

R-2576 Mid-Currituck Bridge

Attachment 12:

**Red-Cockaded Woodpecker
and Bald Eagle Biological
Assessment,
January 31, 2023**

**RED-COCKADED WOODPECKER AND
BALD EAGLE BIOLOGICAL ASSESSMENT
FOR THE MID-CURRITUCK BRIDGE
CURRITUCK COUNTY, NORTH CAROLINA**

TIP #R-2576, WBS #34470.1.TA1



The North Carolina Department of Transportation
Turnpike Authority

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**RED-COCKADED WOODPECKER AND
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FOR THE MID-CURRITUCK BRIDGE
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TIP #R-2576, WBS #34470.1.TA1**

1. INTRODUCTION

The North Carolina Department of Transportation (NCDOT) Turnpike Authority proposes to construct a 2-lane toll bridge over Currituck Sound and improve connecting roads in Currituck County, NC (State Transportation Improvement Program (STIP) #R-2576) (Mid-Currituck Bridge) (Figure 1). Additional road improvements are proposed in Currituck and Dare Counties in order to improve evacuation routes.

One live active and 1 dead inactive red-cockaded woodpecker (*Dryobates borealis* = *Picoides borealis*) (RCW) cavity tree have been previously documented within 0.5 mile (mi.) of the proposed project (Figure 2) (Smith and Walters 2018). Per United States (US) Fish and Wildlife Service (USFWS) guidelines (2003), RCW cavity tree surveys were needed since the project will impact known RCW foraging and/or nesting habitat. The project sites were within 1 mi. of large bodies of water (Currituck Sound and Intracoastal Waterway); therefore, bald eagle (*Haliaeetus leucocephalus*) surveys were also necessary (USFWS 2007a).

In November 2022, aerial surveys were conducted to update the status of known RCW cavity trees and survey for new cavity trees and bald eagle nests.

This report evaluates impacts of the proposed project on the federally endangered RCW pursuant to Sections 7 and 9 of the Endangered Species Act, as amended, and the bald eagle pursuant to the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) and the Migratory Bird Treaty Act (16 U.S.C. 703-712).

2. PROJECT DESCRIPTION/ PROPOSED ACTION

The proposed Mid-Currituck Bridge will begin on US Highway (Hwy.) 158 south of the Coinjock community and approximately 1,500 feet (ft.) north of Aydlett Road (Rd.) (State Route (SR) 1140) (Figure 1). New entrance and exit ramps will be constructed along US 158 and

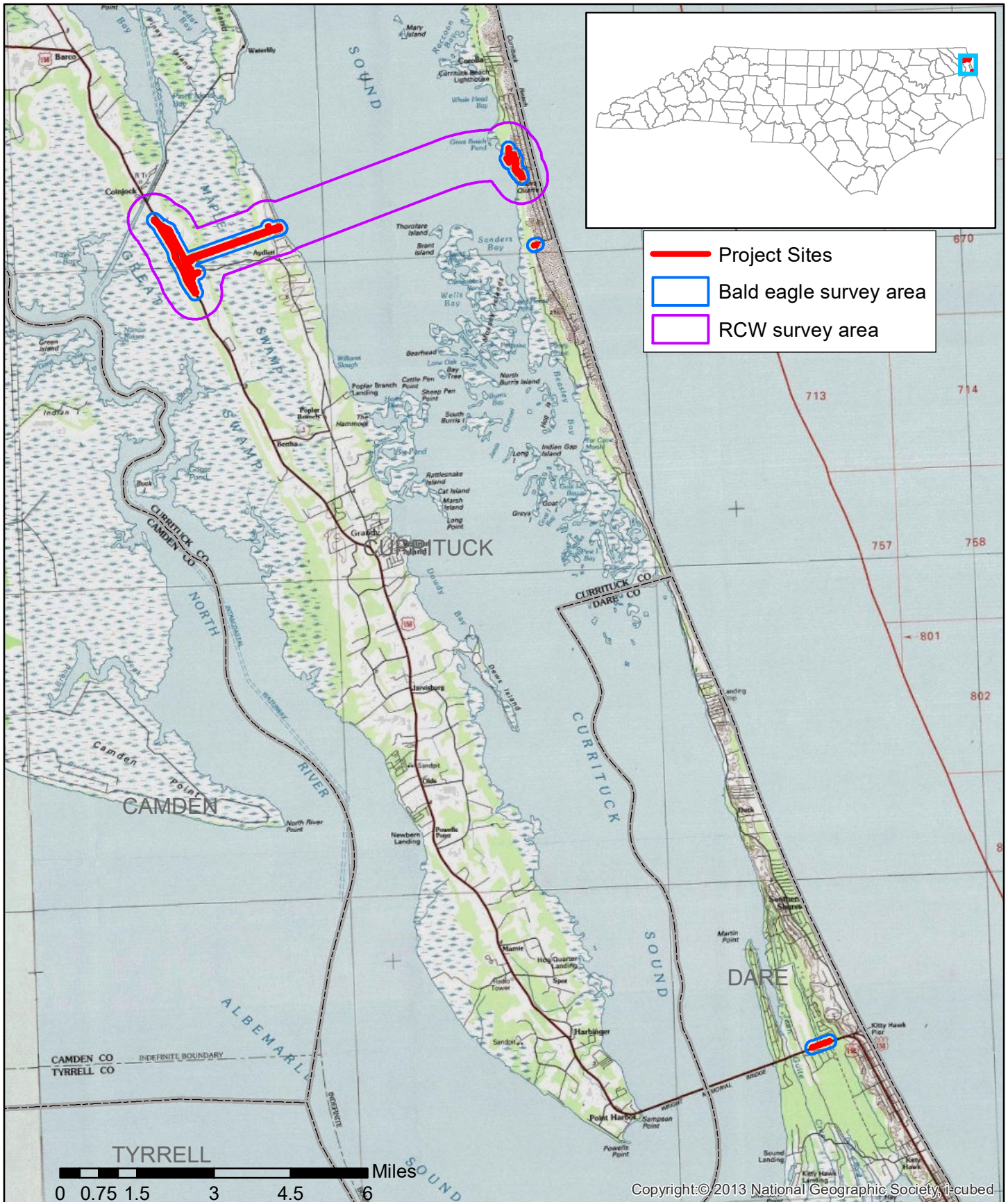


Figure 1. Location of the Mid-Currituck Bridge project (TIP R-2576) proposed by the North Carolina Department of Transportation Turnpike Authority, Currituck County. Areas surveyed for the red-cockaded woodpecker (*Dryobates borealis*) (RCW) and bald eagle (*Haliaeetus leucocephalus*) are also shown.

