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## Investigation of red-cockaded woodpeckers in Virginia: 2005 report

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**INVESTIGATION OF RED-COCKADED  
WOODPECKERS IN VIRGINIA:  
YEAR 2005 REPORT**



**CENTER FOR CONSERVATION BIOLOGY  
COLLEGE OF WILLIAM AND MARY**

# Investigation of Red-cockaded Woodpeckers in Virginia: Year 2005 report

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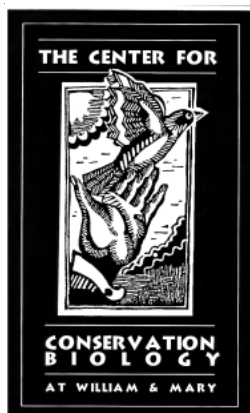
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*Cover photo - Dana Bradshaw with brood in cluster 3. Photo by Bryan Watts*



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## TABLE OF CONTENTS

<b>Executive Summary</b> .....	iii
<b>BACKGROUND</b> .....	1
Context .....	1
Objectives.....	1
<b>METHODS</b> .....	2
Description.....	2
Banding.....	2
General Observations.....	4
Historic Sites.....	4
<b>RESULTS</b> .....	5
Population Monitoring.....	5
Breeding Observations.....	8
Translocations.....	10
Cavity Trees.....	12
Historic Sites.....	13
<b>ACKNOWLEDGMENTS</b> .....	14
<b>APPENDIX I</b> .....	15

## Executive Summary

During the 2005 calendar year, 40 Red-cockaded Woodpeckers were identified within Piney Grove Preserve. This included 19 resident adults, 9 nestlings produced during the breeding season, 5 birds translocated to the site in previous years, 6 birds translocated to the site in 2005, and 1 bird of unknown origin. Fourteen birds were believed to be lost from the site during the year including 3 chicks produced on site in 2005, 3 chicks produced in 2004, 1 chick produced in 2003, 3 chicks produced in 2000, birds banded as adults in 1998 and 2000, 1 bird translocated from Southampton County and 1 bird translocated in 2005 from Carolina Sandhills, NWR. Twenty-three birds were present going into the breeding season and 26 birds were documented in December. This is the largest number of birds present during these time periods since restoration efforts began.

Four breeding pairs produced 9 nestlings during the 2005 breeding season. This is the highest number of breeding attempts in Virginia in more than a decade. The breeding pair in cluster 1 was the same as it has been since 2003. This pair produced 3 eggs, 2 nestlings, and 2 fledglings. The female in cluster 3 was the same as in 2004 but the male was replaced. This pair produced 3 nestlings, 2 of which fledged. The breeding pair in cluster 5 was the same as it has been since 2001. This pair produced 3 nestlings, all of which fledged. A new pair was formed in cluster 7 including a male that was translocated to Piney Grove from Carolina Sandhills, NWR in 2003 and a female that was produced in cluster 5 in 2003. The pair produced 1 egg that hatched and fledged. In total, 9 nestlings were produced, 8 of which fledged including 3 males and 5 females.

Eight of 14 cluster areas were documented to have resident birds during the year, the highest number since the beginning of restoration efforts. In December of 2005, Piney Grove contained 102 live cavity trees including 16 start cavities, 30 completed cavities, and 56 artificial inserts. Of the 86 available natural cavities or inserts, 27 had fresh sap flow from resin wells in December and 21 were occupied by woodpeckers. Five birds appeared to be open roosting in December. Given the apparent availability of open cavities, the underlying cause of the open roosting is not clear but warrants further examination.

## BACKGROUND

### Context

The Red-cockaded Woodpecker (*Picoides borealis*) is a federally endangered species. Within the past 100 years Red-cockaded Woodpeckers have disappeared completely from the northern portion of their breeding range. Historically, this species was recorded north into New Jersey and Pennsylvania. As recently as the 1930's and 1940's resident birds were known from the open maritime forests of Maryland. Since the recent loss of habitat in Kentucky, Virginia has supported the only population north of the Carolinas. In Virginia, breeding has continued to the present time but the number of both sites and birds has declined dramatically over the past 40 years. As recently as 1977, 23 clans were known scattered across 5 counties. In 1980, all clusters determined to be active in 1977 were surveyed in preparation for an investigation of habitat use (Bradshaw 1990). Of the 23 original clusters, only 9 were still forested. In the 4 years from 1977 to 1980, more than half of the known state population had been lost. By 1990, only 5 of the original 23 clusters detected in 1977 were still active. By 2000, this number had declined to only 2 clusters. During the breeding season of 2002, Virginia supported only 2 breeding pairs and 2 clusters with solitary males.

The Red-cockaded Woodpecker remains in eminent danger of extinction within Virginia. However, in 1998 a multi-organizational partnership was formed under the primary mission of stabilizing the population and restoring it back to pre-1980 levels. During that year, The Nature Conservancy negotiated a deal with Hancock Timber to purchase 1,100 ha of land supporting the last 3 known Red-cockaded Woodpecker breeding groups. The site has since been expanded and now includes 1,270 ha of pine land. The tract, located in Sussex County is named the Piney Grove Preserve and lies in the heart of the species' former Virginia range. The site has become the nucleus for restoration work in Virginia.

Restoration of the Red-cockaded Woodpecker population in Virginia will require a long-term commitment and the use of aggressive techniques that have proven successful further south. Dramatic habitat management, population monitoring and management, and translocation of birds into the population has been ongoing since 2000 and is beginning to show promising results.

