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Investigation of Red-cockaded Woodpeckers in Virginia: 2015 report



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Cover Photo: Six-day old woodpecker nestling within the Piney Grove Preserve. Photo by Bryan D. Watts



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EXECUTIVE SUMMARY

The Virginia population of red-cockaded woodpeckers is the northernmost throughout the species range and has been in eminent danger of extinction for more than 30 years. The Piney Grove Preserve represents a nucleus for recovery in the state and the focus of a multi-organizational partnership designed to increase the population to a sustainable level. The partnership has executed a program of aggressive habitat management, cavity-tree management and woodpecker population monitoring and management that has resulted in a tripling of the breeding population since the early 2000s.

During the 2015 breeding season, Piney Grove Preserve supported 13 potential breeding groups that produced 21 fledglings. All groups made breeding attempts except for cluster 13. Four of the remaining 12 clusters failed to produce fledglings. Remaining groups produced a mean fledging rate of 2.63 ± 1.06 (mean \pm SE). Of the 33 eggs that could be tracked through the nesting period, 22 (73.3%) hatched, 20 (66.7%) survived to banding age, and only 14 (46.7%) fledged. Of the overall 21 birds that fledged, 12 were males and 9 were females. Sixteen of these birds were retained and detected during the winter count.

During the calendar year of 2015, 92 individual red-cockaded woodpeckers were identified within Piney Grove preserve including 66 birds produced during previous years and 26 nestlings produced in 2015. Thirty-five birds (38%) were at least four years old and three (3.3%) were at least ten years old. Moving into the breeding season there were 60 birds identified within Piney Grove Preserve distributed among 13 clusters. This is the highest number of adults that Piney Grove has ever carried into the breeding season and compares to 56 birds in 2014 and 52 birds in 2013. The number of birds per cluster varied from two to nine with a mean of 4.6 ± 0.62 (mean \pm SE). Sixty-eight birds were detected during the 2015 winter survey which exceeds the record number of 66 recorded during the previous winter. Winter group size ranged from 2-10 birds and averaged 4.9 ± 0.71 (mean \pm SE) birds per group. As in past years, cluster 8 supported the largest foraging group with ten birds.

At the close of the 2015 breeding season, Piney Grove supported 243 cavities in 210 live trees including 77 start cavities, 91 completed natural cavities, and 75 artificial inserts. Seven cavities were located within shortleaf pines and the remaining 236 were in loblolly pines. Twelve cavities or starts were added in 2015 and two were lost. A total of 19 southern flying squirrels were encountered in RCW cavities at Piney Grove. Seven of the eight cavities utilized by flying squirrels and two of the three cavities with flying squirrel nest material were in artificial inserts. Five nests of competitor bird species were found in RCW cavities at Piney Grove during the 2015 breeding season.

BACKGROUND

Context

The red-cockaded woodpecker (*Picoides borealis*) is endemic to the southeastern pine ecosystem breeding from Texas and Oklahoma east to Florida and north to Virginia (Jackson 1994). Highly specialized, the species requires old growth, fire maintained pine savannas. Throughout the twentieth century advances in transportation, wood processing, and silvicultural practices shifted the emphasis from long-rotation lumber production to maximum-yield fiber production and resulted in catastrophic declines in habitat availability for this species. Breeding distribution contracted from the edges of the range and became localized within the core of the historic range where remnant old growth remained. The red-cockaded woodpecker was listed as endangered in 1970 and received protection with the passage of The Endangered Species Act in 1973 (16 U.S.C. 1531 et seq).

The historic status and distribution of the red-cockaded woodpecker in Virginia is poorly known because no systematic survey of the species was completed prior to dramatic habitat losses. Early accounts of red-cockaded woodpeckers were made from all physiographic provinces of Virginia. Jurisdictions with records include the counties of Giles (Bailey 1913), Albemarle (Rives 1890), Brunswick (Murray 1952), Dinwiddie (Murray 1952), Chesterfield (Murray 1952), Southampton (Steirly 1949), Sussex (Steirly 1950), Prince George (Steirly 1957), Greenville (Steirly 1957), Isle of Wight (Steirly 1957) and the current independent cities of Norfolk (Bailey 1913), Suffolk (Steirly 1957), Virginia Beach (Sykes 1960), and Chesapeake (van Eerden and Bradshaw, unpublished observation). The first systematic survey of the species was initiated in 1977 and resulted in the documentation of 43 clusters within 5 counties (Miller 1978). By 1980, only 9 of these clusters were still forested (Bradshaw 1990). During the 20-year period between 1980 and 2000, the decline of the Virginia population is well documented (Watts and Bradshaw 2005). By 1990, only 5 of the original 23 clusters detected in 1977 were still active. During the breeding season of 2002, Virginia supported only 2 breeding pairs and 2 clusters with solitary males.

The red-cockaded woodpecker has been listed as endangered on the federal and state lists of threatened and endangered species since 1970 and 1972 respectively and was listed as a Tier I Species of Greatest Conservation Need in the 2005 Virginia Wildlife Action Plan (VDGIF 2005). The stated rationale for recommendations was the extremely low and declining population in Virginia, continued loss and degradation of required old growth forests and the fact that all remaining breeding sites existed on private lands making appropriate management unfeasible. Following these recommendations, the Virginia Department of Game and Inland Fisheries and partners have mounted extensive monitoring and management efforts for the past 30 years. Acquisition of the Piney Grove Preserve in 1998 by The Nature Conservancy was a critical turning point in the species' recovery (Watts and Bradshaw 2005). Intensive habitat and population management on this last remaining site in Virginia has resulted in a population increase from 2 breeding groups in 2002 to 13 breeding groups in 2014 (Wilson et al. 2015). A three-phase conservation plan is in place for the Virginia population that includes the

establishment of additional breeding locations (Watts and Harding 2007). Translocation of birds into the Great Dismal Swamp is planned for the fall of 2015.

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 2015 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 monitor and manage nest trees and cavity condition.

METHODS

Site Description

Piney Grove Preserve contains an old-growth loblolly, pond pine, 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 12 recruitment clusters established by The Nature Conservancy through the installation of 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” and 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 the year 2000 season, Bryan Watts banded an additional 4 adult birds, leaving only 2 unbanded birds in the population (1 each in clusters 3 and 5). The 2 remaining unbanded adults within clusters 3 and 5 were lost during 2004 and 2005 respectively. Since this time, nearly all birds within the population have been individually identified by unique, color-band combinations. The only birds that remain unbanded are nestlings that could not be removed from nest cavities and have not been captured after fledging.

Nestlings – For logistical and safety reasons, banding of Red-cockaded Woodpecker nestlings is restricted to an age window of 5-10 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 weighed at the time of banding using a Pesola spring scale. In the first 2 weeks after fledging, birds were identified and sex was determined by crown plumage.

General Observations

As in previous years, 2 systematic surveys of all birds within Piney Grove were conducted to identify individuals and to determine distribution. Surveys were conducted in the early spring prior to the expected breeding window and in early winter after the expected dispersal period. All clusters were visited before dawn to count the number of individuals emerging from roost cavities and/or joining emerging birds to determine clan size. Birds were followed while foraging so that color band combinations could be read with spotting scopes. Biologists systematically worked through all sites over a period of days until all individuals were identified. Once clutches were laid, observations were made at the nest cavity to identify the breeding male and female for each site.

Cavity Monitoring and Management

RCW Cavity trees at Piney Grove are monitored each year to document changes in condition and use by RCW and other animals. Cavity trees are tagged with individual numbers, painted with a double white band, and mapped to facilitate monitoring. Each tree is assigned to a cluster area based on the proximity to an existing cluster and the RCW group that constructs the cavity. The cluster area assignment for a cavity tree does not change according to the RCW clan using the tree but rather is considered “captured” by the clan. To differentiate multiple cavities within a tree, each cavity, starting with the highest above ground, is assigned an alphabetical identifier. When a new cavity is discovered on a cavity tree the letter attributed to other cavities on the tree may change accordingly. Cavity monitoring and management consists of two parts: cavity tree status and cavity competitor inspection and removal. Monitoring and management in 2015 began on April 11th and continued through July 3rd. Trees containing cavities or starts found in late summer or fall 2015 were not included in this inventory and will be inventoried and updated the following spring.