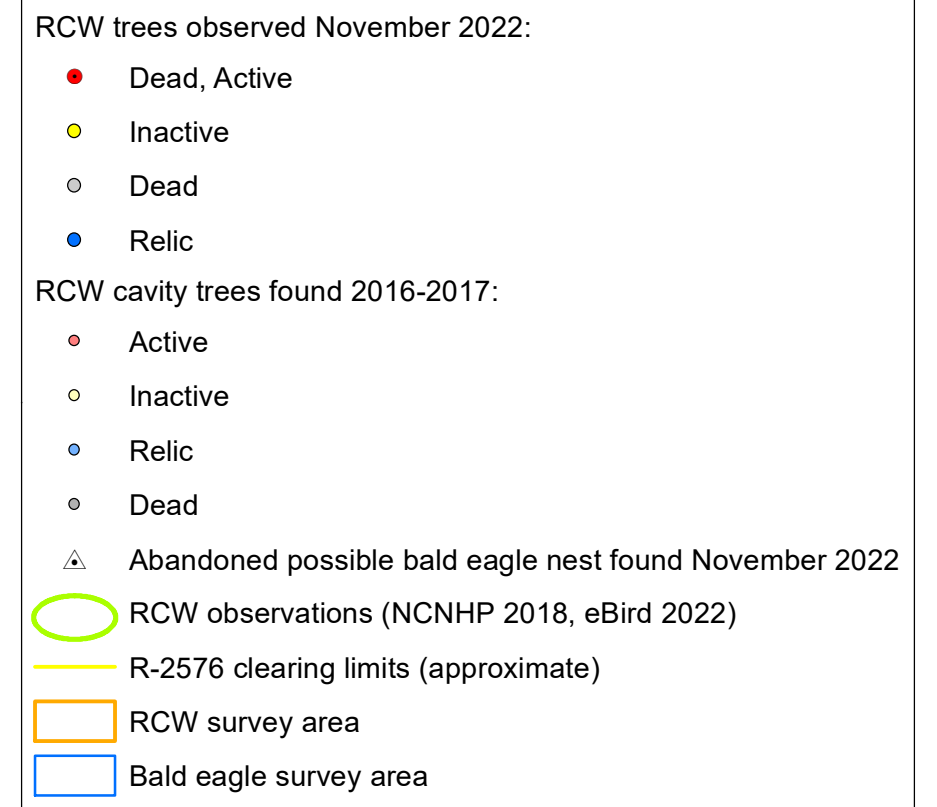
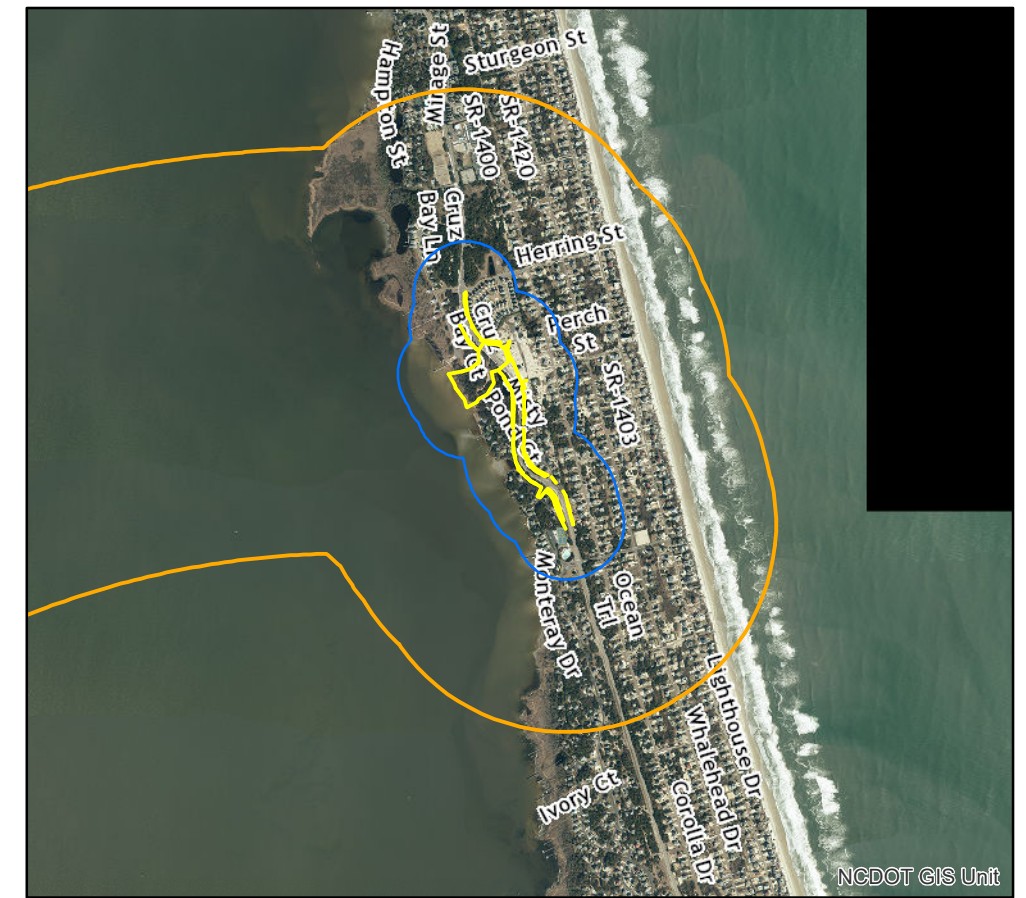
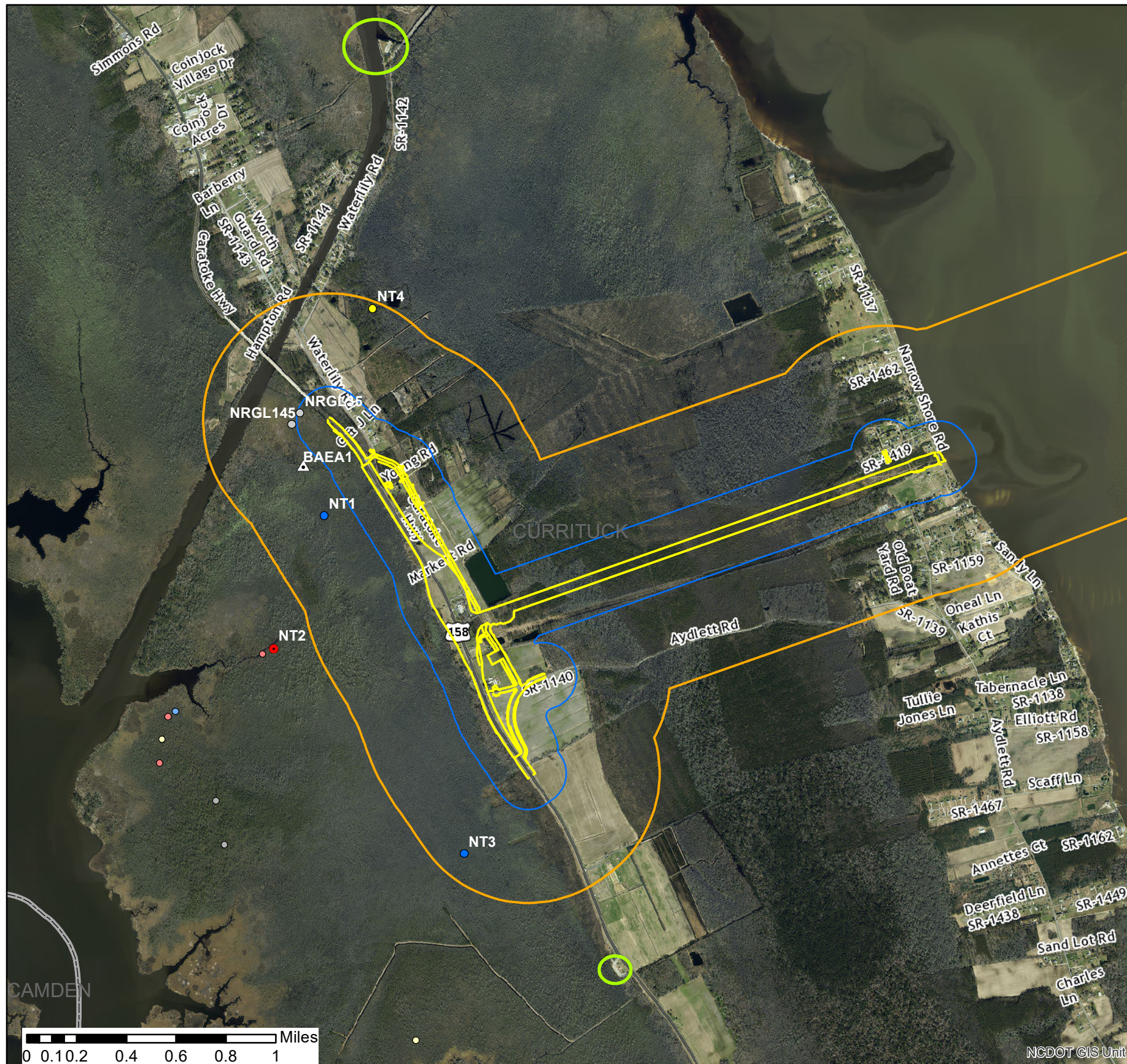