### Objectives

The primary objective of this ongoing project is to monitor the population of Red-cockaded Woodpeckers within the Piney Grove Preserve. A secondary objective is to collect information relevant to the continued management of birds and their habitat in Virginia. Specific objectives include

- 1) To determine the number and identification of all birds resident within Piney Grove during the 2005 calendar year.
- 2) To monitor breeding activity in order to document productivity and allow for the unique banding of all individuals within the population.
- 3) To translocate birds into the population from the donor population within Carolina Sandhills National Wildlife Refuge.

## METHODS

### Description

Piney Grove Preserve contains an old-growth loblolly and short-leaf pine community in Sussex County, Virginia. The site supports a complex of moderate-age pine stands interspersed with pockets of older trees ranging from 80 to 140 years. Historically, the site was managed for saw timber on a relatively long rotation by Gray Lumber Company. The site was purchased by Hancock Timber Resource Group in 1993. Under Hancock Timber's management, site quality was improved by removing the dense hardwood understory. The Nature Conservancy purchased the tract from Hancock Timber in 1998. The Nature Conservancy has developed an aggressive management program designed to restore the disturbance regime necessary to return the site to an open pine savannah.

A single clan of Red-cockaded Woodpeckers was discovered within this site in 1985. A second clan was discovered in 1994 and a third in 1995. These 3 clans still remain active. Since 1999, there have been 11 recruitment clusters established by The Nature Conservancy through the installation of artificial cavities. There are now 14 independent cluster sites with either natural or artificial cavities.

### Banding

Being able to identify individual birds is an essential element of the monitoring program. Banding individuals with unique combinations of color bands allows for their identification and, for this reason, has been one of the project goals.

Adults – Adult birds are captured using a specialized net mounted on a telescopic pole shortly after they roost at dusk. The birds are “roosted”, the net is raised in place, and the bird is enticed out into the net. Net poles are only effective on cavities below 50 feet in height. In 1998, Don Schwab banded 10 Red-cockaded Woodpeckers within the Piney Grove complex. In 2000, 7 of these birds were still resident within Piney Grove. During 2000, Bryan Watts banded an additional 4 adult birds, leaving only 2 unbanded birds in the population (1 each in clusters 3 and 5). During 2005, the unbanded bird in cluster 5 is the only remaining unbanded bird in the population. No attempt was made to capture this bird in 2005. The bachelor male from Southampton County was captured, banded, and released in cluster 11 on 18 April.



*Measuring wing chord and culmen length on male translocated from Southampton County. Photo by Bart Paxton.*



*(Lft) Bryan Watts preparing to extract nestlings in cluster 1 (photo by Marian Watts). (Upper Rt) Bryan Watts and Dana Bradshaw banding nestlings in cluster 1 (photo by Marian Watts). (LowerRt) Banded chicks from cluster 3 (Photo by Bryan Watts).*

Nestlings - For logistical and safety reasons, banding of Red-cockaded Woodpecker nestlings is restricted to an age window of 5-9 days. Because of this restriction, close monitoring of breeding activity is essential to successful banding. During the early portion of the breeding season, both the breeding pair and the nest cavity from each cluster area were monitored closely to determine clutch initiation dates. Where cavity height permits, breeding status is determined via the use of a miniature video camera mounted on an extendable pole. The pole can accommodate cavity heights to 50 ft. For cavities exceeding that height, breeding status was determined by visual monitoring of activity at the cavity. After dates of incubation were determined, an estimated hatching date was calculated. Nest cavities were monitored closely around the time of expected hatching to verify hatch dates. The window for banding was determined from estimated hatching dates.

All nestlings were banded during the recommended age window. Nest trees were climbed with ladders and nestlings were extracted from cavities using a noose apparatus. Nestlings were then lowered to the ground, banded, and returned to the cavity. Each nestling received a unique combination of color bands as described above. Nestlings were also weighed using a Pesola spring scale.



*Mike Wilson uses peeper scope to examine condition of nest cavity in cluster 3 (photo by Bryan Watts).*



### **General Observations**

During the course of banding operations, numerous observations of birds within the three cluster areas were made and recorded. Most of these observations were made around the time that birds went to roost in the evening or emerged in the morning. These observations were used to construct patterns of occurrence for individual birds, estimates of population size, patterns in cavity use, patterns in the presence and distribution of cavity competitors, etc. An effort was undertaken in early December to systematically work through all clusters to determine activity status and to identify all birds within the population.

### **Historic Sites**

All historic sites in Virginia that are still standing and known to be used by Red-cockaded Woodpeckers for breeding in the past 15 years were visited to determine status. All cavity trees still standing within these sites were examined for activity.

## RESULTS

### Population Monitoring

During the calendar year of 2005, 40 Red-cockaded Woodpeckers were identified within Piney Grove Preserve (Table 1). This included 19 birds that were from the site and resident in previous years, 9 chicks produced during the breeding season, 1 bird that was translocated from Gates County, NC in the spring of 2002, 1 bird that was translocated from Carolina Sandhills, NWR in the fall of 2002, 3 birds that were translocated from Carolina Sandhills in the fall of 2003, 5 birds that were translocated from Carolina Sandhills during the fall of 2005, 1 bird that was translocated from Southampton County, VA in the spring of 2005 as part of a habitat conservation plan, and 1 bird that was of unknown origin. Three birds were lost between the fall of 2004 and the breeding season of 2005 including 1 bird banded as a nestling in 2003 and 2 banded as nestlings in 2004.