Cavity Tree Status- Cavity trees were visited at least once to evaluate tree condition and cavity characteristics. Changes to cavity status or cavity tree conditions were recorded as necessary on subsequent visits. Tree conditions that were recorded included: live or dead; standing, broken, or fallen; evidence of beetle or other insect damage; lightning strike; and indications of red-heart disease (*Phellinus pini*).

Characteristics of each cavity were observed with binoculars and recorded to describe the physical condition of the cavity. The characteristics observed included: cavity origin and condition, the entrance and plate size, and the activity status. Activity status was determined by the presence or absence of chipping, fresh or recent sap flow, and dry sap. See Appendix I for 2015 cavity characteristics recorded for each cavity. Characteristics were categorized as follows:

Cavity Type:

Natural: Constructed by an RCW
Artificial: Cavity installed in the tree

Status:

Unavailable:- Cavity is no longer available
Active: Chipping on resin wells with fresh or recent sap flow
Possibly active: Slight but inconclusive evidence of RCW activity
Inactive: No RCW chipping or sap flow
Relic: No RCW activity for 4 or more years

Condition:

Complete: Natural cavity that is excavated enough for an RCW to occupy
Complete (New): Newly completed since last update
Advanced Start: >10 centimeter depth but not completed
Start: 1-10 centimeter depth
Sub-start: Less than one centimeter depth

Insert: Artificial cavity

Entrance:

Unavailable: Cavity is no longer available

Normal: Normal size entrance

<2X: Enlarged less than twice the normal diameter

>2X: Enlarged two to four times the normal diameter

>4X: Enlarged more than four times the normal diameter

Restrictor plate: Metal plate installed to reduce entrance to normal size

Healing over: Entrance worked on but not recently

Plate size:

Unavailable: Cavity is no longer available

>45 cm Completed: Greater than 45 centimeter diameter plate

30-45 cm Completed: 30-45 centimeter diameter plate

15-30 cm Completed: 15-30 centimeter diameter plate

0-15 cm: Cavity start, 0-15 cm diameter plate

Unstarted: No plate

Resin work:

Unavailable: Cavity is no longer available

Fresh: Some to all resin wells have chipping and bark scaled

Recent: Few resin wells have little chipping with little to no sap flow

Old: No recent RCW activity

Cavity Competitor Inspection and Removal- Many animal species found at Piney Grove utilize tree cavities for shelter and/or nesting. Competition for cavities can limit the number of suitable roosting and nesting locations for RCW clans. Cavity-nesting bird species will use RCW cavities for nesting in the spring and early summer. Bees and wasps will construct nests within RCW cavities. Tree-climbing snakes and tree frogs will occupy RCW cavities. The southern flying squirrel (*Glaucomys volans*) is frequently encountered in RCW cavities. While most other species only use RCW cavities for a short time period, flying squirrels will occupy cavities year-round in addition to using them for nesting.

Cavity monitoring and management included inspecting cavities for competitors. Completed natural and artificial cavities within 50 feet from the ground were checked on a one-month cycle using a miniature video camera mounted on an extendable pole. Snakes, amphibians, wasps, and bird nests with eggs or nestlings were not removed. Southern flying squirrels and squirrel nesting materials were removed from cavity.

RESULTS

Breeding Observations

Piney Grove supported 13 potential breeding groups in 2015 that produced 21 fledglings (Table 1). All groups made breeding attempts except for cluster 13. Despite several nest checks within cluster 13, no breeding attempt was documented for the first time in six years. Four of the remaining 12 clusters failed to produce fledglings. Remaining groups produced a mean fledging rate of 2.63 ± 1.06 (mean \pm SE). Of the 33 eggs that could be tracked through the nesting period, 22 (73.3%) hatched, 20 (66.7%) survived to banding age, and only 14 (46.7%) fledged (Table 1). Birds that fledged included 12 males and 9 females. Sixteen of these birds were retained and detected during the winter count.

Table 1. Summary of 2015 breeding activity for red-cockaded woodpeckers within Piney Grove Preserve.

| Cluster | Potential Breeding Group? | Breeding Attempt? | Eggs | Hatched | Banding Age | Fledged |
|---------|---------------------------|-------------------|-------|---------|----------------|---------|
| 1 | Yes | Yes | 3 | 0 | 0 | 0 |
| 3 | Yes | Yes | Unk | Unk | Unk | 2 |
| 5 | Yes | Yes | Unk | Unk | 3 | 3 |
| 6 | Yes | Yes | 5 | 4 | 4 | 3 |
| 7 | Yes | Yes | 4 | 4 | 4 | 4 |
| 8 | Yes | Yes | Unk | Unk | 2 | 2 |
| 10 | Yes | Yes | 3 | 3 | 3 ¹ | 2 |
| 11(c1) | Yes | Yes | 3 | 0 | 0 | 0 |
| 11(c2) | ----- | ----- | 4 | 3 | 3 ¹ | 0 |
| 12 | Yes | Yes | 3 | 3 | 1 | 1 |
| 13 | Yes | No | ----- | ----- | ----- | ----- |
| 15 | Yes | Yes | 4 | 1 | 1 | 0 |
| 18 | Yes | Yes | 4 | Unk | 1 | 0 |
| 19 | Yes | Yes | 4 | 4 | 4 | 4 |

¹small chick that weighed half of the penultimate chick was not banded and did not survive to fledge.

Breeding Cluster Details

Cluster 1 –The breeding male (DG/YE/DG, WH/AL) has remained in this cluster for four consecutive breeding seasons. No breeding was documented in 2014 when no females were present. In the 2015 season, the laying female was unbanded. Three eggs were recorded on 13 May in tree #57 but on subsequent visits the eggs were absent and no re-nesting attempts were documented. The cause of the initial failure is unknown.

Cluster 3 – The breeding male (DB/RE/DB, DB/AL) within cluster 3 was the same for the second consecutive year. This marks the third breeding season for the female (AL/RE, LG/YE/DG). The pair nested in tree #179. Breeding activity was first documented on 18 May when incubation exchanges were observed. The cavity tree is too tall to be peeped and has several bends along the main trunk and was not climbed during the 2015 season. Adults were documented feeding fledged young on 30 May, when two males were recorded. One of those males was observed during the 2015 winter survey.

Cluster 5 – The breeding male (LB/WH/LB, AL/RE) from previous years was present for a fourth consecutive year, and the breeding female (OR/OR/OR, AL/DG) remained the same for a second consecutive year. This female moved to Cluster 5 in 2012 and has remained in the cluster since that time period. The pair nested in tree #24, which is too tall for the peeper scope. Incubation was first suspected on 13 May when incubation exchanges were observed. On 28 May chicks were heard in the cavity begging for food and on 1 June the tree was climbed and 3 nestlings were banded at an estimated 12 days of age. All of these birds successfully fledged including one female and two males. One of these males was detected during the winter survey within Cluster 5, while the lone female fledgling was detected in Cluster 13. The remaining male was not detected during the winter count.

Cluster 6 –The breeding male (AL/DG, DB/RE/DB) remained for the fifth consecutive year. This bird was hatched in Cluster 3 in 2008 and has occupied Cluster 6 since 2009. This site continues to be occupied by 2 females that both incubate and feed young so it is difficult to determine which one was the genetic parent of the young birds, although it is possible that both females are laying eggs in the cavity. The sharing of breeding duties between two females at this cluster is likely the reason for the above average egg counts. In 2013, 6 eggs were laid, in 2014 5 eggs were laid, and in 2015 5 eggs were laid in tree #137. At least four chicks and one broken egg were observed on 22 May, and 4 chicks were banded on 29 May at ages 7 to 9 days old. Two males and one female fledged from this brood, and both males were observed in Cluster 6 during the winter head count.

Cluster 7 – The breeding male (OR/OR/OR, AL/DG) continued for the fourth consecutive year and the breeding female (YE/OR/YE, AL/LG) for the second consecutive year. The female was fledged in 2013 from Cluster 13 and moved to this site during the winter of 2013. The pair nested in tree #216. Four eggs were observed on 1 May, with one egg pinkish and likely laid that same day. Four nestlings (approximately 2-3 days old) were detected on 13 May and were banded on 19 May and estimated to be 8 days old. These nestlings exhibited unusually slow

growth. Despite the slow growth, all four chicks fledged, including two males and two females. One male and two female fledges from this cluster were observed during the winter head count, all within Cluster 7.