Figure 2. Red-cockaded woodpecker (*Dryobates borealis*) (RCW) survey areas and cavity trees within the Mid-Currituck Bridge project (TIP R-2576) project proposed by the North Carolina Department of Transportation Turnpike Authority, Currituck County. The bald eagle (*Haliaeetus leucocephalus*) survey area and a potential abandoned nest found are also shown.

access roads will be constructed to connect residences and Aydlett Rd. to the highway and bridge. The approximately 4.7 mi. bridge will cross Maple Swamp and the Currituck Sound to the east-northeast, connecting with NC Hwy. 12 in Corolla, NC between Great Beach Pond and Peters Quarter. Hwy. 12 will be widened to accommodate additional lanes and a traffic circle.

Additional work associated with R-2576 will be completed east of Hwy. 12 and south of Albacore Street (St.) (SR 1402), Currituck County, and north of US Hwy. 158 east of Currituck Sound in Kitty Hawk, Dare County (Figure 1).

The following characteristics of the proposed action were taken from the Reevaluation of Final Environmental Impact Statement Study Report (NCDOT 2019):

- A 4.7-mi., two-lane toll bridge with 8-ft. shoulders across Currituck Sound, with approach roads, in Currituck County.
- A mainland bridge approach road placed between Aydlett Rd. and approximately 430 to 720 ft. north of the powerline that parallels Aydlett Rd.. The bridge approach will intersect US 158 with an interchange. A toll plaza will be just east the US interchange.
- The mainland bridge approach road will include a 1.5-mi. bridge over Maple Swamp. Drivers traveling between US 158 and Aydlett will continue to use Aydlett Rd.. In Aydlett, the approach road will pass through Aydlett on fill (approximately 3 to 23 ft. high) and bridge Narrow Shore Rd..
- A bridge approach road on the Outer Banks that ends at what was the undeveloped Phase II of the Corolla Bay subdivision. The bridge approach will connect with NC 12 at an intersection approximately 2 mi. north of the Albacore St. retail area.
- Widening NC 12 for approximately 0.7 mi. in the bridge terminus area between Devils Bay (entrance to the Corolla Bay subdivision) and North Harbor View Drive (Dr.).
- Roundabout at the bridge terminus at NC 12.
- Left turn lane on Albacore St. for drivers turning from Albacore St. to southbound NC 12.
- Marked pedestrian crossings on NC 12 at North Harbor View Dr., as well as at the bridge terminus at NC 12 (one across NC 12 and one across the bridge approach road).
- Hurricane evacuation clearance time reduction features:
 - On the mainland, reversing the center turn lane on US 158 between the US 158/Mid-Currituck Bridge interchange and NC 168.
 - On the Outer Banks, adding approximately 1,600 ft. of new third outbound lane to the west of the NC 12 / US 158 intersection in Dare County to provide additional road capacity during a hurricane evacuation. The additional lane will start at the

US 158/Cypress Knee Trail/Market Place Shopping Center intersection and end approximately 450 ft. west of the Duck Woods Dr. intersection, a total distance of approximately 1,600 ft. From this point, the new lane will merge back into the existing US 158 westbound lanes over approximately 300 ft.