Twenty-four birds were believed to be present within the Piney Grove Preserve going into the breeding season of 2005 (Table 1). This compares to 21, 19, and 16 birds going into the breeding seasons of 2004, 2003, and 2002 respectively. Birds present included 2 birds banded as adults in 1998 and 2 birds banded or known to be present as adults in 2000. Remaining birds were either banded as nestlings or translocated to the site in various years. Birds banded as nestlings included 3 birds that were banded in 2000 and 2003 and 2 birds that were banded in 2001 and 2002. Translocated birds included 1 from Gates County, NC and 4 moved from Carolina Sandhills, NWR in SC.

Twenty-six birds were identified within Piney Grove during December of 2005 (Table 1). These birds included 16 birds that were produced on site, 9 birds that were translocated to the site over the years, and 1 bird that was banded but of unknown origin. Fourteen birds were known to be lost from the site during the year including 3 chicks produced on site in 2005, 3 chicks produced in 2004, 1 chick produced in 2003, 3 chicks produced in 2000, 2 birds banded as adults in 1998 and 2000, 1 bird translocated from Southampton County and 1 bird translocated in 2005 from Carolina Sandhills, NWR.

In December, birds were roosting in 8 different cluster areas including C-1, C-3, C-4, C-5, C-6, C-7, C-9, and C-10 (Table 2). Birds roosting within C-1 and C-5 appeared to forage as independent but cohesive groups. As in past years, the single bird roosting in C-4 was part of the C-3 clan. These birds appeared to forage together as a cohesive group. Birds roosting in C-6, C-7, C-9, and C-10 had considerable interaction and were observed in various mixtures. How this dynamic will play out going into the 2006 breeding season remains unclear.

**Table 1. Occurrence of individual Red-cockaded Woodpeckers at Piney Grove Preserve (1998-2005).**

FWS	Left Leg	Right Leg	Sex	1998	2000	2001	2002	2003	2004	2005 Spr	2005 Fall	2005 Dec
<b>Piney Grove</b>												
1581-66204	RE/DB/RE	PU1/AL	F	X								
1581-66208	RE/DB/RE	PK1/AL	U	X								
1581-66210	WH/LB/WH	DB1/AL	U	X								
1581-66201	WH/LB/WH	RE/AL	M	X	X							
1581-66209	DG/YE/DG	PU/AL	F	X	X							
1581-66206	DG/YE/DG	DB/AL	M	X	X							
1581-66203	RE/DB/RE	YE/AL	F	X	X	X	X	X				
1581-66205	RE/DB/RE	DG/AL	M	X	X	X	X	X				
1581-66202	WH/LB/WH	LG/AL	M	X	X	X	X	X	X	X		
1581-66207	WH/LB/WH	WH/AL	F	X	X	X	X	X	X	X	X	X
1581-66213	WH/LB/WH	DB2/AL	F		X							
1581-66216	RE/DB	RE1/AL	U		X							
1581-66221	WH/LB/WH	PK1/AL	U		X							
1581-66211	DG/YE/DG	RE1/AL	F		X							
1581-66223	DG/YE/DG	YE/AL	F		X							
1581-66222	WH/LB/WH	AL/RE	U		X	X						
1581-66219	DG/YE/DG	WH/AL	M		X	X	X					
C-3 Unbanded	Unbanded	Unbanded	U		X	X	X	X	X			
1581-66215	RE/DB	LG1/AL	U		X	A	X	X	X	X		
1581-66214	RE/DB	WH/AL	M		X	X	X	X	X	X		
1581-66212	WH/LB/WH	YE/AL	M		X	X	X	X	X	X	X	
1581-66220	WH/LB/WH	PU/AL	U		X	?	?	?	X	X	X	
C-5 Unbanded	Unbanded	Unbanded	M		X	X	X	X	X	X	X	X
1581-66225	RE/DB/RE	RE2/AL	M			X						
1581-66226	RE/DB/RE	LG2/AL	F			X						
1581-66227	RE/DB/RE	PK2/AL	M			X	X					
1581-66229	WH/LB/WH	DG/AL	F			X	X					
1581-66228	RE/DB/RE	PU2/AL	M			X	X	X	X			
1581-66224	DG/YE/DG	RE2/AL	M			X	X	X	X	X	X	X
1581-66231	WH/LB/WH	PK2/AL	M			X	X	X	X	X	X	X
1581-66236	RE/DB/RE	AL/DB	M				X					
1581-66232	WH/LB/WH	AL/DB	M				X	X				
1581-66233	WH/LB/WH	AL/LB	F				X	X				
1581-66234	RE/DB/RE	AL/YE	F				X	X				
1581-66230	WH/LB/WH	AL/YE	F				X	X	X	X	X	X
1581-66235	RE/DB/RE	AL/RE	F				X	X	?	?	?	X
1581-66239	WH/LB/WH	AL/DG	U					X				
1581-66240	WH/LB/WH	AL/LG	M					X				
1581-66243	RE/DB/RE	AL/PK	F					X				
1581-66246	DG/YE/DG	AL/PU	U					X				
1581-66238	WH/LB/WH	AL/PU	F					X	X	X		
1581-66244	RE/DB/RE	AL/DG	M					X	X			