Cluster 8 – The breeding pair here remained the same for the seventh consecutive year. The breeding male (LB/WH/LB, AL/DB) was originally banded in Cluster 5 in 2004 and the breeding female (LB/WH/LB, OR/AL) was originally banded at Cluster 5 in 2007. Incubation was first detected on 6 May. Two nestlings were banded here on 28 May at an estimated 12 days of age. Both of these fledglings (one male and one female) were observed during the winter head count.

Cluster 10 – Only one pair bred in this cluster during the 2015 season. A second pair had budded off the original site in 2014 and successfully bred in 2014. However, the nest cavity for the new pair was damaged early in the year. The 2015 breeding pair included a male (WH/RE/WH AL/WH) that has bred at site for the 6th consecutive year and a female (DG/YE/DG, OR/AL) that has bred at this site for a 7th consecutive year. Three eggs were first detected on 18 May. Two chicks were banded at 8-9 days old on 28 May and one undersized chick was left unbanded. Both banded nestlings were observed as fledglings (one male and one female) on 30 May. The undersized, unbanded chick did not fledge. Both fledged young were observed during the winter survey.

Cluster 11 – The site was occupied by 2 adult males and 2 adult females during the 2015 breeding season. The breeding male (YE/DB/YE, LB/AL) and the breeding female (O/DB/O, AL/DB) both paired for the second consecutive year. Tree #238 was used as the nesting tree. The pair made two breeding attempts. Three eggs were discovered on 23 April that would later disappear. A four-egg clutch was documented on 27 May. Three of these eggs hatched and two of the nestlings were banded at 7-8 days of age. The third nestling was less than one half the weight of the second nestling so it was left unbanded. This nestling later disappeared before fledging time. Neither of the two banded nestlings fledged.

Cluster 12 – This is the second year that breeding has occurred at this cluster. Cluster 12 was established as an artificial recruitment cluster in the early days of Piney Grove. It remained unoccupied for most of that time aside from its use in one winter in 2011 by a single bird that moved to another cluster before the following spring. In the winter of 2013 this cluster became occupied by a female that bred in Cluster 7 that same season (DB/RE/DB, YE/AL). The female roosted in an artificial cavity and was joined for foraging by a bird that was presumed to be flying over from Cluster 1 (DG/AL, YE/YE/DG). Birds were observed incubating three eggs on 13 May. Three hatchlings were observed on 22 May, and on 30 May one chick was banded at 7 days of age. This single bird fledged and was identified as a male. This male was detected during the winter survey. The 2014 nest tree (#244) was occupied by a White-breasted Nuthatch (*Sitta carolinensis*) during the spring of 2015.

Cluster 13 – This cluster was visited 6 times between 1 May and 27 May and no breeding attempt was recorded. This is the first time in 6 years that the group was not successful in producing young.

Cluster 15 – This was the fifth consecutive year that a pair successfully bred in this cluster and the 4th consecutive year for breeding by this male (YE/DB/YE, AL/YE) and female (WH/LB/WH, PU/AL). This pair once again occupied the site without the presence of additional helpers. These birds nested in tree #187 during the 2015 breeding season. Three eggs were observed on 5 May, and one nestling and three unhatched eggs were observed on 18 May. One nestling was banded on 22 May at 7 days of age. This bird did not fledge.

Cluster 18 – The 2015 season represents the second year the site has been used for breeding. This site was established when a male hatched from Cluster 8 (YE/DB/YE, RE/AL) pioneering a site tree in the winter of 2013 by excavating a cavity away from other known clusters. The female during the 2015 season (AL/WH, LG/YE/LG) originally fledged from Cluster 1 in spring of 2012. The pair used Tree #207. Three eggs were observed on 21 April and four eggs were observed on 1 May. One nestling was banded at 7 days of age on 9 May. This bird did not fledge.

Cluster 19 – This marked the 4th consecutive year that breeding has occurred at this site. The breeding male (AL/LB, YE/DB/YE) assumed reproductive duties in 2012 but the length of time that the female (AL/YE, DB/RE/DB) has held breeding status cannot be fully determined since there were multiple females at this site in previous years that assisted in incubation. Incubation was first observed in tree #224 on 24 April (on 1 egg) and 4 eggs were discovered on 28 April. All four eggs hatched and the young were banded and estimated to be 7 days old on 15 May. The four birds fledged and were identified as 3 females and 1 male on 24 June. One fledged female from this group was identified in Cluster 19 during the winter 2015 head count, and two fledged birds (one female and one male) were identified within Cluster 10.

Population Monitoring

During the calendar year of 2015, 92 individual red-cockaded woodpeckers were identified within Piney Grove preserve (Table 2). This included 66 birds that were hatched at Piney Grove during previous years and 26 nestlings banded or fledged during the 2015 breeding season. Thirteen birds were still present that were produced during the 2014 breeding season. Thirty-five birds (38%) were four years old or older and three (3.3%) were more than ten years old. All of these older birds including one female and two males are breeders within the population.

There were 14 birds detected in 2014 that were not detected in 2015. This includes the loss of 7 adults hatched prior to 2014 and 7 birds hatched in 2014. In contrast to the previous year, all juveniles that left prior to the 2015 breeding season were present during the 2014 winter count. Only one of the adults lost between 2014 and 2015 was a breeder. This bird was the breeding female in cluster 12 that was originally banded as a nestling in cluster 3 during the 2006 breeding season.

Moving into the breeding season there were 60 birds identified within Piney Grove Preserve distributed among 13 clusters including C1, C3, C5, C6, C7, C8, C10, C11, C12, C13, C15, C18 and C19. This was the highest number of adults that Piney Grove has ever carried into the breeding season and compares to 56 birds in 2014 and 52 birds in 2013. The number of birds per cluster varied from two to nine with a mean of 4.6 ± 0.62 (mean \pm SE). Both clusters 15 and 18 had only the breeding pair present moving into the breeding season. Consistent with previous years, clusters five, eight and one carried the most birds including nine, eight and seven respectively.

Sixty-eight birds were detected during the 2015 winter survey (Table 3). This includes 16 of the 21 birds fledged in 2015 and 52 adult birds hatched in previous years. There were 15 adult birds detected during the spring survey that were not detected during winter survey including three breeding males and one breeding female. Conversely, there were 7 adult birds not detected during the spring survey that were found in winter including two that had not been detected since the spring of 2014. Two of these birds were previously associated with cluster 5 but were found roosting in cluster 17, a satellite of cluster 5. Three of the other birds were males that were associated with multiple clusters typical of the prospecting behavior observed prior to the breeding season.

During the winter survey, birds were associated with 14 different cluster areas including C-1, C-3, C-5, C-6, C-7, C-8, C-10, C-11, C-12, C-13, C-15, C-17, C-18, and C-19. As in years past, the birds roosting in C-9 actively forage with the birds from C-7 so behave as one functional group. Group size in winter ranged from 2-10 birds and averaged 4.9 ± 0.71 (mean \pm SE) birds per group. Clusters 15, 17 and 18 supported only 2 birds each. As in past years, cluster 8 supported the largest foraging group with ten birds.