3. ACTION AREA

Guidance set forth by the USFWS (USFWS and NMFS 1998) states that “when determining an action area, it must include the project site and all the areas surrounding the activity up to where the effects will no longer be felt by the listed species.” For this assessment, the survey area / action area was defined as a 0.5 mi. radius of the clearing limits of the northern section of R-2576, containing the bridge and access roads in the Coinjock and Corolla areas, and a 660 ft. radius of the project segments near Albacore St. south of Corolla and in Kitty Hawk (Figure 1). See Section 5 Methodology for more information.

The proposed R-2576 project is located in the northeastern Coastal Plain of NC, with portions of the project centered around Currituck Sound. Elevations range from 0 to 34 ft. above mean sea level. Most acreage with upland soils has been developed.

The project is in the Pasquotank River Basin. Major hydrological features include Great Swamp, the Intracoastal Waterway, Maple Swamp, Currituck Sound, Sanders Bay, Jean Guite Creek, unnamed tributaries and the Atlantic Ocean.

Note: Since surveys for this report were conducted via helicopter, only overstory species could be readily identified. Vegetative communities expected to occur within the survey area are described below.

3.1. COINJOCK AREA

West of Currituck Sound, the predominant upland soils are Conetoe loamy sand and State fine sandy loam. The majority of the soils in this area are in poorly drained wetlands and include Ponzer muck, Tomotley fine sandy loam, Wasda muck and Dorovan mucky peat (US Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS) 2023).

Historically, uplands along US 158 (Currituck Sand Ridge) contained longleaf pine (*Pinus palustris*), but these forests were logged in the late 1800's (Pinchot and Ashe 1897) and have not been restored. Other upland habitats likely included mesic mixed hardwood or oak-

hickory forest vegetative communities. The most widespread forested wetland communities were likely Nonriverine Wet Hardwood Forest, Estuarine Fringe Pine Forest, Nonriverine Swamp Forest, Cypress-Gum Swamp (Blackwater Subtype), Tidal Swamp (Cypress-Gum Subtype) and Tidal Marsh (Mixed Subtype) (Schafale, in prep.).

The portion of the project area west of US Hwy. 158 is predominantly undisturbed mature swamp habitat. This area is comprised of large, privately owned tracts, with the exception of approximately 119 acres owned by the State of NC. Adjacent to the eastern side of US Hwy. 158 and Waterlily Rd. (SR 1405) for the length of the survey area, a strip of habitat within 800-2,000 ft. of the roads had been disturbed and was being utilized as agricultural fields, residences, businesses, a cellular tower, a large utility line right-of-way (ROW) and waterfowl impoundments. East of US 158, approximately 475 acres within and adjacent to Maple Swamp were logged in 2008-2009 and did not contain trees old or large enough to be potential RCW or bald eagle habitat. Most upland habitat along the western shoreline of the Currituck Sound was developed, primarily containing residences, with some agricultural land. Aydlett Rd. and a power transmission line traversed the study area from US Hwy. 158 to the Currituck Sound.

Most forested uplands in the project area appeared to have resulted from ditching in the past. These areas may have been historically forested with the Nonriverine Wet Hardwood Forest vegetative community, but now support stands of dense, healthy loblolly pine (*Pinus taeda*) and sweetgum (*Liquidambar styraciflua*). There was typically a moderate to dense midstory of sweetgum, red maple (*Acer rubrum*), redbay (*Tamala palustris*) and other hardwood species. Shrubs appeared to be moderately dense, and groundcover included switchcane (*Arundinaria tecta*) and sedges.

Formerly pine-dominated forests along the Intracoastal Waterway and other tidal waters have experienced significant mortality in the past few decades and since the 2016 / 2017 aerial survey (Smith and Walters 2018). The stand within the survey area where RCW cavity trees had been found contained many dead standing pines and few to no living mature pines in 2022 (Appendix A). This stand was likely previously vegetated with the Estuarine Fringe Pine Forest or the Nonriverine Swamp Forest community, but in 2022 it was in the process of transitioning to Tidal Swamp (Cypress-Gum Subtype) or Tidal Freshwater Marsh (Shrub Subtype). The midstory appeared to contain hardwood species including swamp blackgum (*Nyssa biflora*), red maple, redbay and sweet bay (*Magnolia virginiana*). The understory was dominated by

waxmyrtle (*Morella cerifera*), with some other shrub species likely present such as hairy highbush blueberry (*Vaccinium fuscatum*), inkberry (*Ilex glabra*), fetterbush (*Lyonia lucida*) and silverling (*Baccharis halimifolia*). Sawgrass (*Cladium jamaicense*) was dense along the edges of some stands transitioning to marsh communities. Patches of the invasive common reed (*Phragmites communis*) were present.

Swamps west and east of US Hwy 158 (Great and Maple Swamps, respectively) were primarily forested with the Nonriverine Swamp Forest, Cypress-Gum Swamp (Blackwater Subtype) and Tidal Swamp (Cypress-Gum Subtype) vegetative communities. The overstory in these stands ranged from sparse to moderately dense, containing varying combinations of bald cypress (*Taxodium distichum*), pond cypress (*T. ascendens*), swamp black gum and loblolly pine. Atlantic white cedar (*Chamaecyparis thyoides*) was also present in some areas. Red maple, red bay and sweetgum were observed in the midstory. Shrubs were dense throughout and were primarily evergreen species such as redbay, waxmyrtle and fetterbush. Common reed and sawgrass were dominant in patches.

