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An assessment of the Bald Eagle and Great Blue Heron breeding populations along High Rock Reservoir, Tuckertown Reservoir, Badin Lake, and Falls Lake in North Carolina: 2001 breeding season

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An Assesssmentt of the Bald Eagle and Great Blue Heron Breeding Populations Along High Rock, Tuckertown, Narrows, and Falls Reservoirs in Central North Carolina: 2001 Breeding Season

A Cooperative Project By:

ALCOA POWER GENERATING INC.
&
CENTER FOR CONSERVATION BIOLOGY
COLLEGE OF WILLIAM AND MARY

AN ASSESSMENT OF THE BALD EAGLE AND GREAT BLUE HERON BREEDING POPULATIONS ALONG HIGH ROCK, TUCKERTOWN, NARROWS, AND FALLS RESERVOIRS IN CENTRAL NORTH CAROLINA: 2001 BREEDING SEASON

Final Project Report

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BACKGROUND

Historically, the Bald Eagle was a common breeding species along major river systems, lakes and coastal areas throughout much of North America. The widespread use of persistent pesticides for crop management in the region resulted in dramatic declines over a 30-40 year period. By the late 1960's, most breeding populations had been decimated by eggshell thinning and associated low productivity. Concern for these populations prompted the elevation of the Bald Eagle to endangered status and led to a national effort to restore historic populations. Since the nationwide ban on many persistent pesticides in 1972, many populations have experienced gradual recoveries in both productivity and total numbers. The state of North Carolina has seen an increase from no breeding pairs in the late 1960's to approximately 34 pairs as of 2000. With recent increases in Bald Eagle populations, contemporary surveys are necessary to track breeding and successful reproduction.

Work conducted by The Center for Conservation Biology in 1995 and 1996 at Alcoa Power Generating Inc.'s (APGI) Yadkin Project (FERC #2197) identified areas of consistent use by eagles in inland areas of North Carolina and suggested that nesting activity should be anticipated in the Yadkin-Pee Dee River basin. The objectives of the eagle survey on Yadkin Project reservoirs were 1) to document the status, distribution and productivity of nesting pairs in association with the Yadkin reservoirs and associated river corridors and 2) to increase our understanding of Bald Eagle natural history in interior regions of North Carolina. A third objective was to determine the status and distribution of breeding Great Blue Herons along the system of reservoirs.

METHODS

Waterways

Waterways covered by the Bald Eagle survey of 2001 included the four Yadkin Project reservoirs: 1) High Rock Reservoir, 2) Tuckertown Reservoir, 3) Narrows Reservoir, and 4) Falls Reservoir. The survey of High Rock Reservoir included the waterways between, and the mouth of, Grants Creek above I85 and the High Rock Reservoir Dam. The survey of Tuckertown Reservoir included waterways between the High Rock Reservoir Dam and the Tuckertown Dam. The survey of Narrows Reservoir included the waterways between Tuckertown dam and Badin Dam. The survey of Falls Reservoir included the waterway between Badin Dam and Falls Dam.

Bald Eagle

Nest Survey - All major waterways and tributaries associated with the study system were surveyed for breeding Bald Eagles. A high-wing Cessna 172 aircraft was used to systematically overfly the land surface at an altitude of approximately 100 m to detect eagle nests. Flights were flown to systematically move between the shoreline and a distance of approximately 1 km to cover the most probable breeding locations for Bald Eagles. All nests detected were plotted on 7.5 min topographic maps and given a unique alpha-numeric code. Each nest was examined to determine its structural condition, the

type and condition of nest tree, and the condition of the surrounding landscape. In addition to recording all nests detected, the area was searched for Bald Eagles. All eagles detected within the survey area were recorded. The survey was conducted on 27 March, 2001.

Productivity Survey - All active Bald Eagle nests were rechecked to determine productivity. A Cessna 172 aircraft was used to fly low over nests to allow observers to examine nest contents. The number of eaglets present was recorded along with their approximate ages. Each nest was also examined to determine its structural condition. Observations of all Bald Eagles detected were recorded. The survey was conducted on 2 May, 2001.

Great Blue Herons

All breeding colonies of Great Blue Herons detected during survey flights were mapped and recorded. Colony locations were plotted on 7.5 min topographic quadrangles. Colonies were examined for size, substrate use, and breeding stage. Colony size estimates were rounded off using a graded scale as follows. A total count was made for colonies < 20 pairs. Estimates for colonies > 20 pairs were rounded off using a graded scale: nearest 5 for < 50, nearest 10 for 50 – 200, nearest 25 for 200 – 450.