Table 2. Individual red-cockaded woodpeckers that were detected within Piney Grove Preserve during the 2015 calendar year, their occurrence during 2013 and 2014, their sex, hatching year, and age in 2015.

| USGS | Left Leg | Right Leg | Sex | Hatch Year | 2013 | 2014 | 2015 | Age |
|------------|----------|-----------|-----|------------|------|------|------|-----|
| 1581-66253 | DB/RE/DB | AL/WH | F | 2004 | X | X | X | 11 |
| 1581-66251 | LB/WH/LB | AL/DB | M | 2004 | X | X | X | 11 |
| 1581-66257 | LB/WH/LB | AL/RE | M | 2005 | X | X | X | 10 |
| 1581-66270 | DG/YE/DG | WH/AL | M | 2006 | X | X | X | 9 |
| 1581-66278 | LB/WH/LB | OR/AL | F | 2007 | X | X | X | 8 |
| 1581-66273 | WH/RE/WH | AL/WH | M | 2007 | X | X | X | 8 |
| 1581-66276 | DG/YE/DG | OR/AL | F | 2007 | X | X | X | 8 |
| 1581-66274 | WH/RE/WH | AL/DB | M | 2007 | X | X | X | 8 |
| 1581-66280 | YE/DB/YE | AL/YE | M | 2007 | X | X | X | 8 |
| 1581-66285 | DB/RE/DB | DB/AL | M | 2008 | X | X | X | 7 |
| 1581-66288 | LB/WH/LB | AL/DG | M | 2008 | X | X | X | 7 |
| 1581-66291 | WH/WH/WH | RE/AL | F | 2008 | X | X | X | 7 |
| 1581-66297 | AL/RE | LG/YE/DG | F | 2009 | X | X | X | 6 |
| 1541-29902 | AL/DB | WH/RE/WH | F | 2009 | X | X | X | 6 |
| 1541-29906 | AL/DG | DB/RE/DB | M | 2009 | X | X | X | 6 |
| 821-70901 | OR/OR/OR | AL/DG | M | 2009 | X | X | X | 6 |
| 1581-66293 | YE/DB/YE | AL/LB | F | 2009 | X | X | X | 6 |
| 1581-66296 | DG/AL | YE/YE/DG | M | 2009 | X | X | X | 6 |
| 1581-66299 | AL/YE | DB/RE/DB | F | 2009 | X | X | X | 6 |
| 1581-66300 | AL/RE | LB/WH/LB | M | 2009 | X | X | X | 6 |
| 821-70912 | AL/OR | YE/LG/YE | M | 2010 | X | X | X | 5 |
| 821-70940 | AL/WH | DB/RE/DB | M | 2010 | X | X | X | 5 |
| 821-70906 | AL/RE | YE/DB/YE | M | 2010 | X | X | X | 5 |
| 821-70904 | AL/LB | YE/DB/YE | M | 2010 | X | X | X | 5 |
| 821-70923 | YE/LG/LG | AL/WH | M | 2011 | X | X | X | 4 |
| 821-70930 | OR/OR/OR | AL/LG | F | 2011 | X | X | X | 4 |
| 821-70918 | YE/DB/YE | YE/AL | M | 2011 | X | X | X | 4 |
| 821-70927 | OR/OR/OR | AL/MB | M | 2011 | X | X | X | 4 |
| 821-70919 | YE/DB/YE | LB/AL | M | 2011 | X | X | X | 4 |
| 821-70935 | OR/DB/OR | AL/DB | F | 2011 | X | X | X | 4 |
| 821-70933 | WH/LB/WH | PU/AL | F | 2011 | X | X | X | 4 |
| 821-70921 | YE/DB/YE | RE/AL | M | 2011 | X | X | X | 4 |
| 821-70936 | OR/DB/OR | AL/LG | M | 2011 | X | X | X | 4 |
| 821-70929 | YE/OR/YE | AL/WH | M | 2011 | X | X | X | 4 |
| 821-70952 | YE/OR/YE | AL/YE | F | 2012 | X | X | X | 3 |
| 821-70949 | AL/LG | WH/LB/WH | M | 2012 | X | X | X | 3 |
| 821-70946 | PU/YE/PU | AL/LB | M | 2012 | X | X | X | 3 |
| 821-70955 | WH/PU/WH | AL/LG | M | 2012 | X | X | X | 3 |
| 821-70953 | YE/OR/YE | AL/LG | F | 2012 | X | X | X | 3 |
| 821-70963 | AL/YE | LG/YE/LG | F | 2012 | X | X | X | 3 |
| 821-70964 | AL/WH | LG/YE/LG | F | 2012 | X | X | X | 3 |
| Unbanded | | | F | 2013 | X | X | X | 2 |

Table 2. Individual red-cockaded woodpeckers detected within Piney Grove Preserve cont...

| USGS | Left Leg | Right Leg | Sex | Hatch Year | 2013 | 2014 | 2015 | Age |
|------------|----------|-----------|-----|------------|------|------|------|-----|
| 821-70983 | AL/WH | WH/LB/WH | F | 2013 | X | X | X | 2 |
| 821-70965 | AL/LG | YE/YE/DB | F | 2013 | X | X | X | 2 |
| 821-70977 | AL/YE | PU/YE/PU | M | 2013 | X | X | X | 2 |
| 821-70972 | WH/PU/WH | AL/OR | M | 2013 | X | X | X | 2 |
| 821-70967 | AL/OR | YE/YE/DB | M | 2013 | X | X | X | 2 |
| 821-70981 | AL/LG | YE/OR/YE | F | 2013 | X | X | X | 2 |
| 821-70975 | AL/LG | OR/OR/OR | F | 2013 | X | X | X | 2 |
| 821-70910 | AL/YE | YE/LG/YE | F | 2010 | X | | X | 5 |
| 821-70980 | AL/LB | YE/OR/YE | F | 2013 | X | | X | 2 |
| 821-70942 | AL/WH | OR/OR/OR | M | 2012 | | X | X | 3 |
| 821-70958 | AL/WH | YE/MB/YE | M | 2012 | | X | X | 3 |
| 821-70987 | AL/DB | WH/LB/WH | F | 2014 | | X | X | 1 |
| 2421-02910 | AL/WH | DB/RE/DB | M | 2014 | | X | X | 1 |
| 821-70988 | WH/LB/WH | AL/YE | F | 2014 | | X | X | 1 |
| 2421-02904 | AL/OR | WH/PU/WH | F | 2014 | | X | X | 1 |
| 821-70994 | YE/YE/DB | AL/LG | M | 2014 | | X | X | 1 |
| 2421-02908 | WH/LG/WH | AL/OR | F | 2014 | | X | X | 1 |
| 821-70989 | LG/LG/LG | AL/LG | M | 2014 | | X | X | 1 |
| 2421-02907 | AL/WH | YE/OR/YE | M | 2014 | | X | X | 1 |
| 2421-02906 | AL/OR | YE/OR/YE | M | 2014 | | X | X | 1 |
| 821-70998 | LG/DB/LG | AL/WH | F | 2014 | | X | X | 1 |
| 2421-02903 | OR/WH/OR | AL/LB | F | 2014 | | X | X | 1 |
| 821-70989 | WH/LB/WH | AL/LG | F | 2014 | | X | X | 1 |
| 2421-02905 | AL/LG | WH/PU/WH | F | 2014 | | X | X | 1 |
| Unbanded | | | M | 2015 | | | X | HY |
| 2421-02933 | WH/LB/WH | AL/LB | M | 2015 | | | X | HY |
| 2421-02923 | DB/AL | PU/YE/PU | M | 2015 | | | X | HY |
| 2421-02924 | LB/AL | PU/YE/PU | M | 2015 | | | X | HY |
| 2421-02914 | AL/DB | WH/PU/WH | M | 2015 | | | X | HY |
| 2421-02918 | AL/WH | WH/PU/WH | F | 2015 | | | X | HY |
| 2421-02920 | AL/LB | WH/PU/WH | F | 2015 | | | X | HY |
| 2421-02927 | YE/DB/YE | AL/WH | M | 2015 | | | X | HY |
| 2421-02928 | YE/DB/YE | AL/DB | F | 2015 | | | X | HY |
| 2421-02929 | OR/WH/OR | AL/DB | M | 2015 | | | X | HY |
| 2421-02931 | LG/LG/LG | AL/YE | M | 2015 | | | X | HY |
| 2421-02932 | WH/LB/WH | AL/WH | F | 2015 | | | X | HY |
| 2421-02916 | AL/OR | LG/DB/LG | F | 2015 | | | X | HY |
| 2421-02917 | AL/WH | LG/DB/LG | M | 2015 | | | X | HY |
| 2421-02930 | OR/WH/OR | AL/WH | F | 2015 | | | X | HY |
| 2421-02913 | AL/YE | LG/DB/LG | F | 2015 | | | X | HY |
| 2421-02935 | WH/LG/WH | AL/WH | U | 2015 | | | X | HY |
| 2421-02936 | AL/DB | WH/LG/WH | U | 2015 | | | X | HY |
| 2421-02921 | AL/OR | OR/DB/OR | U | 2015 | | | X | HY |
| 2421-02912 | WH/YE/WH | AL/OR | U | 2015 | | | X | HY |