Table 1. –continued–

FWS	Left Leg	Right Leg	Sex	1998	2000	2001	2002	2003	2004	2005	2005	2005
										Spr	Fall	Dec
<b>Piney Grove</b>												
1581-66242	RE/DB/RE	AL/LB	F					X	X			
1581-66237	WH/LB/WH	AL/RE	M					X	?	?	X	X
1581-66245	DG/YE/DG	AL/LB	M					X	X	X	X	X
1581-66249	DG/YE/DG	AL/DB	U						X			
1581-66247	DG/YE/DG	AL/WH	U						X			
1581-66248	DG/YE/DG	AL/PU	M						X			
1581-66241	DG/YE/DG	AL/LG	F						X			
1581-66250	LB/WH/LB	AL/PK	M						X	X		
1581-66252	LB/WH/LB	AL/LB	F						X	X		
1581-66254	DB/RE/DB	AL/RE	M						X	X	X	
1581-66251	LB/WH/LB	AL/DB	M						X	A	X	X
1581-66253	DB/RE/DB	AL/WH	F						X	X	X	X
1581-66259	DG/YE/DG	AL/DG	F							X		
1581-66256	LB/WH/LB	AL/OR	F							X		
1581-66262	DB/RE/DB	AL/YE	F							X		
1581-66257	LB/WH/LB	AL/RE	M							X	X	X
1581-66258	LB/WH/LB	AL/YE	F							X	X	X
1581-66260	DG/YE/DG	AL/OR	F							X	X	X
1581-66261	DB/RE/DB	AL/DB	M							X	X	X
1581-66263	DB/RE/DB	AL/PU	F							X	X	X
1581-66264	WH/RE/WH	AL/DG	F							X	X	X
<b>Translocated</b>												
1751-83047	AL/LG	DB/DB/YE	M			X						
1681-89697	AL/LB	ST/ST/OR	F			X						
1681-89743	AL/DG	WH/WH/PU	F			X	X					
1751-42837	YE/DB/YE	WH/AL	M				X					
1751-42838	YE/DB/YE	LG/AL	M				X					
801-40249	BK/YE/DB	RE/AL	F				X	X	X	X	X	X
1751-83163	AL/OR	DG/DG/OR	F				X					
1751-83133	AL/WH	ST/ST/OR	F				X					
1751-83208	AL/OR	WH/WH/MV	M				X					
1681-89800	AL/LG	PU/PU/LG	M				X					
1751-82968	AL/WH	OR/OR/DB	F				X					
1751-83201	AL/OR	WH/WH/LB	F				X					
1751-83213	AL/OR	OR/OR/LG	M				X					
1751-83142	AL/OR	DB/DB/WH	M				X	X	X	X	X	X
1751-83234	AL/YE	WH/WH/WH	F					X				
951-26443	AL/YE	DG/DG/LG	F					X				
951-26448	AL/YE	DG/DG/MV	M					X	X	X	X	X
1751-83183	AL/OR	YE/YE/WH	M					X	X	X	X	X
951-26305	AL/YE	YE/YE/WH	M					X	X	X	X	X

Table 1. –continued-

FWS	Left Leg	Right Leg	Sex	1998	2000	2001	2002	2003	2004	2005	2005	2005
										Spr	Fall	Dec
<b>Translocated</b>												
1581-66265	WH/WH/WH	AL/WH	M							X		
941-92246	AL / ST	OR/OR/YE	M								X	
1951-05035	AL / PU	WH/WH/MV	M								X	X
1951-05086	AL/MV	MV/MV/WH	F								X	X
941-92233	AL / ST	WH/WH/LG	F								X	X
941-92268	AL / ST	PU/PU/WH	F								X	X
<b>Unknown</b>												
	MV/LG	LG/AL	U								X	X

### Breeding Observations

Active clusters were monitored for evidence of breeding activity. Four breeding attempts were documented during the 2005 season, producing 9 chicks to fledging age. Cluster 7 is the first recruitment cluster where a breeding pair has settled and successfully nested.

Cluster 1 – The breeding pair within cluster 1 was the same as it has been since 2003. The female (WH/LB/WH, AL/YE) was fledged in 2002 from cluster 5 and the male (DG/YE/DG, RE/AL) was banded as an after-hatching-year bird in cluster 1 on 4/28/01. The nest cavity was in tree #48. On 28 April, 3 eggs were present in the nest cavity with no bird present in the vicinity. Two 8-d old chicks were banded on 18 May (Table 3). After extraction of the two chicks the cavity was examined but there was no evidence of a third chick or an unhatched egg. Both chicks were examined with a spotting scope the day of fledging and were both determined to be females by plumage.

Cluster 3 – The breeding female (BK/YE/DB, RE/AL) in cluster 3 was the same as in 2004, but the breeding male from the previous year was not present and was replaced by RE/DB, WH/AL. Cavities within the cluster were examined on 28 April, and the cavity in tree #3 was in the best condition and had a fresh lining of wood chips. On 6 May, this cavity held a single egg. Three 8-d old chicks were extracted and banded on 29 May (Table 3). These birds included 2 females and 1 male (determined by peeper scope). Only 2 of these birds were observed to fledge successfully including 1 male and 1 female.

