RED-COCKADED WOODPECKER
SURVEY REPORT FOR THE
BRIDGE NUMBER 245 REPLACEMENT PROJECT,
BUIES CREEK, HARNETT COUNTY, NORTH CAROLINA

TIP NO. B-5711

The North Carolina Department of Transportation
Division of Highways
Project Development and Environmental Analysis Unit
Natural Environment Section

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INTRODUCTION

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge Number 245 over East Buies Creek located on Marshbanks Street (State Route 2054) in Buies Creek, Harnett County, North Carolina (NC) (Figure 1). The project is identified in NCDOT's Transportation Improvement Program (TIP) as B-5711. This report presents the results of a red-cockaded woodpecker (*Picoides borealis*) (RCW) survey and addresses the impacts of the bridge replacement on RCW foraging and nesting habitat within 0.5 mile of the bridge study area.

SURVEY AREA

The existing bridge is located on Marshbanks Street in Buies Creek. The bridge study area is approximately 300 feet (ft.) off either end of the existing bridge and 75 ft. on either side of the bridge/roadway centerline. The RCW survey area is a 0.5 mile radius of the study area.

The survey area is located in the west-central Coastal Plain of eastern NC in the Cape Fear River Basin (Figure 1). The predominant soils in the survey area are Altavista fine sandy loam, Rains sandy loam, Wagram loamy sand and Bibb loam (United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) 2016). Elevations in the survey area range from 140-200 ft. above mean sea level.

METHODS

A 0.5 mile radius around the project study area was surveyed on 26 August 2016 for RCW cavity trees and suitable habitat. The survey area consisted of approximately 601 acres.

A variety of resources were utilized in preparation for field surveys, including aerial photographs and topographic maps.#Digital photographs were taken of forested stands.#Potential RCW habitat in the survey area was surveyed on foot. Transect widths varied with visibility and habitat quality, but typically averaged approximately 200 ft. apart.