Table 2. Individual red-cockaded woodpeckers detected within Piney Grove Preserve cont...

| USGS | Left Leg | Right Leg | Sex | Hatch Year | 2013 | 2014 | 2015 | Age |
|------------|----------|-----------|-----|------------|------|------|------|-----|
| 2421-02915 | AL/DB | LG/DB/LG | F | 2015 | | | X | HY |
| Unbanded | | | F | 2015 | | | X | HY |
| 2421-02934 | WH/LB/WH | AL/OR | M | 2015 | | | X | HY |
| 2421-02922 | YE/AL | PU/YE/PU | F | 2015 | | | X | HY |
| 2421-02925 | OR/AL | PU/YE/PU | U | 2015 | | | X | HY |
| 2421-02919 | AL/YE | WH/PU/WH | M | 2015 | | | X | HY |

Table 3. Foraging group clusters of red-cockaded woodpeckers detected during the 2015 winter survey within Piney Grove Preserve.

| USGS | Left Leg | Right Leg | Sex | Hatch Year | Foraging Group |
|------------|----------|-----------|-----|------------|----------------|
| 1581-66270 | DG/YE/DG | WH/AL | M | 2006 | 1 |
| 821-70923 | YE/LG/LG | AL/WH | M | 2011 | 1 |
| Unbanded | | | F | 2013 | 1 |
| 821-70987 | AL/DB | WH/LB/WH | F | 2014 | 1 |
| 821-70980 | AL/LB | YE/OR/YE | F | 2013 | 1&7 |
| 1581-66285 | DB/RE/DB | DB/AL | M | 2008 | 3 |
| 1581-66297 | AL/RE | LG/YE/DG | F | 2009 | 3 |
| 821-70952 | YE/OR/YE | AL/YE | F | 2012 | 3 |
| 2421-02910 | AL/WH | DB/RE/DB | M | 2014 | 3 |
| Unbanded | | | M | 2015 | 3 |
| 1581-66288 | LB/WH/LB | AL/DG | M | 2008 | 5 |
| 1581-66300 | AL/RE | LB/WH/LB | M | 2009 | 5 |
| 821-70930 | OR/OR/OR | AL/LG | F | 2011 | 5 |
| 2421-02903 | OR/WH/OR | AL/LB | F | 2014 | 5 |
| 2421-02933 | WH/LB/WH | AL/LB | M | 2015 | 5 |
| 821-70988 | WH/LB/WH | AL/YE | F | 2014 | 5&6 |
| 821-70949 | AL/LG | WH/LB/WH | M | 2012 | 5&7 |
| 2421-02913 | AL/YE | LG/DB/LG | F | 2015 | 5&10 |
| 1581-66253 | DB/RE/DB | AL/WH | F | 2004 | 6 |
| 1541-29906 | AL/DG | DB/RE/DB | M | 2009 | 6 |
| 821-70946 | PU/YE/PU | AL/LB | M | 2012 | 6 |
| 2421-02923 | DB/AL | PU/YE/PU | M | 2015 | 6 |
| 2421-02924 | LB/AL | PU/YE/PU | M | 2015 | 6 |
| 821-70955 | WH/PU/WH | AL/LG | M | 2012 | 7 |
| 821-70972 | WH/PU/WH | AL/OR | M | 2013 | 7 |
| 2421-02904 | AL/OR | WH/PU/WH | F | 2014 | 7 |
| 2421-02905 | AL/LG | WH/PU/WH | F | 2014 | 7 |
| 2421-02914 | AL/DB | WH/PU/WH | M | 2015 | 7 |
| 2421-02918 | AL/WH | WH/PU/WH | F | 2015 | 7 |
| 2421-02920 | AL/LB | WH/PU/WH | F | 2015 | 7 |

Table 3. RCW foraging groups detected during the winter survey cont...

| USGS | Left Leg | Right Leg | Sex | Hatch Year | Foraging Group |
|------------|----------|-----------|-----|------------|------------------------|
| 821-70929 | YE/OR/YE | AL/WH | M | 2011 | 7&13 |
| 1581-66251 | LB/WH/LB | AL/DB | M | 2004 | 8 |
| 1581-66278 | LB/WH/LB | OR/AL | F | 2007 | 8 |
| 1581-66293 | YE/DB/YE | AL/LB | F | 2009 | 8 |
| 821-70906 | AL/RE | YE/DB/YE | M | 2010 | 8 |
| 821-70965 | AL/LG | YE/YE/DB | F | 2013 | 8 |
| 821-70994 | YE/YE/DB | AL/LG | M | 2014 | 8 |
| 2421-02927 | YE/DB/YE | AL/WH | M | 2015 | 8 |
| 2421-02928 | YE/DB/YE | AL/DB | F | 2015 | 8 |
| Unbanded | | | | | 8 |
| 821-70967 | AL/OR | YE/YE/DB | M | 2013 | 8&7 |
| 1581-66273 | WH/RE/WH | AL/WH | M | 2007 | 10 |
| 1581-66276 | DG/YE/DG | OR/AL | F | 2007 | 10 |
| 821-70963 | AL/YE | LG/YE/LG | F | 2012 | 10 |
| 2421-02929 | OR/WH/OR | AL/DB | M | 2015 | 10 |
| 2421-02917 | AL/WH | LG/DB/LG | M | 2015 | 10 |
| 821-70927 | OR/OR/OR | AL/MB | M | 2011 | 10&7 |
| 821-70942 | AL/WH | OR/OR/OR | M | 2012 | 10&7 |
| 2421-02930 | OR/WH/OR | AL/WH | F | 2015 | 10&7&11 |
| 821-70919 | YE/DB/YE | LB/AL | M | 2011 | 11 |
| 821-70935 | OR/DB/OR | AL/DB | F | 2011 | 11 |
| 821-70958 | AL/WH | YE/MB/YE | M | 2012 | 11 |
| 1581-66296 | DG/AL | YE/YE/DG | M | 2009 | 12 |
| 821-70981 | AL/LG | YE/OR/YE | F | 2013 | 12 |
| 2421-02931 | LG/LG/LG | AL/YE | M | 2015 | 12 |
| 1581-66274 | WH/RE/WH | AL/DB | M | 2007 | 13 |
| 1581-66291 | WH/WH/WH | RE/AL | F | 2008 | 13 |
| 2421-02907 | AL/WH | YE/OR/YE | M | 2014 | 13 |
| 2421-02932 | WH/LB/WH | AL/WH | F | 2015 | 13 |
| 1581-66280 | YE/DB/YE | AL/YE | M | 2007 | 15 |
| 821-70933 | WH/LB/WH | PU/AL | F | 2011 | 15 |
| 821-70983 | AL/WH | WH/LB/WH | F | 2013 | 17 |
| 821-70989 | WH/LB/WH | AL/LG | F | 2014 | 17 |
| 821-70921 | YE/DB/YE | RE/AL | M | 2011 | 18 |
| 821-70964 | AL/WH | LG/YE/LG | F | 2012 | 18 |
| 1581-66299 | AL/YE | DB/RE/DB | F | 2009 | 19 |
| 821-70936 | OR/DB/OR | AL/LG | M | 2011 | 19 |
| 2421-02916 | AL/OR | LG/DB/LG | F | 2015 | 19 |

Cavity Tree Status

By the end of the 2015 breeding season, Piney Grove contained 243 cavities in 210 live trees including 77 start cavities, 91 completed natural cavities, and 75 artificial inserts. While

the majority of living cavity trees are loblolly pine (*Pinus taeda*), seven are in shortleaf pine (*Pinus echinata*). A total of 12 new cavities or new cavity starts were added to the number of known cavities. Eleven trees were found containing five cavity starts and seven completed natural cavities, all of which were newly completed. One completed cavity was discovered in previously tagged cavity tree. There were two recorded cavity tree deaths, one at cluster 19 and one at cluster 5, resulting in the loss of two cavities. The tree at cluster 19, which was a very small diameter tree, had been active at the time of its death and was presumably girdled by the RCWs in an effort to maintain resin flow. The other tree broke at the cavity height.