Estuarine Fringe Pine Forest (Loblolly Pine Subtype) may have also been present within the project area. This community naturally occurs on the shoreline of estuaries or behind tidal marshes and is characterized by an overstory of loblolly pine that can range from very sparse to dense, with swamp black gum, red maple or sweetgum.

Much of the swamp habitats described above did not contain a significant pine component and would not be expected to be relied upon by RCWs as foraging or nesting habitat. However, they do contain sufficient hardwoods, cypress and/or dead pines to serve as travel or dispersal corridors. Large pines remaining in these habitats also provide potential bald eagle nest sites.

Marsh communities in the project area most closely matched Tidal Freshwater Marsh (Shrub Subtype). Like Tidal Swamps, marsh communities would not be expected to be used for foraging by RCWs. However, they do contain sufficient scattered live and dead trees to serve as travel or dispersal corridors. Many eagle nests documented by Dr. J.H. Carter III & Associates, Inc. (JCA) during past surveys in northeastern NC (NENC) were found in large, isolated loblolly pines in Tidal Freshwater Marsh (Shrub Subtype).

3.2. COROLLA AREA

East of the sound in Corolla, well-drained soils are mapped as Dune land-Newhan complex, Newhan-Corolla complex and Dune land. Most wetland soils are the Beaches-Newhan association and Osier fine sand.

Much of the survey area had been disturbed for residential or businesses developments. However, substantial patches of undeveloped habitat remained on this barrier island that were likely Maritime Evergreen Forest or Maritime Shrub vegetative communities. These stands had an overstory of loblolly pine, live oak (*Quercus virginiana*), laurel oak (*Q. hemisphaerica*) and southern red cedar (*Juniperus silicola*). Shrubs present were likely yaupon (*Ilex vomitoria*) and waxmyrtle.

Habitat on the western shoreline to be removed for the eastern terminus of the proposed bridge was densely forested with mature loblolly pine and deciduous oaks (*Quercus* spp.). This habitat most closely matched the Maritime Deciduous Forest community (Schafale, in prep.).

3.3. KITTY HAWK AREA

The portion of the R-2576 project area in Dare County is mostly well-drained soils, including Fripp and Ousley fine sand. Conaby muck was the predominant wetland soil in this section (USDA NRCS 2023). The project area includes portions of 2 large shopping centers and several businesses.

This section of the project area was characterized by linear ridges oriented north / south. Upland ridges generally contained narrow residential roads, houses and / or golf fairways, which were surrounded by dense and mature loblolly pines and deciduous hardwoods resembling the Maritime Deciduous Forest community. Several of the wetlands occurring between ridges had been dredged and were permanent ponds and waterways. Unaltered wetlands appeared to be the Wetland Maritime Swamp Forest (Typic Subtype) community.

4. PROJECT SITE

Coinjock area: Of the 3 R-2576 project segments surveyed, the Coinjock area had the most potential to impact RCW foraging or nesting habitat. Pines within hardwood-pine and pine-hardwood stands suitable for foraging and/or nesting will be cleared in this section.

Corolla area: Much of the area to be cleared for the bridge and connecting roads is currently forested with mature loblolly pines and hardwoods. The midstory in this area was generally dense and vines were prevalent.

Habitat to be disturbed for the portion of the project along Albacore St. was planted with mowed lawn grasses, a small cedar (*Juniperus* sp.), and small ornamental trees and shrubs.

Kitty Hawk area: Acreage to be impacted for the proposed road widening in this section was vegetated with herbaceous species and was regularly mowed. No trees will be removed in this section.