Cluster 5 – The breeding pair (male - WH/LB/WH, LG/AL and female - WH/LB/WH, WH/AL) within cluster 5 was the same as it has been since 2001. The breeding female was observed copulating with the unbanded male before the onset of incubation. This is not the first time that an apparent extra-pair copulation has been observed within this cluster. On 6 May, bird activity around the nest cavity was high, and the cavity was determined to have 3 chicks that had just hatched. Three 7-d old nestlings were extracted and banded on 12 May (Table 3). These birds were examined at fledging and determined to be 2 males and 1 female.

**Table 2.** Roost clusters for Red-cockaded Woodpeckers detected within Piney Grove Preserve during December of 2005.

Roost Cluster	FWS	Left Leg	Right Leg	Sex	Age
C-1	1581-66230	WH/LB/WH	AL/YE	F	4
C-1	1581-66245	DG/YE/DG	AL/LB	M	3
C-1	1751-83142	AL/OR	DB/DB/WH	M	4
C-1	1581-66260	DG/YE/DG	AL/OR	F	1
C-1	1581-66224	DG/YE/DG	RE2/AL	M	≥5
C-3	1581-66253	DB/RE/DB	AL/WH	F	2
C-3	1581-66263	DB/RE/DB	AL/PU	F	1
C-3	1581-66261	DB/RE/DB	AL/DB	M	1
C-3	801-40249	BK/YE/DB	RE/AL	F	≥5
C-3	1581-66235	RE/DB/RE	AL/RE	F	4
C-5	1581-66207	WH/LB/WH	WH/AL	F	≥8
C-5	1581-66237	WH/LB/WH	AL/RE	M	3
C-5	1581-66251	LB/WH/LB	AL/DB	M	2
C-5	1581-66257	LB/WH/LB	AL/RE	M	1
C-5	1581-66258	LB/WH/LB	AL/YE	F	1
C-5	1581-66231	WH/LB/WH	PK2/AL	M	5
C-5	C-5 Unbanded	Unbanded	Unbanded	M	≥7
C-5		MV/LG	LG/AL	?	?
C-6	1751-83183	AL/OR	YE/YE/WH	M	3
C-7	951-26305	AL/YE	YE/YE/WH	M	3
C-9	1581-66264	WH/RE/WH	AL/DG	F	1
C-9 - 10*	1951-05035	AL / PU	WH/WH/MV	M	1
C-9 - 10*	941-92233	AL / ST	WH/WH/LG	F	1
C-9 - 10*	941-92268	AL / ST	PU/PU/WH	F	1
C-9 - 10*	1951-05086	AL/MV	MV/MV/WH	F	1
C-10	951-26448	AL/YE	DG/DG/MV	M	3

\*These birds were apparently free roosting between C-9 and C-10. A couple of these were determined to be free roosting right on the edge of C-9.

**Table 3.** Red-cockaded Woodpecker nestlings banded in 2005 on Piney Grove Preserve.

Cluster	Date	FWS	Lft	Rt	Age	Wgt (g)	Sex
1	5/18/05	1581-66259	DG/YE/DG	AL/DG	8 d	34.5	F
1	5/18/05	1581-66260	DG/YE/DG	AL/OR	8 d	29.0	F
3	5/29/05	1581-66261	DB/RE/DB	AL/DB	8 d	28.5	M
3	5/29/05	1581-66262	DB/RE/DB	AL/YE	8 d	32.5	F
3	5/29/05	1581-66263	DB/RE/DB	AL/PU	8 d	29.0	F
5	5/12/05	1581-66256	LB/WH/LB	AL/OR	7 d	19.0	M
5	5/12/05	1581-66257	LB/WH/LB	AL/RE	7 d	24.5	F
5	5/12/05	1581-66258	LB/WH/LB	AL/YE	7 d	25.0	M
7	6/2/05	1581-66264	WH/RE/WH	AL/DG	8 d	26.5	F

Cluster 7 - The breeding male (AL/YE, YE/YE/WH) within cluster 7 was present at this site in 2004, but no breeding attempt was ever documented. This bird was translocated to the site from Carolina Sandhills, NWR in 2003. The breeding female (WH/LB/WH, AL/PU) was produced in cluster 5 in 2003. Tree 111 was the nest tree. Artificial cavities within cluster 7 were examined through late April and early May for evidence of nesting. A single egg was observed on 23 May and a single chick on 26 May. A single nestling was extracted and banded on 2 June (Table 3). This bird was examined at fledging and determined to be a female.

### Translocations

There were two translocation events in 2005 including one in the spring and one in the fall. Bachelor Male – As the last condition of the Habitat Conservation Plan between the landowner, the U.S. Fish and Wildlife Service, the Virginia Department of Game & Inland Fisheries, The Nature Conservancy, and the Center for Conservation Biology, the lone male within the Southampton County site was trapped and translocated to the Piney Grove Preserve. On the night of 18 April, Bryan Watts, Mike Wilson, and Bart Paxton captured the male from its roost cavity, transported the bird to Piney Grove, color banded the bird, placed the bird in an artificial cavity in cluster 11, and released the bird at dawn the following morning (Table 4). The bird emerged from the cavity and was observed foraging in the immediate area for over an hour. This bird was never observed after 19 April.