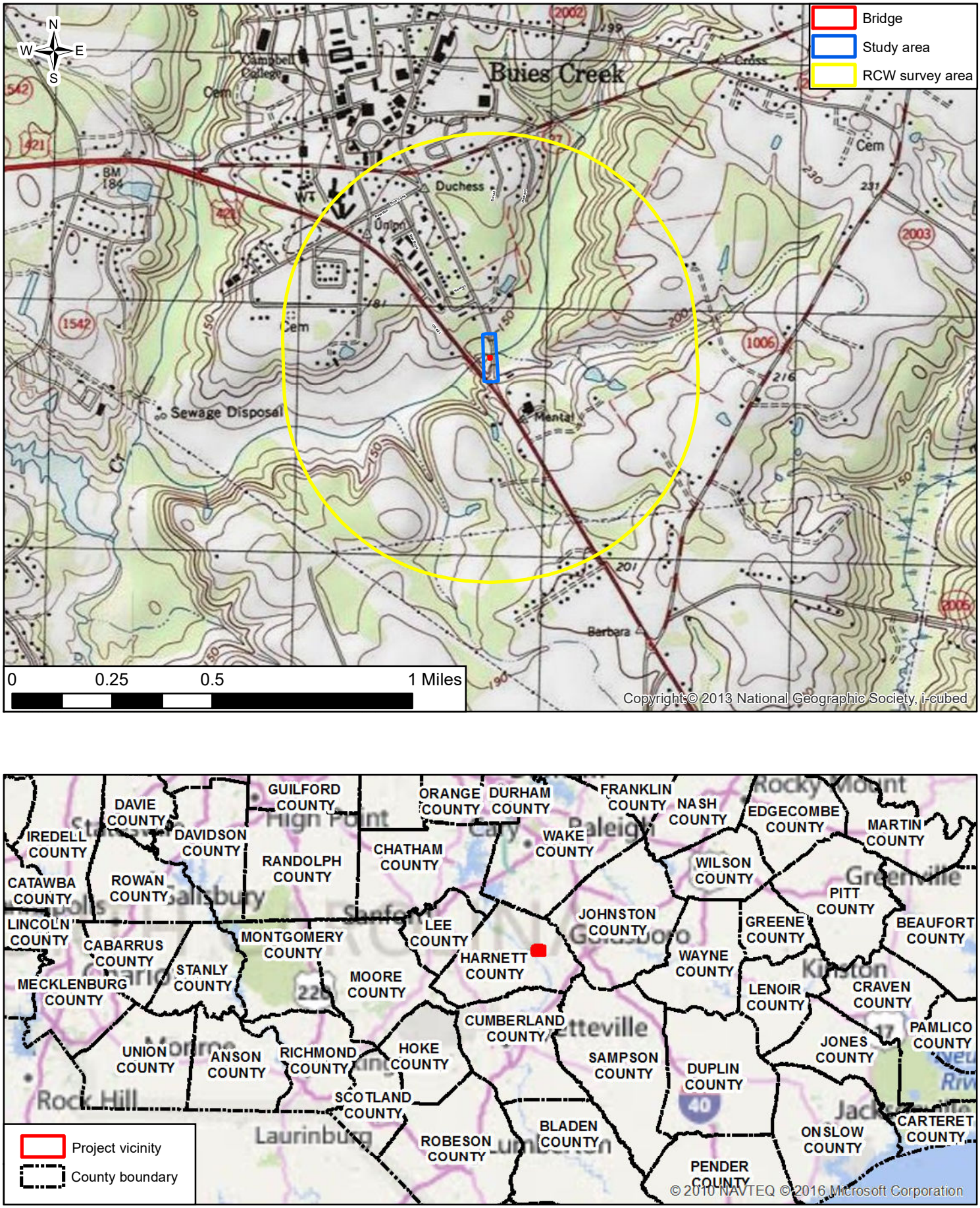


Figure 1. Location of Bridge No. 245 on Marshbanks Street (State Route 2054), Buies Creek, Harnett County, North Carolina.

RCW foraging habitat was defined as pine or pine-hardwood stands at least 30 years of age or older and RCW nesting habitat was defined as pine or pine-hardwood stands 60 or more years old or younger stands with remnant mature pines (USFWS 2003). Forest stands within the survey area were delineated in the field on aerial photographs according to characteristics such as age or density. Determining midstory density was subjective, but followed these basic criteria: a stand with a sparse hardwood midstory had few or no hardwoods present, a stand with a dense hardwood midstory had limited visibility and movement through the stand was difficult, and a stand with a moderately dense hardwood midstory was intermediate. Each habitat type was further subdivided according to hardwood midstory height. Midstory hardwoods less than 7 ft. in height were considered low, hardwoods 7-15 ft. high were considered moderate and hardwoods more than 15 ft. high were considered tall. See Appendix A for qualifications of Dr. J.H. Carter III & Associates, Inc. (JCA) personnel involved in this project.

RESULTS AND DISCUSSION

Red-cockaded woodpecker - *Picoides borealis*

The RCW is a small black and white woodpecker with horizontal bars on its back, spotted flanks and a white belly. The cap and chin stripe are black and the male has a small, difficult to see, red spot on each side of the black cap. RCWs are most easily identified by the large white cheek patch that distinguishes them from similar species (USFWS 2003).

The RCW is endemic to mature, fire-maintained pine forests in the southeastern United States, where it was historically common. Typical nesting habitat includes pine or pine-hardwood stands with a minimum age of 60 years where the RCW excavates nest and roost cavities in living pines. The RCW also requires a large area of pines $\geq$ 30 years old for foraging habitat with a foraging preference for pine trees $\geq$ 14 inches dbh (USFWS 2003). Logging, fire exclusion and conversion of forest lands to agricultural and other uses have destroyed most of this species' habitat.

The NC Natural Heritage Program (NCNHP) has a RCW record (element occurrence (EO) #12118) 5.2 miles east-northeast of the study area in Harnett County, NC. The EO status is historical, last observed in 1988 (NCNHP 2016).

Survey Results

Stand A occurred east, southeast and west of the bridge and consisted of 18-25 year old loblolly pine (*Pinus taeda*) plantations and regeneration (Table 1, Figure 2, Photo 1). The understory was dense, moderately tall hardwoods. The stand was considered unsuitable RCW foraging and nesting habitat due to insufficient age.

Table 1. Forest stands within the 0.5 mile radius red-cockaded woodpecker survey area for Bridge Number 245, Buies Creek, Harnett County, North Carolina.