5. METHODOLOGY

5.1. DETERMINATION OF SURVEY AREAS

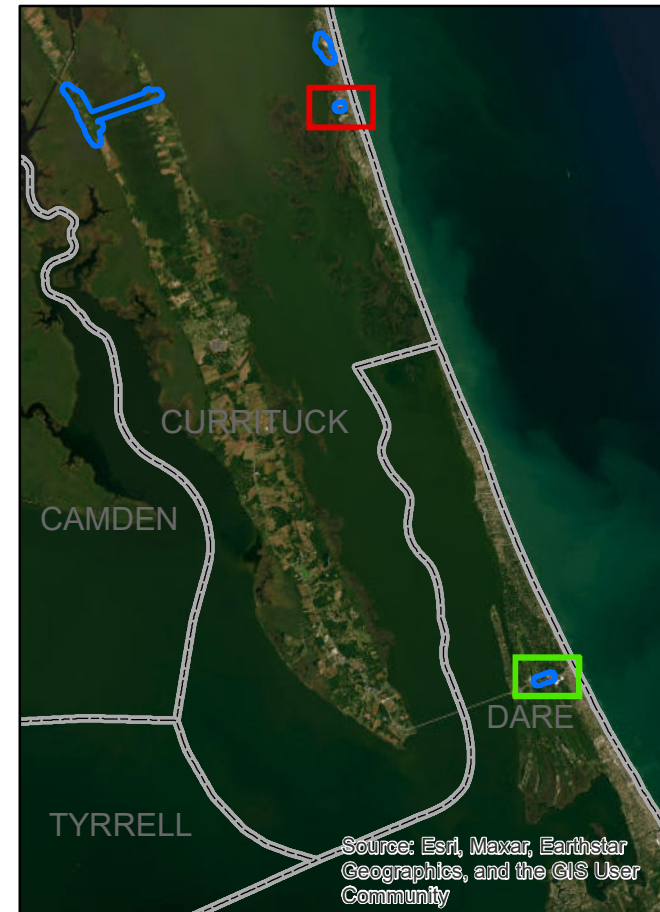
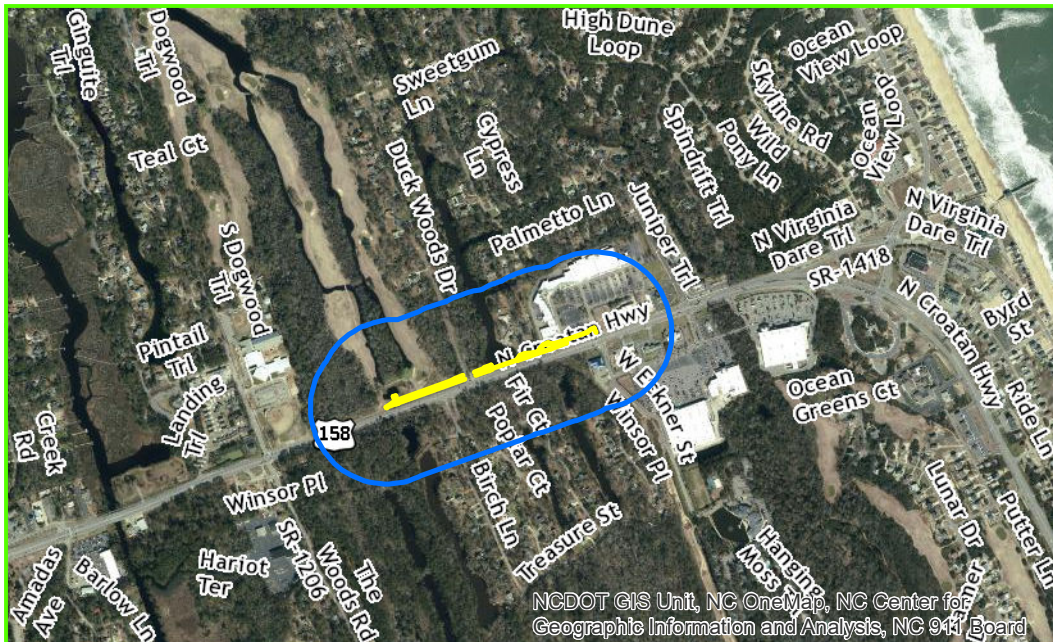
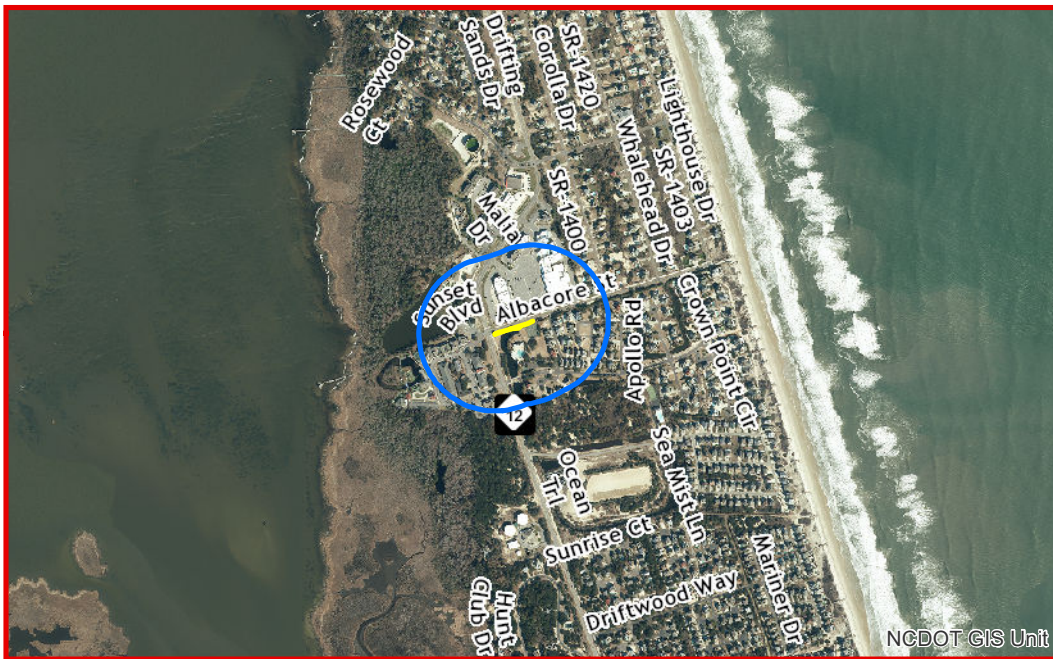
Per USFWS guidance (2003, 2006), RCWs can be affected by construction activities by loss of foraging or nesting habitat, as well as harassment impacts from disturbance occurring within 200 ft. of roost or nest trees. The northern section of R-2576, containing all parts of the proposed bridge and access roads, will require clearing of potential RCW habitat; therefore a 0.5 mi. radius was used as the RCW survey area for this section. The segments of the project near SR 1402 south of Corolla and in Kitty Hawk (Figures 1 and 3) will only affect small ornamental trees, which were >200 ft. from any potential RCW habitat; therefore, these areas were not further considered for potential impacts to the RCW.

The USFWS (2007a) recommends avoiding road construction within 660 ft. of bald eagle nests. Potential bald eagle nesting habitat was present within 660 ft. of all sections of the R-2576 project; therefore, a 660 ft. radius bald eagle survey area was used in all sections (Figures 1-3).

5.2. RCW AND BALD EAGLE SURVEYS

Prior to conducting surveys, aerial imagery from 1998-2020 was reviewed in order to ensure that all potential RCW or bald eagle nesting habitat would be covered. Two JCA biologists surveyed all potential RCW or bald eagle nesting habitat via a Robinson-44 helicopter piloted by Total Flight Solutions, LLC personnel from 2-4 November 2022.

The survey area was surveyed generally using north-south transects, with potential RCW nesting habitat cross-hatched with east-west transects. Transect widths varied with visibility and



R-2576 clearing limits (approximate)
 Bald eagle survey areas

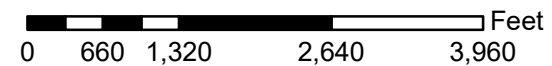


Figure 3. Areas surveyed for bald eagle (*Haliaeetus leucocephalus*) nests occurring within 660 feet of the clearing limits for the Mid-Currituck Bridge project (TIP R-2576) project proposed by the North Carolina Department of Transportation Turnpike Authority, Currituck and Dare Counties.

habitat quality, but typically averaged around 300 ft. in suitable and potentially suitable habitat. All potential RCW or bald eagle nesting habitat was surveyed.

Cavity stage, shape, and activity status were recorded for each RCW cavity tree observed, as well as additional notes such as the tree species and health condition. Global Positioning System (GPS) coordinates and activity status were recorded for newly discovered RCW cavity trees, and the accuracy of previously recorded known trees was verified. JCA made a reasonable effort to obtain photographs of each RCW cavity tree found.