**Table 4.** Release location for Red-cockaded Woodpecker translocated from Southampton County to Piney Grove.

Band	Lft	Rt	Sex	Cluster	Tree
1581-66265	WH/WH/WH	AL/WH	M	11	140



*Bryan Watts places the bachelor male from Southampton County in cavity 140 of cluster 11 on the night of 4/18 (photo by Bart Paxton).*

Carolina Sandhills, NWR - On 29 September, Bryan Watts, Neal Humke, and Sergio Harding traveled down to Carolina Sandhills National Wildlife Refuge to capture and translocate Red-cockaded Woodpeckers to the Piney Grove Preserve. The Virginia contingent joined with refuge biologists led by Laura Shriver to capture the birds. Five individuals including 2 males and 3 females were taken from their roost cavities between 6:00 and 11:00 PM (Table 5). Birds were transported in covered carrying boxes to Piney Grove through the night. The team arrived at Piney Grove around 4:00 AM and were met by Brian van Eerden, Mike Wilson, Bobby Clontz, and Chris Lotts (Table 6).

Cluster 9 – Both birds were in good shape when removed from holding boxes. Both birds entered inserts with no problem and were active when screen was secured. Unexpectedly, a bird emerged from insert in tree 88 at 7:10, flew to nearby tree and called. Screens were removed from both cavities and birds emerged soon thereafter flew up into tree crowns, calling and foraging. All 3 birds flew into same crown, calling and interacting. Birds flew together toward the northeast but remained in vicinity. Birds were still present within the general site when observers left around 7:30.

Cluster 10 – Both birds were in good shape when removed from holding boxes. Both birds entered inserts with no problem. Male was released after tapping on screen and calling. Male flew from cavity. Female was released and after a few moments also emerged. Birds interacted and were foraging and present within site when observers left.

Cluster 6 – Female was in good shape when removed from holding box and entered insert with no problem. Female was tapping on screen early. Resident male emerged from roost cavity calling. Female was released but did not emerge from cavity for 40 sec. Upon emerging, resident male began harsh calls and was very aggressive, attacking female and chasing her out of core cluster area. At some distance the pair became silent and then moved back toward cluster area making contact calls back and forth. Birds were observed for approximately 20 min. Birds were still present near core area when observers left.



**Table 5.** Banding and capture information for Red-cockaded Woodpeckers translocated from Carolina Sandhills, NWR to Piney Grove.

<b>Band</b>	<b>Lft</b>	<b>Rt</b>	<b>Sex</b>	<b>Banded</b>	<b>Cluster</b>	<b>Tree</b>
1951-05035	AL/PU	WH/WH/MV	M	5/16/05	18(10)	66
1951-05086	AL/MV	MV/MV/WH	F	5/27/05	21(3)	101
941-92233	AL/ST	WH/WH/LG	F	5/23/05	7(5)	44
941-92246	AL/ST	OR/OR/YE	M	5/25/05	11(5)	44
941-92268	AL/ST	PU/PU/WH	F	6/6/05	6(10)	98

**Table 6.** Release locations for Red-cockaded Woodpeckers translocated from Carolina Sandhills, NWR to Piney Grove.

<b>Band</b>	<b>Lft</b>	<b>Rt</b>	<b>Sex</b>	<b>Cluster</b>	<b>Tree</b>
1951-05035	AL/PU	WH/WH/MV	M	10	66
1951-05086	AL/MV	MV/MV/WH	F	6	116
941-92233	AL/ST	WH/WH/LG	F	9	86
941-92246	AL/ST	OR/OR/YE	M	9	87
941-92268	AL/ST	PU/PU/WH	F	10	65

### Cavity Trees

In December of 2005, Piney Grove contained 102 live cavity trees including 16 start cavities, 30 completed cavities, and 56 artificial inserts (Appendix I). Of the 56 inserts in live trees, 14 (25%) had fresh resin work and 7 (12.5%) were occupied by Red-cockaded Woodpeckers in December. Of the 30 natural cavities, 13 (43.3%) had fresh or recent resin work and 14 (46.7%) were occupied by woodpeckers in December.

Of the 102 available cavity trees in December, only 21 were documented to be occupied by woodpeckers. Five birds appeared to be open roosting. These included 1 bird in cluster 5 and 4 birds between clusters 9 and 10. Two of the birds were documented to open roost near the edge of cluster 10. Why these birds would choose to open roost during the coldest period of the year is not clear.

## Historic Sites

### Route 460 Site (Sussex County)

Site Condition – This site remains intact but is severely degraded from midstory encroachment and limited size. Habitat on both sides of this tract has been harvested in the last 20 years leaving this island of mature timber too insignificant to consider for management purposes.

Cavity tree status – None detected.

Bird status – No evidence of activity present.

### Route 35 Site (Southampton County)

Site Condition – The site was purchased by Ashton Lewis Lumber Company in late 2001 and harvested in fall 2002. Remaining timber on this tract is relegated to two small stands (less than 20 ha each) primarily in the 40 -60 year age class. Next nearest stand of mature timber is a small 15 ha block approx. 3 km away.

Cavity tree status – All were harvested or knocked down in the harvest.

Bird status – No recent evidence of birds.

### Route 612 Site (Southampton County)

Site Condition – With the exception of 135 acres that surrounds the cluster area, this site was harvested in the summer of 2003 by Virginia-Carolina Properties. Harvest was carried out under agreement with the Virginia Department of Game & Inland Fisheries and the U.S. Fish and Wildlife Service. Under a Habitat Conservation Plan developed in cooperation with the U.S. Fish and Wildlife Service, the Virginia Department of Game & Inland Fisheries, The Nature Conservancy, and the Center for Conservation Biology, the lone, male Red-cockaded Woodpecker was moved to the Piney Grove Preserve and the remaining 135 acres were harvested in the late spring.