Cavity Competitor Inspection and Removal

There were 14 occurrences of cavity competitors in RCW cavities during the 2015 breeding season (Table 3). Cavity competitors found included southern flying squirrels and cavity nesting birds. A total of nineteen squirrels were encountered during cavity checks. Thirteen of the individual squirrels were encountered on the same date (May 22, 2016) in clusters 1, 15, and 19. Squirrel nest material was encountered in three additional cavities. Five bird nests were encountered in RCW cavities during the breeding season.

Table 3. Occurrences and individual counts of cavity competitors encountered in red-cockaded woodpecker cavities during the 2015 season within Piney Grove Preserve.

| Cluster | Competitor Description | Number of Occurrences | Number of Individuals |
|---------|------------------------------|-----------------------|-------------------------------|
| 1 | Southern Flying Squirrel | 1 | 2 |
| 9 | Southern Flying Squirrel | 1 | 1 |
| 10 | Southern Flying Squirrel | 1 | 1 |
| 15 | Southern Flying Squirrel | 4 | 10 total |
| 19 | Southern Flying Squirrel | 2 | 5 total |
| 1 | Squirrel Nest Material | 1 | N/A |
| 18 | Squirrel Nest Material | 1 | N/A |
| 19 | Squirrel Nest Material | 1 | N/A |
| 7 | Unidentified Bird Nest | 1 | 3 Nestlings, no Adult present |
| 15 | Unidentified Bird Nest | 1 | Nest materials only |
| 19 | Unidentified Bird Nest | 1 | 3 Nestlings, no Adult present |
| 6 | White-breasted Nuthatch Nest | 1 | 1 Adult Incubating 5 Eggs |
| 12 | White-breasted Nuthatch Nest | 1 | 1 Adult Incubating Eggs |

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Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve.