Potential bald eagle nests were also documented as described above.

6. RESULTS AND DISCUSSION

6.1. RCW

6.1.1. Biology

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. It is most easily identified by the large white cheek patches that distinguish it from similar species (USFWS 2003).

6.1.2. Distribution and Habitat Requirements

The RCW is endemic to mature, fire-maintained pine forests in the southeastern United States, where it was historically common. This species excavates its roost and nest cavities in living pines and therefore requires mature trees with sufficient heartwood for a cavity chamber. Prime nesting habitat for RCWs includes open, mature southern pine forests dominated by longleaf, loblolly, pond, slash (*Pinus elliotti*) or other southern pine species greater than 60 years of age with little or no mid- or understory development. Throughout the majority of its range, pine flatwoods and pine-dominated savannas which have been maintained by frequent fires serve as ideal nesting and foraging habitat for the RCW. Potential foraging habitat in most of its range is defined as open pine or pine/hardwood stands 30 years of age or older (USFWS 2003).

In NENC, RCWs occur in a wide variety of upland and wetland habitats and can utilize habitats dominated by hardwoods and/or with dense midstories. RCW use of swamp habitat is atypical for the species since pines rarely compose more than 20-30% of the canopy. However, many active RCW clusters have been found in Currituck, Tyrrell, and other counties in these

communities. An additional difference with NENC RCW populations is that RCWs have been observed numerous times working resin wells on, and roosting in, dead cavity trees (JCA, unpublished data).

6.1.3. Threats to the Species

Logging, fire exclusion and conversion of forestlands for agriculture, short-rotation forestry, development and other uses have destroyed most of this species' habitat range-wide (USFWS 2003). Sea-level rise, saltwater intrusion, and bark beetles are also substantial threats in NENC, as pine-dominated stands are permanently transitioning to hardwood-dominated communities.

6.1.4. Status Within the Action Area

JCA was contracted by Virginia Polytechnic University to conduct aerial RCW cavity tree surveys throughout much of NENC in 2016-2017 for a study unrelated to NCDOT and the proposed action (Smith and Walters 2018). This survey area overlapped slightly with the proposed R-2576 study area and 2 inactive RCW cavity trees (1 live, 1 dead) were discovered within 0.5 mi. of the project clearing limits. An active RCW cavity tree was also found approximately 0.7 mi. west of the R-2576 clearing limits. Additionally, foraging RCWs were observed on at least 6 occasions from 2015-2018 by 5 different observers from the NC Wildlife Resources Commission's Coinjock boat ramp on Waterlily Rd., <1.5 mi. north of the proposed limits of disturbance (NCNHP 2018; eBird 2022). JCA biologists surveyed stands surrounding this area in 2016 and 2017, but no cavity trees were found. One foraging RCW was also reported approximately 0.83 mi. southeast of the R-2576 clearing limits in 2015 (eBird 2022).

Roughly 15-20 active RCW clusters occur west and south of the Coinjock project area on both sides of the North River. These clusters are on the North River Game Land (NRGL) and on private property.

6.1.5. Survey Results

Coinjock area: Potential RCW nesting and foraging habitat occurred throughout the survey area from west of US Hwy. 158 to Currituck Sound.

The live RCW cavity tree found in 2017 (NRGL35) within the R-2576 survey area was still standing in 2022, but had died and the cavity was enlarged and inactive (Figure 2, Appendix A). The dead cavity tree found in 2017 (NRGL145) was mapped in an area that contained several dead standing and down pines in 2022; all had no remaining bark and the cavities seen were greatly enlarged and no longer suitable for RCWs.

A live tree with a relic RCW cavity (NT1) was found west of US 158 within the 0.5 mi. radius survey area. A dead tree with an active RCW cavity (NT2) was found approximately 845 ft. west of the survey area and 265 ft. east of an active cavity tree found in 2017 (not revisited in 2022) (Figure 2, Appendix A). A live tree with a potential relic cavity start (NT3) was found within the survey area west of US 158 and a live tree with an inactive cavity of possible RCW origin was found within the survey area east of US 158 (Figure 2, Appendix A).

Corolla area: Habitat east of the sound in Corolla to be impacted for the proposed bridge and access roads contained mature loblolly pines which could be considered to be potential RCW foraging or nesting habitat, although the hardwood midstory and vines were very dense. To date, RCWs have not historically been documented on barrier islands in NC, however, and their discovery in this area would be unexpected.

The clearing limits along the section along Albacore St. will neither impact nor come within 200 ft. of potential RCW habitat.

Kitty Hawk area: This portion of the proposed R-2576 project will neither impact nor come within 200 ft. of potential RCW habitat.

6.1.6. Cluster-level Analyses

No RCW cavity trees were found within 0.5 mi. of the proposed clearing limits; therefore, the proposed project will not impact RCW cavity trees or foraging habitat.

6.1.7. Neighborhood-level Analysis

Foraging habitat loss and fragmentation can have direct effects on cluster activity, group size and reproduction at the cluster-level. Additionally, by affecting habitat configuration at the landscape level, projects may affect the health and distribution of RCWs at the neighborhood scale. Habitat fragmentation may adversely affect dispersal of individuals to adjacent or nearby groups and lessen the likelihood that breeding vacancies are filled (USFWS 2003).

Demographic viability of groups, neighborhoods and populations are primarily dependent on the ability of group members to freely disperse. If dispersal opportunities are limited or inhibited by a project, even if adequate foraging habitat remains post-project, group status, group size and reproduction may be affected. It is important that these neighborhood effects be assessed during the analysis of project impacts (USFWS 2003).

As described in Section 3, RCWs were observed on several occasions in 2015 northeast of the study area. These were the only records of this species east of US 158, but cavity trees were never located. If an active cluster is present in this area, it is separated from clusters on the NRGL by agricultural fields and other development along US Hwy. 158; these canopy gaps will not be increased as a result of the proposed action. The remainder of the known active RCW clusters in the region are west of the highway; therefore, the proposed action is not expected to impede dispersal of RCWs or otherwise affect RCWs at the neighborhood level.