Cavity tree status – In April the cavity tree was in good condition with considerable resin flow and an entrance that had not been enlarged by cavity competitors. This cavity was excavated in 2002 near the property boundary approximately 120 m south of the original cluster site. After translocation of male from this site in April, this cavity tree and all remaining were harvested.

Bird status – The lone bachelor that had been known at this site since 1993 was captured on 18 April, transported to Piney Grove Preserve and released in cluster 11. This bird was never seen again after 19 April.

#### Rt. 40 Site (Sussex County)

Site Condition – The core site between Rt 40 and old Rt 40 is still intact, although hardwood encroachment and a dense pine subcanopy have all but removed access to any potential cavity trees. Ashton Lewis Lumber Company purchased this site from Gray Family Trust in 2002. They have since harvested all of the mature timber around this site, leaving only the historic triangle of old-growth timber still standing. This remaining tract is less than 25 ha and is too degraded to be of any use to Red-cockaded Woodpeckers. Ashton Lewis has received authority to harvest the remaining acreage as soon as the site dries out enough to get equipment in.

Cavity tree status – All historic cavity trees are dead or have been enlarged to the point of excluding red-cockaded as users.

Bird status – Last detection was a vocalizing bird to the southeast of the stand in spring, 1996.

#### **ACKNOWLEDGMENTS**

This project received assistance from many individuals during 2005. Neal Humke spent a great deal of time throughout the year at Piney Grove maintaining the habitat and cavities and monitoring bird activity. Bart Paxton, Fletcher Smith, Josh LeClerc, Marian Watts, John DiGiorgio, and Yoke DiGiorgio assisted with bird-related fieldwork. Laura Shiver and crew from Carolina Sandhills, NWR were fantastic in coordinating and executing the capture of birds for translocation. Sergio Harding provided transportation and field assistance throughout the 2005 translocation. Brian van Eerden, Bobby Clontz, and Chris Lotts assisted with the release of birds at Piney Grove. We thank Brian van Eerden and Ray Fernald for administrative oversight of this project. Thanks also go to Carter Nettles for allowing the continued use of his storage shed to store field equipment, and for his continued support and enthusiasm for the project. Funding for this project was provided by the Virginia Chapter of the Nature Conservancy, the Virginia Department of Game and Inland Fisheries, and the Center for Conservation Biology.

**Appendix I. Results of cavity condition/use survey conducted 12/05.**

CLUSTER	Tree	Species	Condition	Cavity	Condition	Entrance	Plate	Resin Work	Use 12/05
1	35	Loblolly	Live	Natural	Start (Ad)	Normal	Unstarted	Old	No
1	36	Loblolly	Live	Artificial	Insert	Normal	Started	Fresh	No
1	37	Loblolly	Live	Natural	Start (Ad)	Normal	Unstarted	Recent	No
1	38	Shortleaf	Live	Natural	Complete	Normal	Complete	Fresh	Yes
1	39	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
1	40	Loblolly	Dead	Natural	Complete	Gone	Gone	Gone	No
1	41	Loblolly	Dead	Natural	Complete	Gone	Gone	Gone	No
1	42	Loblolly	Live	Natural	Start	<2X	Unstarted	None	No
1	43	Loblolly	Live	Natural	Complete	>4X	Started	Old	No
1	44	Loblolly	Live	Natural	Complete	>4X	Started	Old	No
1	45	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	No
1	46	Loblolly	Live	Natural	Complete	<2X	Partial	Fresh	Yes
1	47	Loblolly	Live	Natural	Start (Ad)	Normal	Unstarted	Old	No
1	48	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
1	49	Loblolly	Live	Natural	Complete	>4X	Partial	Old	No
1	50	Shortleaf	Dead	Artificial	Insert	Gone	Gone	Gone	No
1	51	Loblolly	Dead	Artificial	Insert	Normal	Unstarted	None	No
1	52	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
1	53	Loblolly	Live	Natural	Insert	<2X	Started	Fresh	Yes
1	54	Loblolly	Live	Natural	Start	Normal	Unstarted	None	No
1	55	Loblolly	Live	Natural	Complete	<2X	Unstarted	Fresh	No
1	102	Loblolly	Live	Natural	Complete	<2X	Complete	Recent	No
1	117	Loblolly	Live	Artificial	Insert	Normal	Started	Fresh	No
2	60	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
2	61	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	No
2	62	Loblolly	Live	Artificial	Insert	Normal	Unstarted	Old	No
2	63	Loblolly	Live	Artificial	Insert	Normal	Unstarted	Old	No