Stand	Stand Type	Pine age	Suitable foraging habitat (> 30-year old pine or pine-hardwood)	Suitable nesting habitat (> 60-year old pine or pine-hardwood)	Acres
Agriculture fields and roads	Open	N/A	No	No	231.54
A	Pine plantations and regeneration	18-22	No	No	68.8
B	Pine dominant	30-40	No	No	4.31
C	Hardwood-pine	50-60	No	No	53.12
D	Pine dominant	50-60	No	No	18.51
E	Pine-hardwood	40-50	No	No	51.63
HWD	Hardwood	N/A	No	No	156.07

Stand B occurred southeast of the bridge and consisted of 30-40 year old loblolly pine (Table 1, Figure 2). The midstory was dense, moderately tall hardwoods. The stand was considered unsuitable RCW foraging habitat due to midstory density and height and unsuitable RCW nesting habitat due to insufficient age.

Stand C occurred northeast, southeast and northwest of the bridge and consisted of mixed hardwoods with 50-60 year old loblolly pines (Table 1, Figure 2). The stand had a dense, tall midstory of tulip poplar (*Liriodendron tulipifera*), willow oak (*Quercus phellos*) and white oak (*Q. alba*). The stand was considered unsuitable foraging and nesting habitat due to a predominately hardwood canopy.

Stand D occurred north and northwest of the bridge and consisted of 50-60 year old loblolly pine stands (Table 1, Figure 2). The midstory was dense, tall hardwoods. The stand was

