Expansion of the Red Hills Red-cockaded Woodpecker Population: A Strategic Plan

Final Report for
Bill Terrell Avian Conservation Grant
Georgia Ornithological Society

January 31, 2020

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1. Project Description

The Red-cockaded Woodpecker (*Dryobates boralis*), like many fire-dependent species, has lost substantial amounts of its native habitat. The extensive timber harvesting that took place after European settlement removed a substantial amount of the native longleaf pine ecosystem (*Pinus palustris*;) and currently, less than 4% of its historical ~35 million ha extent remains (Noss et al. 1995; Ware et al. 1993). However, some of the native pine savannahs were spared extensive timber harvest. These forests serve as refuges for the many species that depend on fire and serve as vital areas for research into the ecology of these native forests prior to European contact. Georgia's Red Hills Region has some of the last remaining old-growth longleaf pine forests due to the exemplary land stewardship practiced in the region (Means 1996).

Currently, the Red Hills contains approximately 200 clusters of Red-cockaded Woodpeckers making it the largest population on private lands. The Red Hills are composed of over 110 privately owned properties, but the woodpeckers are not evenly distributed among these properties and many properties may be below their carrying capacity as a result of the dearth of natural woodpecker cavities.

One such property that is below carrying capacity is Osceola Plantation, which sits on the edge of the Red-cockaded Woodpeckers northeastern range in the Red Hills (Figure 1). Osceola has a Safe Harbor Agreement and as of 2018 contains three active clusters and two breeding groups. The habitat is conducive for these woodpeckers and the landowners have shown excellent stewardship and a long-standing partnership with Tall Timbers. However, the lack of suitable cavities limits the ability of these birds to expand. Occurring at the northeastern extent of the Red Hills' population, Osceola provides a strategic position. Increasing the number of breeding groups here will not only further expand the woodpeckers further east in the Red Hills but also help to sustain the other woodpecker groups in the core of the Red Hills population by effectively creating a buffer from stochastic events and land-use changes.

To expand the Red-cockaded Woodpecker's population, we created additional clusters on Osceola and subsequently banded and translocated birds. We selected two local applicants from both Georgia and Florida that had a strong background in ornithology to help conduct the work. Working closely with Tall Timbers allowed the applicants to obtain practical skills in this field. The positions helped to provide additional labor and time and augment the existing workload planned for 2018. With support from GOS, we were able to jump start the Osceola population and also reintroduce a woodpecker population to a site in the southeastern region of the Red Hills. This work expanded woodpeckers across a broader area and create a robust population that will support the rest of this threatened bird in Georgia's Red Hills.

2. Accomplishments

Our objectives were to a) expand the population of Red-cockaded Woodpeckers in the Red Hills region by ≥4 new clusters and b) to study the woodpecker in its historical context in old-growth longleaf forests on selected properties.

Expanding the Red-cockaded Woodpeckers in the Red Hills Region

We successfully installed 4 new artificial clusters on the Osceola plantation. We also, cleaned and refurbished 4 other pre-existing cavities on Osceola to provide additional cavity space for active clusters. The Osceola plantation now contains 10 complete Red-cockaded Woodpecker clusters.

Prior to the work conducted on Osceola, we planned on translocating four pairs of woodpeckers to the existing clusters. When work began, we knew of only two breeding groups and one solo cluster existing on Osceola. During the breeding season we monitored all clusters and found four breeding pairs. Of these, three had successful nests producing four nestlings total. We monitored these nests and banded the nestlings with the landowners and staff of the Osceola Plantation present to help encourage their continued conservation in this critical location.

Two of these nests were located in clusters close to the newly constructed clusters. Since all nestlings successfully fledged, we deemed it unnecessary to translocate more woodpeckers to the site. Instead, we focused translocation efforts to another plantation in the Red Hills region with three active Red-cockaded Woodpecker clusters. Our long-term goal is to strengthen the eastern half of the Red Hills region (in southeastern Thomas County) and possibly connect the isolated populations of woodpeckers on Four Oaks and Dixie Plantations to the bulk of the Red-cockaded Woodpeckers in the core of the Red Hills. Doing so will provide more security for the population overall by mitigating land-use changes or stochastic events such as hurricanes and tornados. Accordingly, we translocated four pairs of woodpeckers to the Dixie Plantation (far right group in Figure 1). Translocating woodpeckers to the Dixie Plantation accomplishes the same goals as translocating to the Osceola Plantation; to strengthen the peripheral woodpecker groups in the Red Hills and therefore strengthen and conserve woodpeckers throughout.