SURVEY FINDINGS

High Rock Reservoir

Bald Eagles

A single Bald Eagle nest was located along the north shoreline of High Rock Reservoir on a bluff between the mouths of North Potts Creek and Swearing Creek. This nest was determined to be active and productive (see details below). Large blocks of land along the shoreline of this reservoir currently support residential development. Development is heaviest in the areas surrounding Southmont and Trading Ford. Several shoreline sections are not likely to attract additional eagle pairs. However, several stretches of shoreline remain relatively undisturbed and contain trees capable of supporting nest structures. It seems likely that 1-2 additional breeding territories could be established in the foreseeable future. Habitat blocks near the dam would seem to have the highest potential to support additional pairs.

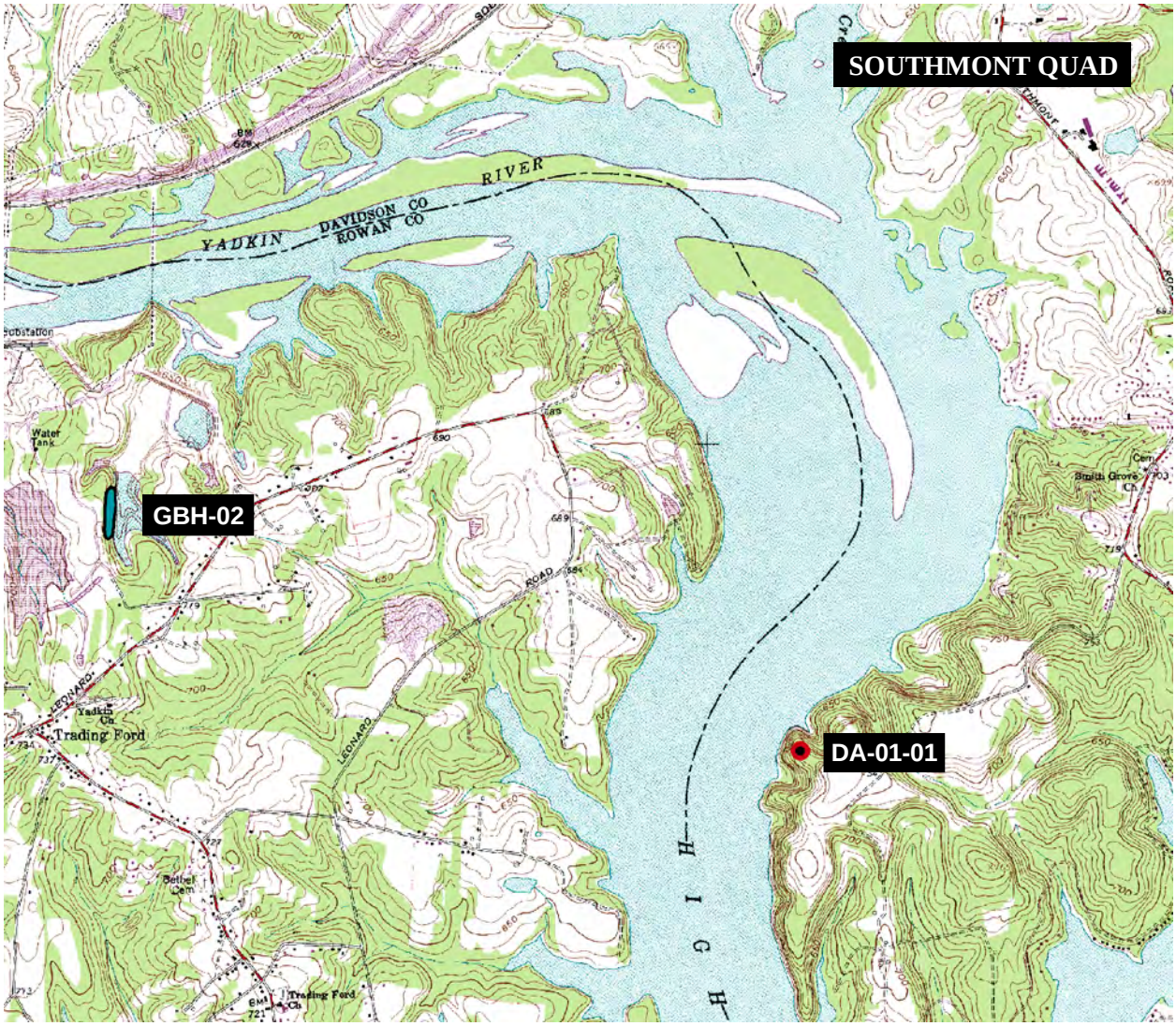
NEST: DA-01-01

NEST CODE	COUNTY	TOPO QUAD	ACTIVE TERR.	ACTIVE NEST	CHICKS PRODUCED
DA-01-01	Davidson	Southmont	Y	Y	1

Nest Location

This nest is located along the north shoreline almost due east of Trading Ford (Figure 1). The nest tree is positioned on a bluff above the reservoir in a live white oak tree. The nest tree is recessed within the tree cluster such that it is difficult to observe the nest except from directly above. Nest is likely visible from the water within adjacent cove.

Figure 1. Topo locations for eagle nest DA-01-01 and heron colony GBH-02.



Nesting Activity

Bird Activity – On 27 March, 2001 an adult was observed on the nest in a posture indicating incubation. On this same day, a second adult was perched in a dead snag within 20 m of the nest tree. On 2 May, 2001 a single chick was observed in the nest and a single adult was perched on a limb above the nest. The eaglet was estimated to be approximately 3 weeks old.