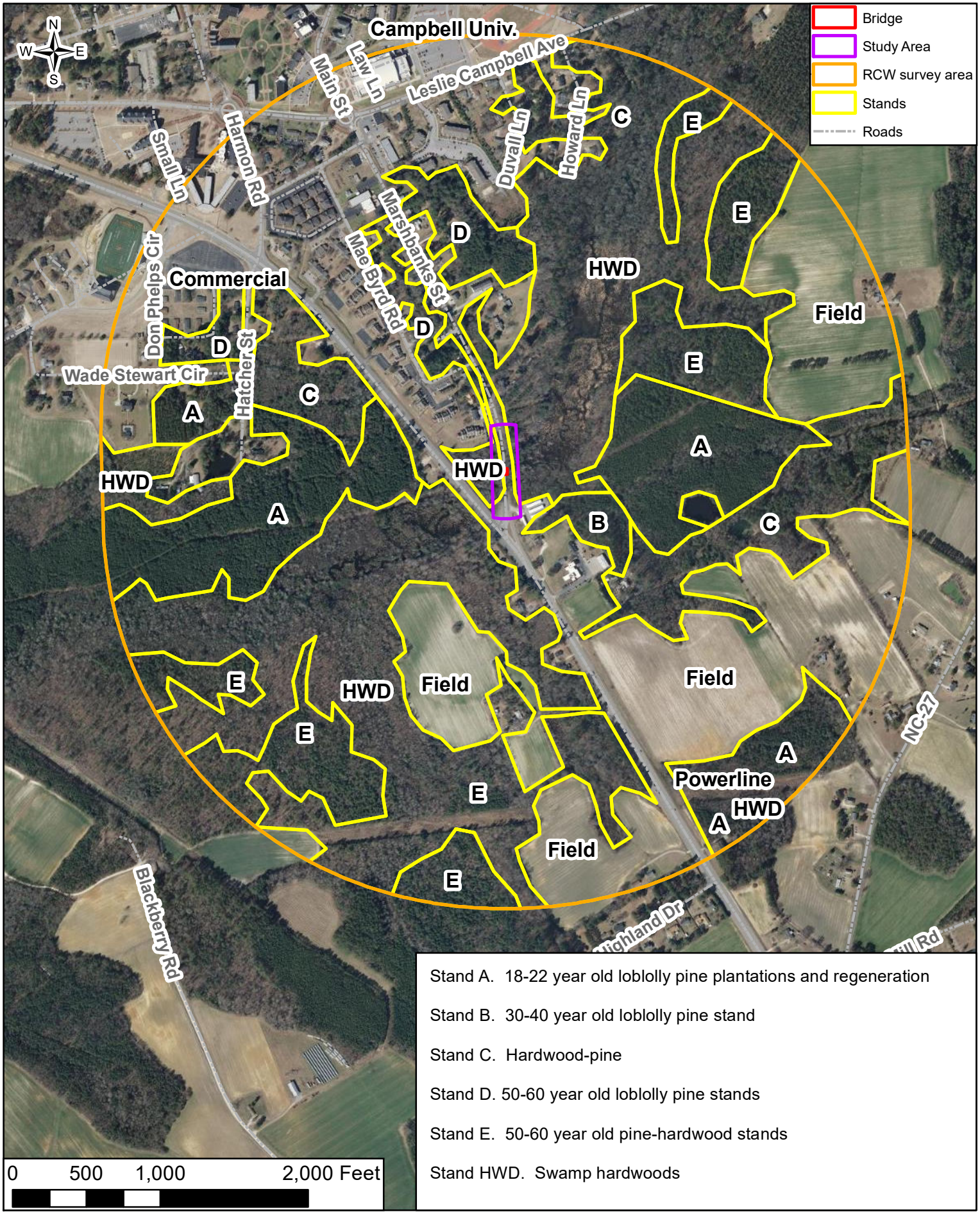


Figure 2. General stand types for the Bridge No. 245 replacement project on Marshbanks Street (State Route 2054), Buies Creek, Harnett County, North Carolina.

considered unsuitable RCW foraging habitat due to midstory density and height and unsuitable RCW nesting habitat due to insufficient age.

Stand E was comprised of several small stands east and southwest of the bridge and consisted of 50-60 year old loblolly pine with a mixed hardwood canopy. The midstory was dense, tall hardwoods. The stand was considered unsuitable RCW foraging habitat due to midstory density and height and unsuitable nesting habitat due to insufficient age.

Stand HWD traversed the survey area from northeast to southwest, following East Buies Creek. It consisted predominately of swamp hardwoods. This stand was unsuitable RCW foraging and nesting habitat due to a predominately hardwood canopy (Table 1, Figure 2, Photo 2). The remainder of the survey area was open and consisted of Campbell University, residential and commercial development, agricultural fields and roads.

CONCLUSIONS

No RCW cavity trees or clusters were found within the 0.5 mile radius survey area for the proposed Bridge Number 245 replacement project, Buies Creek, Harnett County, NC. A historic RCW EO, last observed in 1988, occurred 5.2 miles east-northeast of the study area (NCNHP 2016).

RCW Biological Conclusion **No Effect**

REFERENCES

NC Natural Heritage Program. 2016. North Carolina Natural Heritage Program database (accessed 1 July 2016). Raleigh, N.C.

US Department of Agriculture, Natural Resources Conservation Service. 2016. Web soil survey. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed 8 August 2016.

US Fish and Wildlife Service. 2003. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. USFWS, Atlanta, GA. 296 pp.

APPENDIX A. Dr. J.H. Carter III & Associates, Inc. (JCA) Staff Qualifications

- **Dr. J.H. Carter III** is a Certified Senior Ecologist and Certified Wildlife Biologist that has served as the Principal Investigator for hundreds of red-cockaded woodpeckers (RCW) related projects in his 50+ year career in NC.
- **Janice Goodson,** Senior and Supervisory Biologist at JCA. She has 25+ years experience in RCW surveys, demographic monitoring, management and Biological Assessments in the Southeast.
- **Sarah Haney,** Wildlife Biologist at JCA. She has 2+ years experience in RCW surveys, demographic monitoring, foraging habitat analyses (FHA) and Biological Assessments in the Southeast.
- **Matthew King,** Wildlife Biologist at JCA. He has 9+ years experience in RCW surveys, demographic monitoring, foraging habitat analyses (FHA) and Biological Assessments in the Southeast.
- **Jaan Kolts,** Wildlife Biologist at JCA. He has 2+ years experience in RCW surveys, demographic monitoring, foraging habitat analyses (FHA) and Biological Assessments in the Southeast.
- **William Mullin** Wildlife Biologist/Wetland Biologist at JCA. He has 12+ years of experience in RCW surveys.
- **Jeanette Sabo,** Wildlife Biologist at JCA. She has 12+ years experience in RCW surveys, demographic monitoring, foraging habitat analyses (FHA) and Biological Assessments in the Southeast.

APPENDIX B. PHOTOS

Bridge Number 245, Buies Creek, Harnett County, North Carolina

Photos by:
Sarah H. Haney



Photo 1. Stand A located within the 0.5 mile radius survey area for Bridge Number 245, Buies Creek, Harnett County, North Carolina.



Photo 2. Stand HWD located within the 0.5 mile radius survey area for Bridge Number 245, Buies Creek, Harnett County, North Carolina.