6.2. BALD EAGLE

6.2.1. Biology

The bald eagle is a large, North American fish-eagle in the hawk family (Accipitridae). It can range from 27-35 inches in length and averages 10 to 12 pounds, with a wingspan that can reach nearly 7 ft. Both males and females have dark brown plumage with a pure white head and tail and a large yellow bill. Juveniles are dark brown with white mottles until adult plumage is obtained at age 5 or 6 (Buehler 2000).

The bald eagle is found throughout the lower 48 states, Alaska and Canada. It typically inhabits mature conifer forests close to clean bodies of water populated with fish, most often rivers, estuaries, coastlines or large lakes. It feeds primarily on fish when available, but may also eat other birds and mammals, including carrion. Bald eagles usually nest in the tops of tall conifers located near water. The breeding season varies throughout their range, but generally begins in winter in the Southeast (Buehler 2000).

The bald eagle was removed from the federal list of threatened and endangered wildlife on 8 August 2007 (USFWS 2007b). After de-listing, the Bald and Golden Eagle Protection Act (BGPA) became the primary law protecting bald eagles. The BGPA prohibits the “take” of bald and golden eagles and provides a definition of “take” that includes disturbance.

Under the National Bald Eagle Management Guidelines (USFWS 2007a), road construction within 660 ft. of a nest during the breeding season should be avoided.

6.2.2. Status within the Action Area

No bald eagle nests have been documented within the study area according to NCNHP data (2018). No nests were found during surveys conducted for R-2576 in 2012, but 2 sub-adult bald eagles were observed (NCDOT 2019).

6.2.3. Survey Results and Impacts

No bald eagle nests were found during 2022 aerial surveys within the 660 ft. radius bald eagle survey area (Figure 3). One large stick nest was found in a dead pine within the 0.5 mi. radius RCW survey area, but the nest was old, did not appear to have been used in many years, and the tree had few branches remaining. No bald eagles were observed during the aerial survey, although potential nesting habitat was present in all 3 separate survey areas.

No bald eagle nests will be impacted by the proposed R-2576 Mid-Currituck Bridge project.

7. CONCLUSIONS

No RCW cavity trees will be removed or impacted by the proposed project and no active RCW cavity trees were found within 0.5 mile of the proposed clearing limits.

Biological Conclusion

No effect

No bald eagles or nests were detected within the 660 ft. radius eagle survey corridor during ground or aerial surveys.

Biological Conclusion

No effect

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APPENDIX A.

PHOTOGRAPHS



Red-cockaded woodpecker (*Dryobates borealis*) cavity tree #NT1, a relic cavity in a live pine.



Tree #NT2, an active red-cockaded woodpecker (*Dryobates borealis*) cavity in a pine that had recently died.



Habitat surrounding tree #NT2.



Tree #NT3, a possible red-cockaded woodpecker (*Dryobates borealis*) relic start.



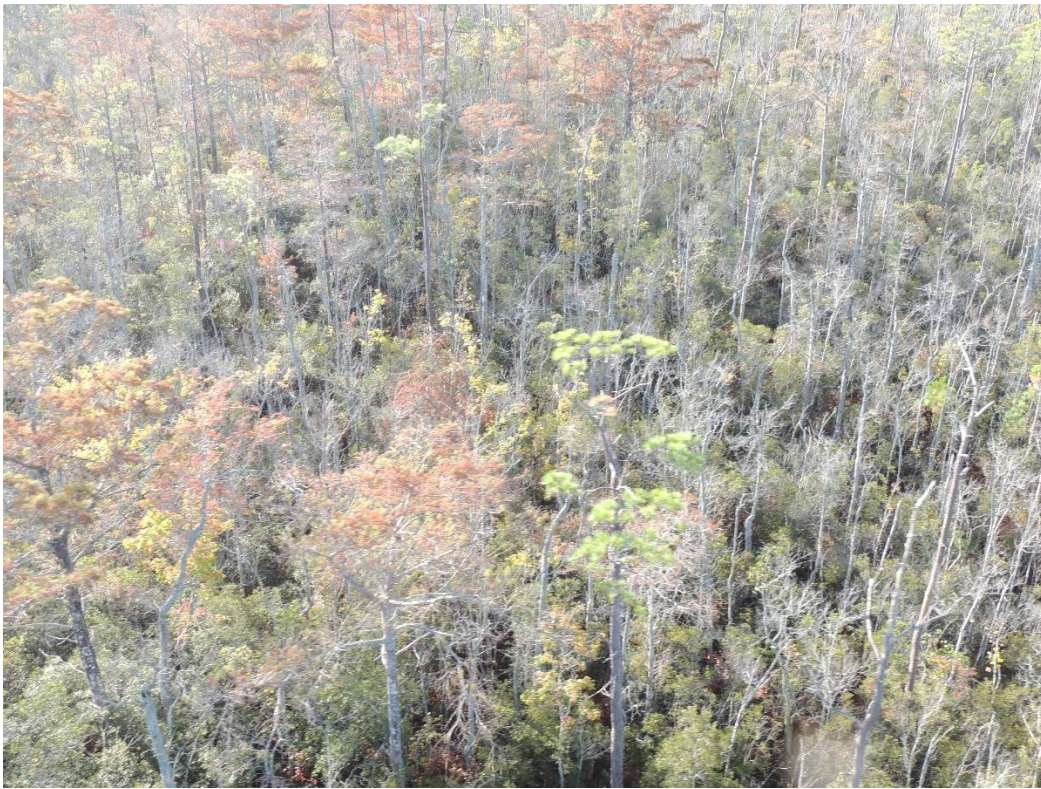
Tree #NT4, a possible red-cockaded woodpecker (*Dryobates borealis*) inactive cavity.



Suitable RCW nesting habitat on the southwestern edge of the R-2576 project survey area.



Loblolly pine-dominated habitat west of U.S. Highway 158.



Loblolly pine (*Pinus taeda*) - cypress (*Taxodium* sp.) habitat west of U.S. Highway 158.



Cypress-Gum Swamp west of U.S. Highway 158.



Loblolly pine-hardwood stands between U.S. Highway 158 and Maple Swamp.



Residential areas within the R-2576 RCW survey area in northeastern Corolla.



Survey area north of U.S. Highway 158 in Kitty Hawk, North Carolina.