp Blanding Joint Training Center, FL
October 12, 2005 – Sierra Club, Houston Regional Group, TX
October 21, 2005 – Pocosin Lakes National Wildlife Refuge, NC
November 7, 2005 – Friends of Georgia, Inc., GA
November 7, 2005 – Sierra Club, Georgia Chapter, GA
November 14, 2005 – Weyerhaeuser, Dobson Forestry Office, LA
November 14, 2005 – Don Lipscomb, Clemson University, SC

B. Reviewers

Lead Region: Emily Bizwell (Southeast, Region 4); 404 679-7149

Lead Field Office: Clemson Ecological Services Field Office Ralph Costa: 864 656-2432

Cooperating Field Office(s): Vero Beach, FL, Jacksonville, FL, Panama City, FL, Athens, GA, Daphne, AL, Jackson, MS, Conway, AR, Asheville, NC, Charleston, SC, Lafayette, LA, Raleigh, NC, Gloucester, VA, Clear Lake, TX, Tulsa, OK, Fort Benning, GA, Brunswick, GA, Lufkin, TX

Cooperating Region(s): R2 & R5

C. Background

1. Federal Register Notice Citation Initiating This Review:

September 12, 2005. Endangered and Threatened Wildlife and Plants; 5-Year Review of Eight Southeastern Species. FR 70(175):53807-53808.

2. **Species Status:** Improving (FY2006 Recovery Data Call)
3. **Recovery Achieved:** 1 = 0-25% (FY2006 Recovery Data Call)
4. **Listing History**

- a. **Original Listing:**

Federal Register Notice: 35 FR 16047
Date listed: October 13, 1970
Entity listed: species (*Dendrocopus* borealis*)
Classification: Endangered

* The species scientific name at time of listing was *Dendrocopus*. In 1976, the American Ornithologists Union published the name change to *Picoides* in the 33rd supplement to the American Ornithologists' Union checklist of North American birds; published in the Auk 93:875-879.

5. **Review History**

- a. **Status Reviews**

U.S. Fish and Wildlife Service's Annual Red-cockaded Woodpecker Property Data Report: 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998
Recovery Data Call: 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998
Final Recovery Plan: 2003

6. **Species' Recovery Priority Number at Start of Review (48 FR 43098):** 8C

7. **Recovery Plan or Outline**

- a. **Citation:**

Recovery Plan for the Red-cockaded Woodpecker (*Picoides borealis*): Second Revision (U.S. Fish and Wildlife Service 2003).

- b. **Issuing Date:** January 27, 2003

- c. **Revision History:**

Original Plan: Red-cockaded Woodpecker Recovery Plan: August 24, 1979
First Revision: Red-cockaded Woodpecker Recovery Plan: April 11, 1985
Second Revision: see 7.a. above

II REVIEW ANALYSIS

A. Application of the 1996 Distinct Population Segment (DPS) Policy

1. Is the species under review listed as a DPS? No
2. Is there relevant new information that would lead you to re-consider the classification of this species with regard to designation of DPSs? No

B. Recovery Criteria

1. Does the species have a final, approved recovery plan? Yes
2. Does the recovery plan contain recovery (i.e., downlisting or delisting) criteria? Yes
3. Adequacy of recovery criteria.
 - a. Do the recovery criteria reflect the best available (i.e., most up-to-date) information on the biology of the species and its habitat? Yes
 - b. Are all of the 5 listing factors that are relevant to the species addressed in the recovery criteria (and there is no new information to consider regarding existing or new threats)? Yes
4. List the recovery criteria as they appear in the recovery plan, and discuss how each criterion has or has not been met, citing supporting information. For threats-related recovery criteria, please note which of the 5 listing factors are addressed by that criterion. If any of the 5-listing factors are not relevant to this species, please note that here.

a. Recovery Criteria

Recovery criteria have been formulated using eleven recovery units delineated according to ecoregions. Populations required for recovery are distributed among recovery units to ensure the representation of broad geographic and genetic variation in the species.

Population sizes identified in recovery criteria are measured in the number of potential breeding groups (PBG). A PBG is an adult female and adult male that occupy the same cluster, with or without one or more helpers, whether or not they attempt to nest or successfully fledge young. A traditional measure of population size has been number of active clusters. Potential breeding groups is a better measure of population status, because this is the basis of population dynamics in this species and number of active clusters can include varying proportions of solitary males and captured clusters. Estimates of all three parameters—number of

active clusters, proportion of solitary males, and proportion of captured clusters—are required to support estimates of PBGs.