## Appendix I. --continued--

CLUSTER	Tree	Species	Condition	Cavity	Condition	Entrance	Plate	Resin Work	Use 12/05
3	1	Loblolly	Live	Artificial	Insert	Normal	Unstarted	Fresh	Yes
3	2	Loblolly	Live	Artificial	Insert	Normal	Complete	Fresh	No
3	3	Loblolly	Live	Natural	Complete	<2X	Complete	Fresh	Yes
3	4	Loblolly	Live	Natural	Complete	<2X	Complete	Fresh	No
3	5	Loblolly	Live	Natural	Start (Ad)	Normal	Unstarted	None	No
3	6	Loblolly	Live	Natural	Complete	<2X	Unstarted	Old	No
3	7	Loblolly	Live	Natural	Start	Normal	Unstarted	Old	No
3	8	Loblolly	Live	Natural	Complete	<2X	Partial	Fresh	Yes
3	9a	Loblolly	Live	Natural	Start	<2X	Unstarted	None	No
3	9b	Loblolly	Live	Natural	Start	Normal	Unstarted	Old	No
3	9c	Loblolly	Live	Natural	Start	Normal	Unstarted	None	No
3	71	Loblolly	Dead	Natural	Complete	Gone	Gone	Gone	No
3	72	Loblolly	Live	Natural	Complete	>4X	Complete	Old	No
3	74	Loblolly	Dead	Natural	Complete	Gone	Gone	Gone	No
3	75	Loblolly	Live	Natural	Complete	>4X	Complete	Old	No
3	76	Loblolly	Live	Artificial	Insert	Normal	Partial	Old	No
3	77	Loblolly	Dead	Natural	Complete	>4X	Complete	Old	No
3	79a	Loblolly	Live	Natural	Complete	Normal	Unstarted	Old	Yes
3	79b	Loblolly	Live	Natural	Complete	>2X	Complete	Fresh	No
3	80	Loblolly	Live	Natural	Start	<2X	Unstarted	Old	No
4	81	Loblolly	Dead	Artificial	Insert	Normal	Unstarted	Old	No
4	82	Loblolly	Live	Artificial	Insert	Normal	Partial	Fresh	Yes
4	83	Loblolly	Dead	Artificial	Insert	Normal	Started	Recent	No
4	84	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
3	177	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
3	178	Loblolly	Live	Natural	Start	<2X	Unstarted	Old	No
3	186	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
5	20	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes

## Appendix I. --continued--

CLUSTER	Tree	Species	Condition	Cavity	Condition	Entrance	Plate	Resin Work	Use 12/05
5	21	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
5	22	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	No
5	23	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
5	24	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
5	25	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
5	26	Loblolly	Live	Natural	Start (Ad)	Normal	Unstarted	None	No
5	27	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
5	28	Loblolly	Live	Natural	Complete	Normal	Complete	Fresh	Yes
5	29	Loblolly	Dead	Natural	Complete	>2X	Started	Old	No
5	92	Loblolly	Live	Natural	Start (Ad)	Normal	Unstarted	None	No
5	93	Loblolly	Live	Natural	Complete	Normal	Unstarted	None	No
5	94	Loblolly	Live	Natural	Complete	>2X	Partial	Old	No
5	95	Loblolly	Live	Natural	Complete	>4X	Complete	Old	No
5	96	Loblolly	Dead	Natural	Complete	Gone	Gone	Gone	No
5	97	Loblolly	Dead	Natural	Complete	Gone	Gone	Gone	Gone
5	98	Loblolly	Dead	Natural	Complete	>2X	Complete	Old	No
5	99	Loblolly	Dead	Natural	Complete	>2X	Complete	Old	No
5	127	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
5	138	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
5	191	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
6	10	Loblolly	Live	Artificial	Insert	Normal	Nr Complete	Fresh	Yes
6	11	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
6	12	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
6	13	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
6	116	Loblolly	Live	Artificial	Insert	Normal	Started	Fresh	No
6	135	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
6	136	Loblolly	Live	Natural	Start	Normal	Unstarted	Fresh	No
6	137	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No

## Appendix I. --continued--

CLUSTER	Tree	Species	Condition	Cavity	Condition	Entrance	Plate	Resin Work	Use 12/05
6	139	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
7	110	Loblolly	Live	Artificial	Insert	Normal	Started	None	No
7	111	Loblolly	Live	Artificial	Insert	Normal	Nr Complete	Fresh	Yes
7	112	Loblolly	Live	Artificial	Complete	Normal	Unstarted	Old	No
7	113	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
7	114	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
7	195	Loblolly	Live	Artificial	Insert	Normal	Partial	Fresh	No
8	170	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
8	171	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
8	172	Loblolly	Live	Artificial	Insert	Normal	Unstarted	Fresh	No
8	173	Loblolly	Live	Artificial	Insert	Normal	Unstarted	Fresh	No
9	85	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
9	86	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
9	87	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
9	88	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	Yes
10	64	Loblolly	Live	Artificial	Insert	Normal	Partial	Fresh	Yes
10	65	Loblolly	Live	Artificial	Insert	Normal	Partial	Fresh	No
10	66	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
10	150	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
10	151	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
10	152	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
10	153	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
11	140	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
11	141	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
11	142	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
11	143	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
12	130	Loblolly	Dead	Artificial	Insert	Gone	Gone	Gone	Gone
12	131	Loblolly	Live	Artificial	Insert	<2X	Unstarted	None	No

## Appendix I. --continued--

CLUSTER	Tree	Species	Condition	Cavity	Condition	Entrance	Plate	Resin Work	Use 12/05
12	132	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
12	133	Loblolly	Live	Artificial	Insert	>2X	Unstarted	None	No
12	189	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	118	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	119	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	120	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	121	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	122	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	123	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
13	124	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
14	89	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
14	90	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
14	91	Loblolly	Live	Artificial	Insert	Normal	Unstarted	None	No
14	100	Loblolly	Live	Natural	Start	Normal	Unstarted	None	No
14	101	Loblolly	Live	Natural	Complete	Normal	Unstarted	Fresh	No