Nest Condition – Nest structure is of moderate size. On 27 March, 2001 nest was observed to have a deep cup that was well lined.

Figure 2. Aerial photo showing context of Nest DA-01-01 within surrounding habitat.

Nest Substrate

Substrate Type – Nest was built in a live white oak tree.

Nest Position – Nest is positioned in a deep stable crotch. Nest tree is on a knoll and in a supercanopy position above surrounding trees (Figure 2). Nest has large deciduos crown above such that sky exposure is <20%.

Substrate Condition – Nest tree appears to be in good health with no significant crown damage.

Potential Disturbance

Nest is easily visible before leaf out. However, after leaves emerge, nest has a good visual buffer on all sides. Nest tree is set back from shoreline such that disturbance from water should not be significant. Nest tree is in a fairly remote location with a considerable buffer on upland side. Disturbance potential appears to be limited.

Great Blue Herons

Three breeding colonies of Great Blue Herons were detected on High Rock Reservoir. This included one colony on an island near the Route 8 bridge across Abbott Creek, one colony on an island in the mouth of Second Creek, and one colony on a pond north of the town of Trading Ford. All of these colonies were active. Total population estimate for this reservoir was 435 pairs.

GBH-01

Code	County	Topo Quad	# Pairs
GBH-01	Davidson	Southmont	11

Description

This colony was located on a small island near the Route 8 bridge in the mouth of Abbotts Creek (Figures 3 & 4). The island had a mixed stand of loblolly pines and hardwoods. Nests were built in a small cluster of pines only. Eight pairs were incubating and an additional 3 pairs were still building nests. The fact that birds were still building suggests that the colony may attract additional pairs.

Figure 3. Topo locations for Great Blue Heron colonies -01 and -03.