To assist in the transition between these two measures, a range of numbers of active clusters considered the likely equivalents of the required number of PBGs is provided. Estimated number of active clusters is likely to be at least 1.1 times the number of PBGs, but it is unlikely to be more than 1.4 times this number. Thus, an estimated 400 to 500 active clusters will be necessary to contain 350 PBGs, depending on the proportions of solitary males and captured clusters and also on the estimated error of the sampling scheme. It is expected that all recovery populations will have sampling in place that is adequate to judge PBGs. If this is not the case, only the highest number of active clusters in the range given can be substituted to meet the required population size.

Definitions and descriptions of terms used in delisting and downlisting criteria, such as recovery units, primary and secondary core populations, and essential support populations can be found in the recovery plan, as can a brief rationale for each delisting and downlisting criterion. All populations identified in downlisting and delisting criteria should be managed for maximum size that the habitat designated for red-cockaded woodpeckers will allow. Maximum size is generally based on 200 acres per red-cockaded woodpecker group (PBG or solitary male).

Note: Listing Factors A and E are both addressed by Criterion 1-5 for delisting and Criterion 1-6 for downlisting. Listing Factors B, C, and D are not currently relevant to the red-cockaded woodpecker.

b. Delisting

Delisting will be considered when each of the following criteria is met.

Criterion 1. There are 10 populations of red-cockaded woodpeckers that each contain at least 350 PBGs (400 to 500 active clusters), and 1 population that contains at least 1000 PBGs (1100 to 1400 active clusters), from among 13 designated primary core populations, and each of these 11 populations is not dependent on continuing installation of artificial cavities to remain at or above this population size.

One population (North Carolina Sandhills) of the 10 primary core populations required has achieved 350 PBGs. The one population (Central Florida Panhandle) slated to harbor 1000 PBGs harbored 583 PBGs in 2005. The remaining 11 primary core populations range in size from 18 (Chickasawhay) to ~344 (Francis Marion) PBGs.

Criterion 2. There are 9 populations of red-cockaded woodpeckers that each contain at least 250 potential breeding groups (275 to 350 active clusters), from among 10 designated secondary core populations, and each of these 9 populations is

not dependent on continuing installation of artificial cavities to remain at or above this population size.

None of the 10 secondary core populations harbors 250 PBGs. They range in size from 15 (DeSoto) to 178 (South Carolina Sandhills) PBGs.

Criterion 3. There are at least 250 potential breeding groups (275 to 350 active clusters) distributed among designated essential support populations in the South/Central Florida Recovery Unit, and six of these populations (including at least two of the following: Avon Park, Big Cypress, and Ocala) exhibit a minimum population size of 40 PBGs that is independent of continuing artificial cavity installation.

Currently, there are 302 PBGs distributed in the South/Central Florida recovery unit. However, only three (Big Cypress, Three Lakes, Withlacoochee Citrus Tract) of the required six that must exceed 40 PBGs are present, harboring 54, 45, and 46 PBGs, respectively. Only one (Big Cypress) of two specific populations that must exceed 40 PBGs is present.

Criterion 4. There is one stable or increasing population containing at least 100 potential breeding groups (110 to 140 active clusters) in northeastern North Carolina and southeastern Virginia, the Cumberland/Ridge and Valley recovery unit (Talladega/Shoal Creek), and the Sandhills recovery unit (North Carolina Sandhills West), and these populations are not dependent on continuing artificial cavity installation to remain at or above this population size.

One (North Carolina Sandhills West; 135 PBGs) of the three populations required to exceed 100 PBGs is present. The remaining two, Northeast North Carolina/Southeast Virginia and Talladega/Shoal Creek harbor 36 and 8 PBGs, respectively.

Criterion 5. For each of the populations meeting the above size criteria, responsible management agencies shall provide (1) a habitat management plan that is adequate to sustain the population and emphasizes frequent prescribed burning, and (2) a plan for continued population monitoring.