We banded 79 nestlings from four different plantations in the Red Hills Region (Greenwood, Arcadia, Tall Timbers, and Beechwood) with which to draw suitable candidates for translocation. Finding and tracking these nests required weekly visits to over 50 different clusters across these properties. The large number of woodpeckers observed and banded helps provide contingencies for when nests are lost or don't fledge young. Due to the large size of the Red Hills, nest checks occasionally required over 80 miles of driving per day. Birds were selected to provide the greatest amount of genetic diversity. Translocations occurred in November-December 2019 to the Dixie plantation. Dixie itself was composed of 10 artificial clusters, of which, two clusters had a pair of woodpeckers.

Translocation success across the southeastern U.S. is typically around 50-60% successful establishment, i.e. retaining moved woodpeckers (Franzreb 1999; Edwards and Costa 2004). Our translocations were similar with six of the eight released birds remaining on the Dixie Plantation as of January 1st 2020. Despite the two missing birds, these translocations have thus, effectively doubled the number of woodpeckers in the southeastern portion of the Red Hills. Continued monitoring into the breeding season of 2020 will confirm if released birds have successfully paired and established themselves in clusters.

Study of old-growth longleaf dwelling woodpecker groups

As part of monitoring efforts of fledglings in preparation for translocation, we performed a home range study of Red-cockaded Woodpecker groups in old-growth forests of Arcadia Plantation (Wade Tract) and Greenwood Plantation. For comparison, eight clusters at Tall Timbers Plantation (old-field pines) was followed. We were able to collect 714 locations of 21 clusters in old-growth and old-field pines. The data collection is still on-going but preliminary results are showing clear patterns and kernel density estimates are converging, producing reasonable home range estimates. This research will provide a new, alternate method of home range measurements that can significantly improve on the 'all-day-follows' that woodpecker biologists typically use. Additionally, this research will provide new, updated measures of home range size for some of the last remaining old-growth pine.

Funding of this project provided intern and technician salary (that was also supplemented by Tall Timbers funding). Both of the two local hires participated in monitoring efforts for the main objectives ('a' and 'b') of this project and are also conducting additional research projects adjacent to this project. One of which, is investigating the effects of natal habitat type (old-field or longleaf) on the success of translocating Red-cockaded Woodpeckers to the same or alternate habitat type using the translocations conducted this year. This research (still underway) is being considered for submission in the Oriole upon completion.

3. Criteria for Evaluating Success

Success was obtained for three of the four criteria set in our proposal:

- ✓ Color banding of at least 30 Red-cockaded Woodpecker nestlings.
- ✓ Creation of four additional clusters on Osceola.
- ✓ Maintenance of existing Osceola cavities such that each cluster contains four suitable cavities.
- Translocate eight juvenile Red-cockaded Woodpeckers to Osceola.
    - Translocated eight woodpeckers to Dixie Plantation instead

As previously stated, translocation to Osceola was deemed unnecessary after locating successful nests on-site. Thus, translocations occurred on Dixie Plantation (further east) to accomplish the same goal as translocation to Osceola and providing support for strengthening woodpecker populations in the southeastern portion of the Red Hills region. We were also able to meet additional research goals during this time.

4. Conclusions

With the support of the Bill Terrell Avian Conservation Grant we have been able to expand and improve the eastern edge of Red-cockaded Woodpeckers in the Red Hills Region. With a broader expanse of Red-cockaded Woodpeckers we can protect against stochastic events

such as Hurricane Michael, that could have done much more damage to the largest population of woodpeckers on private lands had it remained on its initial path. We were able to use all requested funds (see .pdf report attached separately) with additional support from Tall Timbers Research Station to cover my salary and time in the project (~$32,000) as well as vehicle repairs and maintenance costs (~$1,000).

Moving and expanding woodpeckers can have a larger effect on the private properties surrounding them. This year, the Four Oaks Plantation signed up with the Safe Harbor program, adding over 17,000 acres of protected land in-between Dixie and Osceola (Figure 1). The timing of this Safe Harbor Agreement may have been influenced by moving and supporting the Red-cockaded Woodpeckers on the neighboring Dixie Plantation. As the woodpeckers grow on nearby properties, the chance of getting them increases. Thus, private landowners are incentivized to sign up as early as possible to prevent having baseline clusters to uphold under the agreement. After signing up, these properties can contain woodpecker groups without additional burdens and are more likely to support woodpecker conservation. Thus, although these woodpecker additions were small, the effect they have on the neighboring properties can create a much larger conservation impact for the species.

The additional clusters added to the Osceola Plantation will continue to be monitored as time allows. This small expansion will determine the viability/sustainability of these woodpeckers on Osceola and help in determining the next steps in connecting the eastern sub-populations together to make a more stable and resilient population overall.

5. Literature Cited

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Figure 1. The Red Hills Region of Georgia and Florida's Red-cockaded Woodpecker (RCW) cavity trees. The project focused on the Osceola Plantation's RCW clusters.