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|------|--------|-----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 1 | 31 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 32 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 1 | 34 | | Loblolly | Live | Natural | Inactive | Complete | <2X | 30-45 cm | Old/None |
| 1 | 35 | | Loblolly | Live | Natural | Inactive | Start (Adv) | Normal | Unstarted | Old/None |
| 1 | 36 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 1 | 37 | | Loblolly | Live | Natural | Relic | Start (Adv) | Healing | Unstarted | Old/None |
| 1 | 38 | | Shortleaf | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 39 | a | Loblolly | Live | Natural | Inactive | Start | <2X | Unstarted | Old/None |
| 1 | 39 | b | Loblolly | Live | Natural | Relic | Complete | >4X | > 45 cm | Old/None |
| 1 | 40 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 41 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 42 | | Loblolly | Live | Natural | Relic | Start | Healing | Unavailable | Unavailable |
| 1 | 43 | | Loblolly | Live | Natural | Relic | Complete | Healing | Unstarted | Old/None |
| 1 | 44 | a | Loblolly | Live | Natural | Relic | Complete | Normal | Unstarted | Old/None |
| 1 | 44 | b | Loblolly | Live | Natural | Relic | Complete | >4X | 15-30 cm | Old/None |
| 1 | 45 | a | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 45 | b | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 46 | | Loblolly | Live | Natural | Relic | Complete | >2X | Unstarted | Old/None |
| 1 | 47 | | Loblolly | Dead | Natural | Relic | Start (Adv) | Restrictor | Unstarted | Old/None |
| 1 | 48 | | Loblolly | Live | Natural | Inactive | Complete | >2X | > 45 cm | Old/None |
| 1 | 49 | | Loblolly | Live | Natural | Relic | Complete | >4X | 15-30 cm | Old/None |
| 1 | 50 | | Shortleaf | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 1 | 51 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 1 | 52 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 1 | 53 | | Loblolly | Live | Natural | Inactive | Complete | Normal | 15-30 cm | Old/None |
| 1 | 54 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 1 | 55 | | Loblolly | Live | Natural | Active | Complete | <2X | 15-30 cm | Fresh |
| 1 | 57 | | Loblolly | Live | Natural | Active | Complete | Normal | 30-45 cm | Fresh |
| 1 | 58 | a | Loblolly | Live | Natural | Inactive | Start | <2X | Unstarted | Fresh |
| 1 | 58 | b | Loblolly | Live | Natural | Relic | Complete | Restrictor | 30-45 cm | Old/None |
| 1 | 59 | a | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 1 | 59 | b | Loblolly | Live | Natural | Relic | Start | Normal | Unstarted | Old/None |
| 1 | 102 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 117 | a | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 1 | 117 | b | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 1 | 164 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 1 | 212 | | Shortleaf | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 1 | 213 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 1 | 225 | | Shortleaf | Live | Natural | Inactive | Complete | Normal | Unstarted | Old/None |
| 1 | 241 | | Loblolly | Live | Natural | Active | Complete | Normal | Unstarted | Recent |
| 1 | 242 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 1 | 257 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | >15 cm | Fresh |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|------|--------|-----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 1 | 1NT2 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Recent |
| 1 | 1NT5 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 1 | 1NT6 | | Shortleaf | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 1 | 1NT8 | | Shortleaf | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 2 | 60 | | Loblolly | Live | Artificial | Relic | Insert | >4X | Unstarted | Old/None |
| 2 | 61 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 2 | 62 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 2 | 63 | | Loblolly | Live | Artificial | Relic | Insert | Healing | Unstarted | Old/None |
| 3 | 1 | | Loblolly | Dead | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 3 | 2 | | Loblolly | Live | Artificial | Relic | Insert | Restrictor | Unstarted | Old/None |
| 3 | 3 | a | Loblolly | Dead | Natural | Relic | Complete | Restrictor | Unavailable | Unavailable |
| 3 | 3 | b | Loblolly | Dead | Natural | Relic | Start | Normal | Unavailable | Unavailable |
| 3 | 4 | a | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 3 | 4 | b | Loblolly | Dead | Natural | Relic | Complete | Restrictor | Unavailable | Unavailable |
| 3 | 5 | | Loblolly | Live | Natural | Relic | Start | Healing | Unstarted | Old/None |
| 3 | 6 | | Loblolly | Live | Natural | Inactive | Complete | Normal | Unstarted | Old/None |
| 3 | 7 | a | Loblolly | Live | Natural | Inactive | Start | Healing | Unstarted | Old/None |
| 3 | 7 | b | Loblolly | Live | Natural | Inactive | Start (Adv) | Healing | Unstarted | Old/None |
| 3 | 8 | | Loblolly | Live | Natural | Inactive | Complete | Normal | > 45 cm | Old/None |
| 3 | 9 | a | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 3 | 9 | b | Loblolly | Live | Natural | Active | Complete | Normal | 30-45 cm | Fresh |
| 3 | 9 | c | Loblolly | Live | Natural | Relic | Start | Normal | Unstarted | Old/None |
| 3 | 71 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 3 | 72 | | Loblolly | Live | Natural | Relic | Complete | >4X | Unstarted | Old/None |
| 3 | 74 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 3 | 75 | | Loblolly | Live | Natural | Relic | Complete | Healing | Unstarted | Old/None |
| 3 | 76 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 3 | 77 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 3 | 79 | a | Loblolly | Live | Natural | Relic | Complete | >2X | 15-30 cm | Old/None |
| 3 | 79 | b | Loblolly | Live | Natural | Inactive | Start (Adv) | Normal | Unstarted | Old/None |
| 3 | 79 | c | Loblolly | Live | Natural | Active | Start (Adv) | Restrictor | Unstarted | Recent |
| 3 | 80 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Recent |
| 3 | 128 | | Loblolly | Live | Natural | Inactive | Complete | Normal | Unstarted | Old/None |
| 3 | 177 | | Loblolly | Live | Artificial | Relic | Insert | Normal | >15 cm | Old/None |
| 3 | 178 | | Loblolly | Live | Natural | Active | Complete | Normal | Unstarted | Fresh |
| 3 | 179 | | Loblolly | Live | Natural | Active | Complete | Normal | 30-45 cm | Fresh |
| 3 | 180 | | Loblolly | Live | Natural | Inactive | Complete | <2X | >15 cm | Old/None |
| 3 | 208 | | Loblolly | Live | Natural | Inactive | Start | Healing | Unstarted | Old/None |
| 3 | 3NT2 | | Loblolly | Live | Natural | Inactive | Sub-start | Normal | Unstarted | Old/None |
| 3 | 3NT3 | | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 3 | 3NT4 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | Unstarted | Fresh |
| 4 | 81 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|------|--------|----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 4 | 82 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | >15 cm | Old/None |
| 4 | 83 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 4 | 84 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 4 | 186 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 5 | 14 | | Loblolly | Live | Natural | Active | Complete | <2X | >15 cm | Fresh |
| 5 | 15 | | Loblolly | Live | Natural | Active | Complete | <2X | 30-45 cm | Fresh |
| 5 | 16 | | Loblolly | Live | Natural | Active | Complete | <2X | 15-30 cm | Fresh |
| 5 | 17 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 5 | 18 | a | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 5 | 18 | b | Loblolly | Live | Natural | Inactive | Start | Healing | Unstarted | Old/None |
| 5 | 19 | a | Loblolly | Live | Natural | Inactive | Start | Healing | Unstarted | Old/None |
| 5 | 19 | b | Loblolly | Live | Natural | Active | Complete | Normal | > 45 cm | Fresh |
| 5 | 19 | c | Loblolly | Live | Natural | Inactive | Start | <2X | Unstarted | Old/None |
| 5 | 20 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 21 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 22 | | Loblolly | Live | Natural | Relic | Complete | Restrictor | 30-45 cm | Old/None |
| 5 | 23 | a | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 23 | b | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 24 | a | Loblolly | Live | Natural | Active | Complete (New) | Normal | 15-30 cm | Fresh |
| 5 | 24 | b | Loblolly | Live | Natural | Active | Complete | Restrictor | > 45 cm | Fresh |
| 5 | 25 | | Loblolly | Live | Natural | Inactive | Complete | >2X | > 45 cm | Old/None |
| 5 | 26 | | Loblolly | Live | Natural | Inactive | Complete | Restrictor | > 45 cm | Old/None |
| 5 | 27 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 28 | | Loblolly | Live | Natural | Relic | Complete | Restrictor | >15 cm | Old/None |
| 5 | 29 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 30 | | Loblolly | Live | Natural | Inactive | Start (Adv) | Normal | Unstarted | Old/None |
| 5 | 92 | | Loblolly | Live | Natural | Relic | Start | Healing | Unavailable | Unavailable |
| 5 | 93 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 94 | | Loblolly | Live | Natural | Relic | Complete | Restrictor | Unstarted | Old/None |
| 5 | 95 | | Loblolly | Live | Natural | Relic | Complete | >4X | Unstarted | Old/None |
| 5 | 96 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 97 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 98 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 99 | | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 5 | 127 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 5 | 138 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 5 | 191 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 5 | 217 | | Loblolly | Live | Natural | Inactive | Complete | <2X | 15-30 cm | Old/None |
| 5 | 218 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | >15 cm | Fresh |
| 5 | 236 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | Unstarted | Fresh |
| 5 | 237 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Recent |
| 5 | 248 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|-------|--------|----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 5 | 5NT1 | | Loblolly | Live | Natural | Inactive | Complete | Healing | Unstarted | Old/None |
| 5 | 5NT10 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | Unstarted | Fresh |
| 6 | 10 | | Loblolly | Live | Artificial | Relic | Insert | Normal | >15 cm | Old/None |
| 6 | 11 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 6 | 12 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 6 | 13 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 6 | 33 | a | Loblolly | Live | Natural | Inactive | Start (Adv) | Normal | Unstarted | Old/None |
| 6 | 33 | b | Loblolly | Live | Natural | Active | Start | <2X | Unstarted | Recent |
| 6 | 116 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | >15 cm | Old/None |
| 6 | 135 | a | Loblolly | Live | Natural | Active | Complete | <2X | >15 cm | Fresh |
| 6 | 135 | b | Loblolly | Live | Natural | Inactive | Start (Adv) | <2X | Unstarted | Old/None |
| 6 | 135 | c | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 6 | 136 | a | Loblolly | Live | Natural | Relic | Start | Healing | Unavailable | Unavailable |
| 6 | 136 | b | Loblolly | Live | Natural | Inactive | Start (Adv) | Normal | Unstarted | Old/None |
| 6 | 137 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 6 | 139 | | Loblolly | Live | Artificial | Active | Insert | Normal | 15-30 cm | Fresh |
| 6 | 199 | | Loblolly | Live | Artificial | Active | Insert | Normal | >15 cm | Fresh |
| 6 | 200 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 6 | 206 | | Loblolly | Live | Natural | Active | Start | <2X | Unstarted | Recent |
| 6 | 233 | | Loblolly | Live | Natural | Active | Complete | <2X | >15 cm | Fresh |
| 6 | 234 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Recent |
| 6 | 235 | | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 6 | 6NT1 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Recent |
| 6 | 6NT2 | | Loblolly | Live | Natural | Active | Complete (New) | <2X | Unstarted | Fresh |
| 7 | 105 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | 30-45 cm | Old/None |
| 7 | 106 | a | Loblolly | Live | Natural | Relic | Complete | >4X | 30-45 cm | Old/None |