Although criterion 5 is referring to the need for populations to have such plans when they achieve their size goals, the majority of the populations required for delisting already have management plans that address habitat management (e.g., prescribed burning) and population monitoring. These plans are generally updated at 5-year intervals. The plans take the form of Integrated Natural Resource Management Plans (military), Land and Resource Management Plans (U.S. Forest Service), Comprehensive Conservation Plans (national wildlife refuges), and property-specific state wildlife management area and state forest plans.

c. Downlisting

Downlisting will be considered when each of the following criteria is met.

Criterion 1. There is one stable or increasing population of 350 potential breeding groups (400 to 500 active clusters) in the Central Florida Panhandle.

This criterion has been met. The Apalachicola Ranger District, one of the five properties comprising the Central Florida Panhandle Primary Core population, harbors 451 PBGs.

Criterion 2. There is at least one stable or increasing population containing at least 250 potential breeding groups (275 to 350 active clusters) in each of the following recovery units: Sandhills, Mid-Atlantic Coastal Plain, South Atlantic Coastal Plain, West Gulf Coastal Plain, Upper West Gulf Coastal Plain, and Upper East Gulf Coastal Plain.

Three (Sandhills, Mid-Atlantic Coastal Plain, and South Atlantic Coastal Plain) of the six recovery units required to have a population with 250 PBGs are present; Fort Bragg, Francis Marion, and Fort Stewart, harboring 270, 344, and 263 PBGs, respectively. The largest populations in the remaining three recovery units harbor from 155 to 185 PBGs.

Criterion 3. There is at least one stable or increasing population containing at least 100 potential breeding groups (110 to 140 active clusters) in each of the following recovery units: Mid-Atlantic Coastal Plain, Sandhills, South Atlantic Coastal Plain, and East Gulf Coastal Plain. Note that these populations would be different from those required in Criterion 2 above.

This criterion has been met. Each of the listed recovery units contains at least one population (different from the populations listed under Criterion 2 above) that harbors at least 100 PBGs. The populations (listed in the order of their recovery units as stated under Criterion 3, with PBGs shown in () are: Coastal North Carolina (165); Sandhills, including Fort Benning (239), North Carolina Sandhills (135), and South Carolina Sandhills (178); Osceola/Okefenokee (106); and Eglin (274).

Criterion 4. There is at least one stable or increasing population containing at least 70 potential breeding groups (75 to 100 active clusters) in each of four recovery units, Cumberlands/Ridge and Valley, Ouachita Mountains, Piedmont, and Sandhills. In addition, the Northeast North Carolina/Southeast Virginia Essential Support Population is stable or increasing and contains at least 70 potential breeding groups (75 to 100 active clusters).

Only the Sandhills recovery unit contains a population harboring at least 70 PBGs (that would not be needed to satisfy either Criterion 2 or 3, which also require Sandhills populations of certain sizes). The remaining three recovery units only

contain one population each and none harbor 70 PBGs. Those populations (listed in order of their recovery units as stated under Criterion 4, with PBGs shown in parentheses): are: Talladega/Shoal Creek (8), Ouachita (33), and Oconee/Piedmont (53).

Criterion 5. There are at least four populations each containing at least 40 potential breeding groups (45 to 60 active clusters) on state and/or federal lands in the South/Central Florida Recovery Unit.

This criterion has not yet been met. However, there are three of the four required populations in the South/Central Florida Recovery Unit that contain 40 PBGs. They are (with their PBGs in ()): Big Cypress (54), Three Lakes (45), and Withlacoochee Citrus Tract (46).

Criterion 6. There are habitat management plans in place in each of the above populations identifying management actions sufficient to increase the populations to recovery levels, with special emphasis on frequent prescribed burning during the growing season.

Although Criterion 6 is referring to the need for populations to have such plans when they achieve their size goals, the majority of the populations required for delisting already have management plans that address habitat management (e.g., prescribed burning) and population monitoring. These plans are generally updated at 5-year intervals. The plans take the form of Integrated Natural Resource Management Plans (military), Land and Resource Management Plans (U.S. Forest Service), Comprehensive Conservation Plans (national wildlife refuges), and property-specific state wildlife management area and forest land plans.

d. Listing/Recovery Factor Criteria

The relationship between delisting and downlisting criteria and each of the 5 listing factors is described below and how, if the recovery plan is fully implemented, these factors will not threaten red-cockaded woodpeckers at time of delisting.

Listing Factor A: *the present or threatened destruction, modification, or curtailment of a species' habitat or range.* Primary threats to species viability for red-cockaded woodpeckers all have the same basic cause: lack of suitable habitat. Serious threats stemming from this lack of suitable habitat include: (1) insufficient numbers of cavities and continuing net loss of cavity trees, (2) habitat fragmentation and its effects on genetic variation, dispersal, and demography, and (3) lack of foraging habitat of adequate quality. The majority of properties harboring red-cockaded woodpecker populations have instituted various management programs to address these habitat issues. First, intensive cavity management, primarily installation of artificial cavities, is being used to offset cavity loss in existing territories and to create new territories in unoccupied habitat. These cavity management activities are crisis intervention type actions that will remain necessary

until mature and old growth forests are restored. Second, managers are using what limited tools are available to combat effects of fragmentation. These tools/practices include strategic placement of recruitment clusters (new territories created with artificial cavities), retention of forest cover (e.g., no clear-cutting except for restoration), and translocation. As populations recover, isolation effects will not be as intensely acute as they are at present, because larger populations (required in recovery criteria) have greater resistance to impacts from environmental and demographic threats, greater retention of genetic variation, and thus greater probability of persistence. However, effects of fragmentation are likely to remain serious threats to population viability throughout the period of recovery. Third, managers are implementing new silvicultural techniques and aggressive prescribed fire programs to improve both the quantity and quality of foraging habitat. The threat to red-cockaded woodpecker populations from low-quality or insufficient foraging habitat is not as immediate as threats from habitat fragmentation and lack of suitable nesting habitat. However, foraging habitat affects population densities and it may be a secondary factor once abundant nesting habitat is provided; therefore, it remains an important concern for long-term viability.

Listing Factor B: *overutilization for commercial, recreational, scientific, or educational purposes.* Overutilization was not a factor in the original decline of red-cockaded woodpeckers and it is not currently a threat to species recovery.

Listing Factor C: *disease or predation.* Disease and predation were not factors in the original decline of red-cockaded woodpeckers, and neither is currently a threat to species recovery. However, the future potential for avian flu, West Nile virus, or other diseases to impact red-cockaded woodpeckers exists.

Listing Factor D: *inadequacy of existing regulatory mechanisms.* Existing regulatory mechanisms, specifically the Endangered Species Act and the National Forest Management Act, are adequate to ensure the recovery of red-cockaded woodpeckers, assuming the recovery plan is fully implemented. Upon delisting, a post-delisting monitoring plan will be developed and implemented to ensure that species viability will be retained after removal of ESA protection.

Listing Factor E: *other natural or manmade factors affecting its continued existence.* Primary *natural* threats to species viability for red-cockaded woodpeckers include range-wide and within population isolation and the threats to viability inherent to small populations. Multiple management and conservation tools are available and being used to address these threats. First, without immigration no red-cockaded woodpecker population (with the possible exception of the Central Florida Panhandle population) will be large enough to avoid loss of genetic variability through genetic drift. Managers are reducing the threat of genetic drift by promoting immigration, both natural (via dispersal; e.g., expanding existing and establishing new populations) and artificial (via translocation). Multiple recovery units (with numerous, large well distributed populations) harboring all of the habitat types and representing all the ecoregions in which red-

cockaded woodpeckers currently exist, will provide the future means to ensure that natural and artificial immigration can occur and be managed. Second, managers are minimizing within-population isolation by improving the spatial arrangement of territories. This is accomplished via strategic placement of recruitment clusters, careful planning of silvicultural activities and intra-population translocations. Third, the threats inherent to small populations are being addressed by growing populations as fast as logistically and economically possible using the habitat management tools discussed in Listing Factor A and translocations. As populations increase in size and density they will become more resistant to all of the threats discussed above. Resistance to these threats is the fundamental basis for target population sizes identified in delisting criteria 1 – 5.