| 7 | 106 | b | Loblolly | Live | Natural | Relic | Start | <2X | Unstarted | Old/None |
| 7 | 107 | a | Loblolly | Live | Natural | Active | Complete | Restrictor | > 45 cm | Fresh |
| 7 | 107 | b | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 7 | 108 | | Loblolly | Live | Natural | Inactive | Complete | >2X | 30-45 cm | Old/None |
| 7 | 109 | a | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 7 | 109 | b | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 7 | 110 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | >15 cm | Old/None |
| 7 | 111 | | Loblolly | Live | Artificial | Relic | Insert | Normal | >15 cm | Old/None |
| 7 | 112 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 7 | 113 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 7 | 114 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 7 | 115 | | Loblolly | Live | Natural | Relic | Complete | >2X | 30-45 cm | Old/None |
| 7 | 190 | | Loblolly | Dead | Natural | Unavailable | Start | Unavailable | Unavailable | Unavailable |
| 7 | 192 | a | Loblolly | Dead | Natural | Unavailable | Start | Unavailable | Unavailable | Unavailable |
| 7 | 192 | b | Loblolly | Dead | Natural | Unavailable | Complete | Unavailable | Unavailable | Unavailable |
| 7 | 194 | a | Loblolly | Dead | Natural | Relic | Sub-start | Normal | Unavailable | Unavailable |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|------|--------|----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 7 | 194 | b | Loblolly | Dead | Natural | Relic | Complete | Normal | Unavailable | Unavailable |
| 7 | 195 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 7 | 216 | | Loblolly | Live | Natural | Active | Complete | Normal | 30-45 cm | Fresh |
| 7 | 243 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 7 | 7NT1 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 7 | 7NT2 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 7 | 7NT3 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 8 | 129 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 8 | 155 | | Loblolly | Live | Natural | Inactive | Complete | >2X | Unstarted | Old/None |
| 8 | 170 | | Loblolly | Live | Artificial | Relic | Insert | Normal | 15-30 cm | Old/None |
| 8 | 171 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 8 | 172 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | >15 cm | Old/None |
| 8 | 173 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | >15 cm | Old/None |
| 8 | 174 | a | Loblolly | Live | Natural | Relic | Complete | Restrictor | Unstarted | Old/None |
| 8 | 174 | b | Loblolly | Live | Natural | Relic | Start | Healing | Unstarted | Old/None |
| 8 | 174 | c | Loblolly | Live | Natural | Relic | Complete | <2X | Unstarted | Old/None |
| 8 | 175 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 8 | 176 | a | Loblolly | Live | Natural | Relic | Start (Adv) | Healing | Unstarted | Old/None |
| 8 | 176 | b | Loblolly | Live | Natural | Relic | Complete | >2X | Unstarted | Old/None |
| 8 | 176 | c | Loblolly | Live | Natural | Relic | Start | Healing | Unstarted | Old/None |
| 8 | 176 | d | Loblolly | Live | Natural | Relic | Complete | <2X | Unstarted | Old/None |
| 8 | 176 | e | Loblolly | Live | Natural | Relic | Start | Healing | Unstarted | Old/None |
| 8 | 176 | f | Loblolly | Live | Natural | Relic | Start | Healing | Unstarted | Old/None |
| 8 | 209 | | Loblolly | Live | Natural | Inactive | Complete | >2X | 15-30 cm | Old/None |
| 8 | 210 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 8 | 211 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 8 | 219 | | Loblolly | Live | Natural | Active | Complete | Normal | Unstarted | Fresh |
| 8 | 220 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 8 | 226 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 8 | 227 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Recent |
| 8 | 228 | | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 8 | 229 | | Loblolly | Live | Natural | Inactive | Sub-start | Normal | Unstarted | Old/None |
| 8 | 230 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | Unstarted | Fresh |
| 8 | 231 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Recent |
| 9 | 85 | | Loblolly | Live | Artificial | Active | Insert | Normal | 30-45 cm | Recent |
| 9 | 86 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | 30-45 cm | Old/None |
| 9 | 87 | | Loblolly | Live | Artificial | Active | Insert | Normal | >15 cm | Fresh |
| 9 | 88 | | Loblolly | Live | Artificial | Active | Insert | Normal | 15-30 cm | Fresh |
| 10 | 64 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | > 45 cm | Old/None |
| 10 | 65 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | 30-45 cm | Old/None |
| 10 | 66 | | Loblolly | Live | Artificial | Active | Insert | Normal | >15 cm | Fresh |
| 10 | 67 | | Loblolly | Live | Natural | Relic | Complete | >4X | Unstarted | Old/None |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|-------|--------|-----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 10 | 68 | | Loblolly | Live | Natural | Inactive | Complete | >2X | Unstarted | Old/None |
| 10 | 150 | | Loblolly | Live | Artificial | Active | Insert | Normal | >15 cm | Fresh |
| 10 | 151 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 10 | 152 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 10 | 153 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 10 | 154 | | Loblolly | Live | Natural | Active | Complete | <2X | 30-45 cm | Recent |
| 10 | 156 | | Loblolly | Live | Natural | Active | Complete | Restrictor | 15-30 cm | Fresh |
| 10 | 157 | | Loblolly | Live | Natural | Active | Complete | Restrictor | > 45 cm | Fresh |
| 10 | 214 | | Loblolly | Live | Natural | Active | Complete | Restrictor | 15-30 cm | Fresh |
| 10 | 215 | a | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 10 | 215 | b | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 10 | 247 | | Loblolly | Live | Natural | Active | Complete | Restrictor | Unstarted | Fresh |
| 10 | 10NT3 | a | Loblolly | Live | Natural | Inactive | Start (Adv) | <2X | Unstarted | Old/None |
| 10 | 10NT3 | b | Loblolly | Live | Natural | Inactive | Start | <2X | Unstarted | Old/None |
| 10 | 10NT3 | c | Loblolly | Live | Natural | Inactive | Sub-start | Normal | Unstarted | Old/None |
| 10 | 10NT4 | a | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 10 | 10NT4 | b | Loblolly | Live | Natural | Inactive | Sub-start | Normal | Unstarted | Old/None |
| 10 | 10NT5 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 11 | 140 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 11 | 141 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 11 | 142 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 11 | 143 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 11 | 238 | | Loblolly | Live | Natural | Active | Complete | Normal | 30-45 cm | Fresh |
| 11 | 239 | | Loblolly | Live | Natural | Active | Complete | Normal | 30-45 cm | Fresh |
| 11 | 240 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 11 | 11NT1 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 11 | 11NT2 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 11 | 11NT3 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 12 | 130 | | Loblolly | Dead | Artificial | Unavailable | Insert | Unavailable | Unavailable | Unavailable |
| 12 | 131 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 12 | 132 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 12 | 133 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 12 | 158 | | Shortleaf | Live | Artificial | Active | Insert | Normal | 30-45 cm | Fresh |
| 12 | 159 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 12 | 189 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 12 | 244 | a | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Recent |
| 12 | 244 | b | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 12 | 12NT1 | | Shortleaf | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 13 | 118 | | Loblolly | Dead | Artificial | Relic | Insert | Normal | Unavailable | Unavailable |
| 13 | 119 | | Loblolly | Live | Artificial | Active | Insert | Normal | 30-45 cm | Fresh |
| 13 | 120 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | >15 cm | Old/None |
| 13 | 121 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|-------|--------|-----------|-----------|------------|-------------|----------------|---------------|-------------|-----------------|
| 13 | 122 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 13 | 123 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 13 | 124 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 13 | 126 | | Loblolly | Dead | Artificial | Relic | Insert | Normal | Unavailable | Unavailable |
| 13 | 144 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Recent |
| 13 | 145 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Recent |
| 13 | 168 | | Loblolly | Live | Artificial | Active | Insert | Normal | > 45 cm | Fresh |
| 13 | 169 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 13 | 13NT1 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 14 | 88 | | Loblolly | Live | Natural | Relic | Start (Adv) | Normal | Unstarted | Old/None |
| 14 | 89 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 14 | 90 | | Loblolly | Dead | Artificial | Relic | Insert | Normal | Unavailable | Unavailable |
| 14 | 91 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 14 | 100 | | Loblolly | Live | Natural | Relic | Start (Adv) | Normal | Unstarted | Old/None |
| 14 | 101 | | Loblolly | Live | Natural | Relic | Complete | >2X | Unstarted | Old/None |
| 15 | 160 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 15 | 161 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 15 | 162 | | Loblolly | Live | Artificial | Active | Insert | Normal | 30-45 cm | Fresh |
| 15 | 163 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | 30-45 cm | Old/None |
| 15 | 187 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Recent |
| 15 | 198 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 15 | 205 | | Loblolly | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 15 | 221 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 15 | 15NT1 | | Loblolly | Live | Natural | Inactive | Start | Normal | Unstarted | Old/None |
| 15 | 15NT2 | | Loblolly | Live | Natural | Active | Complete (New) | Normal | Unstarted | Fresh |
| 16 | 165 | | Loblolly | Dead | Natural | Unavailable | Start | Unavailable | Unavailable | Unavailable |
| 16 | 166 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 16 | 167 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 17 | 146 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 17 | 147 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 18 | 181 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 18 | 182 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 18 | 183 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 18 | 184 | | Loblolly | Live | Artificial | Relic | Insert | Normal | Unstarted | Old/None |
| 18 | 207 | | Shortleaf | Live | Natural | Active | Complete | Normal | 15-30 cm | Fresh |
| 19 | 134 | | Loblolly | Live | Artificial | Inactive | Insert | Normal | Unstarted | Old/None |
| 19 | 148 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Recent |
| 19 | 149 | | Loblolly | Live | Artificial | Active | Insert | Normal | Unstarted | Fresh |
| 19 | 201 | | Loblolly | Live | Artificial | Active | Insert | Normal | 30-45 cm | Recent |
| 19 | 202 | | Loblolly | Dead | Artificial | Inactive | Insert | Normal | Unavailable | Unavailable |
| 19 | 203 | | Loblolly | Live | Artificial | Active | Insert | Normal | 15-30 cm | Recent |
| 19 | 222 | | Loblolly | Dead | Natural | Active | Complete | Normal | > 45 cm | Fresh |

Appendix I. Status of Red-cockaded Woodpecker Cavity Trees at the Piney Grove Preserve cont...

| Cluster | Tree | Cavity | Species | Condition | Cavity | 2015 Status | 2015 Condition | 2015 Entrance | 2015 Plate | 2015 Resin Work |
|---------|------|--------|----------|-----------|---------|-------------|----------------|---------------|------------|-----------------|
| 19 | 223 | | Loblolly | Live | Natural | Active | Complete | Normal | >15 cm | Fresh |
| 19 | 224 | | Loblolly | Live | Natural | Active | Complete | <2X | >15 cm | Fresh |
| 19 | 232 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |
| 19 | 245 | | Loblolly | Live | Natural | Active | Start | Normal | Unstarted | Fresh |
| 19 | 246 | | Loblolly | Live | Natural | Active | Start (Adv) | Normal | Unstarted | Fresh |