In summary, the specified recovery criteria for red-cockaded woodpeckers address all of threats associated with Listing Factor A and E. By maintaining (and managing, e.g., prescribed burning) a network of large, interacting populations within all ecoregions (recovery units) of the species range, we will ameliorate the threats to the species viability. This strategy will promote natural immigration from support and core populations, over the long-term, within and between recovery units, thereby reducing species' susceptibility to loss of genetic variation through genetic drift. The recovery unit system and its associated complex of core and support populations provides the means today and into the future to overcome the threats of demographic stochasticity, i.e., small population viability. Additionally, the management plans required in recovery criteria will ensure that adequate habitat management programs will be implemented to prevent any of the listing factors from once again threatening the red-cockaded woodpecker's viability.

C. Updated Information and Current Species Status

1. Biology and Habitat

The biology, habitat, and status of the red-cockaded woodpecker was recently (2003) thoroughly “reviewed” and documented in the second revision to the recovery plan. Since approval of the recovery plan revision, no new information has come to light on the red-cockaded woodpecker's ecological or habitat requirements, genetics, demographics, biology, or taxonomy.

The species spatial distribution remains unchanged since 2003; no population extirpations have occurred since 2003, although dozens of populations remain at risk; i.e., <30 PBGs. The amount and distribution of habitat required for recovery, as specified in the recovery plan, remains unchanged since 2003; i.e., all habitat is still available. The overall suitability of this habitat is generally improving as management activities to increase populations are implemented, e.g., prescribed, thinning, and translocations.

The species status has been improving annually since the mid-1990s, when artificial cavity, translocation, and extensive prescribed burning programs were implemented (Copeyon 1990, Allen 1991, Costa and Kennedy 1994). These management practices provide the means to overcome the species limiting factors, thereby resulting in

increasing population trends in populations where they are instituted. In January 2003, the recovery plan reported a range-wide population (including all ownerships; private, state and federal) of 5,627 active clusters (occupied territories). As of January 2006, 6,105 active clusters were reported by the Service (USFWS data from the Annual Reports and other sources). The following table provides the number of active clusters from the early 1990's through 2006. Note that the range-wide population has been increasing by about 100 active clusters per year since 1993.

<u>Year</u>	<u># Active Clusters</u>	<u>Source</u>
1993/1994	4,694	Costa and Walker (1995)
2003	5,625	U.S. Fish and Wildlife Service (2003)
2004	5,800	Costa and DeLotelle (2006)
2005	5,903	U.S. FWS (Annual Report 2005**)
2006	6,105	U.S. FWS (Annual Report 2006**)

**Annual Reports and other supporting information were used to calculate these data.

2. Five Factor Analysis

The Endangered Species Act (Section 4(a)(1)) identified five factors that threaten or endanger a species, any one of which is justification for listing. At delisting, therefore, none of these factors can exist. Each of these factors is discussed below in the context of how they will not threaten red-cockaded woodpeckers at time of delisting.

Listing Factor A: *the present or threatened destruction, modification, or curtailment of a species' habitat or range.* Red-cockaded woodpeckers are vulnerable to habitat loss and habitat degradation; the two primary factors in the species' original decline. These factors resulted from direct conversion of habitat to other land uses, fire suppression, and loss of mature pines within pine woodlands. Direct conversion of habitat no longer occurs on public lands, which form the basis of recovery for red-cockaded woodpeckers. However, currently, lack of frequent fire and mature pines continue to threaten the species on public and private lands. Red-cockaded woodpeckers are most vulnerable to loss and degradation of nesting habitat, but are also vulnerable to loss and degradation of foraging habitat. Addressing these threats is a primary objective of the recovery plan.

Management actions such as artificial cavity installation, prescribed burning, and silvicultural practices that protect old pines are powerful tools critical to restoration of habitat and recovery of the species. As such, these actions are heavily emphasized in management guidelines, recovery tasks, and throughout the recovery plan, and are being implemented on more than 100 federal, state and private properties harboring red-

cockaded woodpeckers. Moreover, these critical actions are represented in delisting criteria: a prescribed burning program is explicitly required as part of habitat management plans that must be in place for delisting (criterion 6), whereas a stable or increasing population trend, independent from continuing artificial cavity installation, is required for populations to meet their size requirements (criteria 1-5). A stable or increasing trend independent of continuing artificial cavity installation can only be achieved once large old pines are available in abundance. See also 4.d. above to understand what else managers are doing to combat these threats.

Listing Factor B: *overutilization for commercial, recreational, scientific, or educational purposes*. Overutilization was not a factor in the original decline of red-cockaded woodpeckers and it is not currently a threat to species recovery.

Listing Factor C: *disease or predation*. Disease and predation were not factors in the original decline of red-cockaded woodpeckers and neither is currently a threat to species recovery. However, diseases such as West Nile virus and avian flu, already impacting other species of wild birds, are potential foreseeable threats in the future.

Listing Factor D: *inadequacy of existing regulatory mechanisms*. Existing regulatory mechanisms, specifically the Endangered Species Act and the National Forest Management Act, are adequate to ensure the recovery of red-cockaded woodpeckers, assuming this recovery plan is fully implemented. Upon delisting, a post-delisting monitoring plan will be developed and implemented to ensure that species viability will be retained after removal of ESA protection.

Listing Factor E: *other natural or manmade factors affecting its continued existence*. Other natural or manmade factors affecting the continued existence of red-cockaded woodpeckers include habitat fragmentation and the threats to viability inherent to small populations. Addressing these threats is a primary objective of the recovery plan.

Habitat fragmentation can result in loss of population viability through disrupted dispersal. Further fragmentation of habitat is safeguarded against by appropriate silvicultural methods. In addition, management guidelines emphasize maintaining or developing beneficial spatial arrangements of red-cockaded woodpecker groups, to enhance dispersal within populations. Translocation and installation of recruitment clusters are important management actions used to create such beneficial spatial arrangements. There are several threats to viability inherent to small populations. Resistance to these small population threats is the fundamental basis for target population sizes identified in delisting criteria (1 – 5). The set of populations that will exist at delisting will not be vulnerable to effects of habitat fragmentation nor to stochastic events that threaten small populations. Once delisting criteria have been met, the species will be viable to the fullest degree possible given current scientific understanding. See also 4.d. above to understand what else managers are doing to combat these threats.

Although private lands have a minor role in recovery criteria for red-cockaded woodpeckers, their value in helping move the species toward recovery is significant and

well-documented (Costa 1995, Bonnie 1997, Costa 1997, Costa and Edwards 1997, Costa et al. 2001). Both habitat conservation plans and safe harbor agreements have, since the mid-1990s, played a key role in stabilizing and, indeed, increasing numerous populations on private lands (Costa et al. 2001, Chadwick 2004, Hart et al. 2004, Hedman et al. 2004, Miller et al. 2004). These initiatives and partnerships help minimize the threats associated with population fragmentation and isolation and small population size (e.g., by consolidating PBGs in demographically stable conservation areas).

D. Synthesis

Since approval of the recovery plan revision in 2003, no new threats to the red-cockaded woodpecker have been identified and existing threats remain. Those threats include: (1) insufficient numbers of natural cavities and continuing net loss of cavity trees, (2) habitat fragmentation and its effects on genetic variation, dispersal, and demography, (3) lack of foraging habitat of adequate quality, (4) range-wide and within population isolation, and (5) tenuous viability of small populations. All of these threats are being addressed via short and long-term habitat and population management programs, e.g., prescribed burning, artificial cavity installation, and translocations. However, it will be decades before a sufficient number of large populations are distributed in such a way to fully preclude future impacts to species viability from all of the threats. Fortunately, the ongoing habitat and population management activities are having an immediate positive effect on the status of the species.

Range-wide, the population trend of the red-cockaded woodpecker is increasing. In 1993/1994, the range-wide population was estimated at 4,694 active clusters; in 2006 it was 6,105 (see Table in II.C.1). However, not all populations required for downlisting and delisting are increasing. For example, of the 57 federal populations (federal populations comprise the majority of populations involved in recovery criteria), and based on a 5-year trend period from 2000 to 2005, 12 (21%) were decreasing, 10 (18%) were stable, 31 (54%) were increasing, and 4 (7%) were extirpated. These populations include 13 on national wildlife refuges, 15 on military installations, 26 on national forests, and 1 each on lands administered by the Department of Energy, Bureau of Land Management, and National Park Service.

An analysis of the 128 properties (all public [53 federal, 36 state] and 39 private properties harboring red-cockaded woodpeckers) submitting reports via the Annual Report illustrates the status of the species at the property scale. The following table provides the number of active clusters, by ownership, for the 128 properties in 2005.

# Active Clusters	Federal	State	Private	Total
1-10	9	19	21	49 (38%)
11-40	21	11	13	45 (35%)
41-100	12	5	5	22 (17%)
101-250	5	1	0	6 (5%)
250-350	3	0	0	3 (2.5%)

351+	3	0	0	3 (2.5%)
Total	53	36	39	128 (100%)

When examined from the property perspective it is clear, that although several large populations exist, the vast majority (73%) of properties harbor fewer than 40 active clusters. Indeed, 90% of properties harbor fewer than 100 active clusters. Although some recovery populations are composed of one or more properties (because the properties are adjacent to one another), most recovery populations (64%) are located on one property/ownership. When multiple properties comprise one population it is not uncommon, given budgets, agency missions, staffing, etc., to have significantly different levels of management in furtherance of red-cockaded woodpecker conservation and recovery. Therefore, examining the species status at both the “population” and “property” scale is appropriate. Additionally, analyzing the species at the “range-wide” scale, by examining its condition at the “state” level provides further insights into the species status.

Although currently several states harbor a few large and stable populations, throughout a significant portion of the species range no populations are large enough (i.e., >250 PBGs) to withstand the threats associated with environmental stochasticity or losses of genetic variation through genetic drift. The states with the largest populations include Florida, Georgia, and North Carolina. However, even within these states, numerous small, at-risk (of extirpation) populations – populations which are necessary to meet recovery criteria – exist.

Significantly, there are no populations >250 PBGs in 7 of the 11 states where the species occurs: Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, Texas, and Virginia. However, each of these states, except for Oklahoma and Virginia, will have, at recovery, at least one population of 250 PBGs. The only population in Oklahoma (12 PBGs), located on state land, has a population goal of ~40 PBGs. However, recent and planned future management actions on adjacent U.S. Forest Lands in Oklahoma provide the potential for increasing the RCW population goal in Oklahoma from 40 to as high as ~100 PBGs. The only population in Virginia (5 PBGs) will always remain at risk given its population goal currently does not exceed 10 PBGs. Therefore, the potential to lose the species from this state, as has previously occurred in other “perimeter” states of the historic range, remains high. The species has been extirpated from New Jersey (~1928), Missouri (1946), Maryland (1958), Tennessee (1994) and Kentucky (2001).

Numerous other federal populations in the 5 remaining states that do not harbor a population of 250 PBGs harbor fewer than 40 PBGs (see table below).

State	#Pops >40 PBGs	#Pops <40 PBGs	%Pops <40 PBGs
Alabama	1	2	66%
Arkansas	0	3	100%

Louisiana	4	5	55%
Mississippi	2	1	33%
Texas	2	2	50%
Total	9	13	59%

Populations with fewer than 40 PBGs are vulnerable to threats from demographic stochasticity (unless territories are highly aggregated), environmental stochasticity, inbreeding depression, and losses of genetic variation through genetic drift; that is, all of the factors that threaten any species' survival. Additionally, hurricanes will always threaten the survival of populations in the coastal plain provinces of most states, including Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, and Virginia.

The red-cockaded woodpecker continues to meet the definition of "endangered", i.e., a "species which is in danger of extinction throughout all or a significant portion of its range..." The recovery plan clearly discusses the threats to the species and details how these threats must be overcome to downlist to "threatened" and delist to "recovery". Recovery for this species involves a specified number of properties and populations achieving specific population goals. As of 2006, 6 of 39 populations (15.4%) and 15 of 63 properties (23.8%) had achieved their recovery objectives. The threats will be overcome when a sufficient number of large populations (i.e., either 250 or 350 PBGs) and several smaller ones (i.e., either 40 or 100 PBGs) are established throughout the range of the species. Until downlisting criteria are satisfied, many populations remain at risk of extirpation.

Based on examination of: (1) meeting recovery criteria for both down-listing and de-listing, and (2) the status of the species at the (a) population, (b) property, and (c) state scale, it is clear that the red-cockaded woodpecker's classification of "endangered" remains valid.

III. RESULTS

A. Recommended Classification:

No change needed; remain classified as "endangered". No change recommended for Recovery Priority assignment of 8C; degree of threat remains moderate and recovery potential for this species remains high. Additionally, there remains some degree of conflict between the species recovery efforts and economic development, justifying the "C" designation.

IV. RECOMMENDATIONS FOR FUTURE ACTIONS

The status of the red-cockaded woodpecker will be continuously improved as long as those actions necessary to reduce and eventually eliminate the threats to the species are implemented. These actions include aggressive and effective prescribed burning programs, installation of artificial cavities until forests are old enough to provide

sufficient numbers of potential cavity trees, and translocation of birds to the many small, at-risk (of extirpation) populations required to satisfy recovery criteria. The federal and state (and selected private land) land base has been identified and is sufficient to recover the species, and much of the habitat is currently available. However, many tens of thousands of acres require restoration and improvement prior to establishing red-cockaded woodpecker territories.

V. REFERENCES

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U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW OF RED-COCKADED WOODPECKER

Current Classification: Endangered

Recommendation resulting from the 5-Year Review

No change is needed

Appropriate Listing/Reclassification Priority Number: N/A

Review Conducted By: Ralph Costa, Red-cockaded Woodpecker Recovery Coordinator

FIELD OFFICE APPROVAL:

Lead Field Supervisor, Fish and Wildlife Service

Approve Ralph Costa Date 9.12.06

Cooperating Field Supervisor, Fish and Wildlife Service

Concur Do Not Concur

Signature _____ Date _____

REGIONAL OFFICE APPROVAL:

acting

Lead Regional ^{Assistant} Director, Fish and Wildlife Service

Approve Franklin J. ... Date 10/5/2006 *Acting ARD-ES*

Cooperating ^{Assistant} Regional Director, Fish and Wildlife Service

Concur Do Not Concur

Signature Allen M. ... Date 10/2/06 *Acting ARD-ES*

**U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW OF RED-COCKADED WOODPECKER**

Current Classification: Endangered

Recommendation resulting from the 5-Year Review

No change is needed

Appropriate Listing/Reclassification Priority Number: N/A

Review Conducted By: Ralph Costa, Red-cockaded Woodpecker Recovery Coordinator

FIELD OFFICE APPROVAL:

Lead Field Supervisor, Fish and Wildlife Service

Approve Ralph Costa Date 9.12.06

Cooperating Field Supervisor, Fish and Wildlife Service

Concur Do Not Concur

Signature _____ Date _____

REGIONAL OFFICE APPROVAL:

Lead Regional Director, Fish and Wildlife Service

Approve _____ Date _____

Cooperating Regional Director, Fish and Wildlife Service

Concur Do Not Concur

Signature [Signature] Date 10-2-06



United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589



In Reply Refer To:
FWS/Region 5/ES-TE

OCT - 2 2006

Memorandum

To: Regional Director, Region 4

From: **Acting** Regional Director, Region 5

Subject: 5-Year Review for the Red-Cockaded Woodpecker

This is in response to your memorandum dated September 26, 2006, requesting concurrence on the subject document. We concur with the results of the 5-year review for the red-cockaded woodpecker, maintaining the current status of the species as endangered. Thank you for the opportunity to review the document.

If there are any questions, please contact Michael G. Thabault, Assistant Regional Director, Ecological Services, at 413-253-8304.

Richard O. Bennett, Ph.D.

Attachment



United States Department of the Interior

FISH AND WILDLIFE SERVICE


P.O. Box 1306
Albuquerque, New Mexico 87103
<http://ifw2es.fws.gov>

In Reply Refer To:
R2/ES-TE

OCT 02 2006

Memorandum

To: Assistant Regional Director, Southeast Region

From: ^{ACTING} Assistant Regional Director, Ecological Services, Region 2 

Subject: Concurrence on 5-year Review for the Red-Cockaded Woodpecker

This responds to your September 26, 2006, memorandum requesting our review of the red-cockaded woodpecker 5-year review. Field staff in our Oklahoma and Texas offices have previously reviewed and provided comments to you. We have no further comments and we concur with your recommendation that no change in status to the current classification of the red-cockaded woodpecker as endangered is needed.

Thank you for the opportunity to comment. If you have questions, please contact Wendy Brown, Recovery Coordinator, at 505-248-6664.

cc: Supervisor, Ecological Services Field Office, Tulsa, OK
Supervisor, Ecological Services Field Office, Austin, TX
Recovery Coordinator, Region 2, Albuquerque, NM