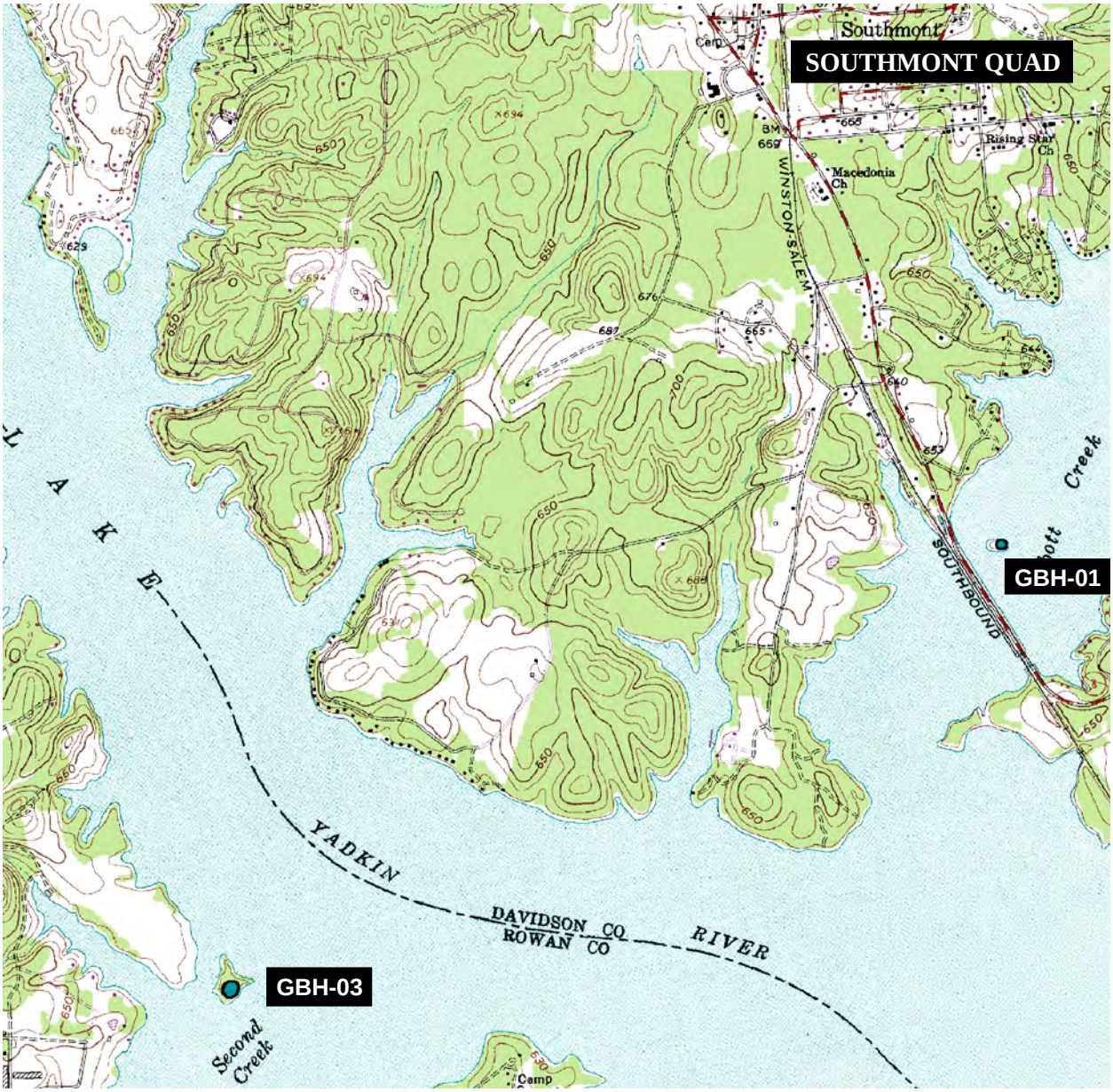


Figure 4. Aerial view of island harboring heron colony GBH-01

GBH-02

Code	County	Topo Quad	Pairs
GBH-02	Rowan	Southmont	425

Description

This colony was located along the western edge of a small pond just north of the town of Trading Ford (Figure 1). The pond was lined with a mixed stand of hardwoods and pines. A larger stand of pure loblollies was positioned further from the pond edge. Nests were built along the pond margin in both hardwoods and pines and throughout the pure pine stand (Figure 5). Approximately 85% of pairs were incubating. The large number of pairs still building suggests that this colony may continue to attract additional pairs.

Figure 5. Heron colony GBH-02 on wooded pond north of Trading Ford.

GBH-03

Code	County	Topo Quad	Pairs
GBH-03	Rowan	Southmont	5

Description

This colony was located on a small forested island in the mouth of Second Creek (Figure 3). The island was forested with a middle-aged loblolly pine stand. All nests were built in pine trees. All pairs were incubating. This colony was not photographed.

Tuckertown Reservoir

Bald Eagles

No Bald Eagles or nests were detected within the Tuckertown Reservoir system. Lands surrounding this reservoir support considerable residential development particularly along the lower reach near the Tuckertown Dam. However, the north shoreline along the upper reach in the area of Ball Mountain supports relatively undisturbed habitat that is suitable for nesting eagles.

Great Blue Herons

A single colony of breeding Great Blue Herons was detected on Tuckertown Reservoir on an island just below the High Rock Dam. Total population estimate for this reservoir is 7 pairs.

GBH-04

Code	County	Topo Quad	Pairs
GBH-04	Rowan	High Rock	7

Description

This colony was located on a small forested island just below the High Rock Dam. This is a long linear island that contains a mixed stand of hardwoods and pines. Nests were built in both hardwoods and pines. All pairs were incubating on 27 March, 2001.

Figure 6. Location of Great Blue Heron colony GBH-04.

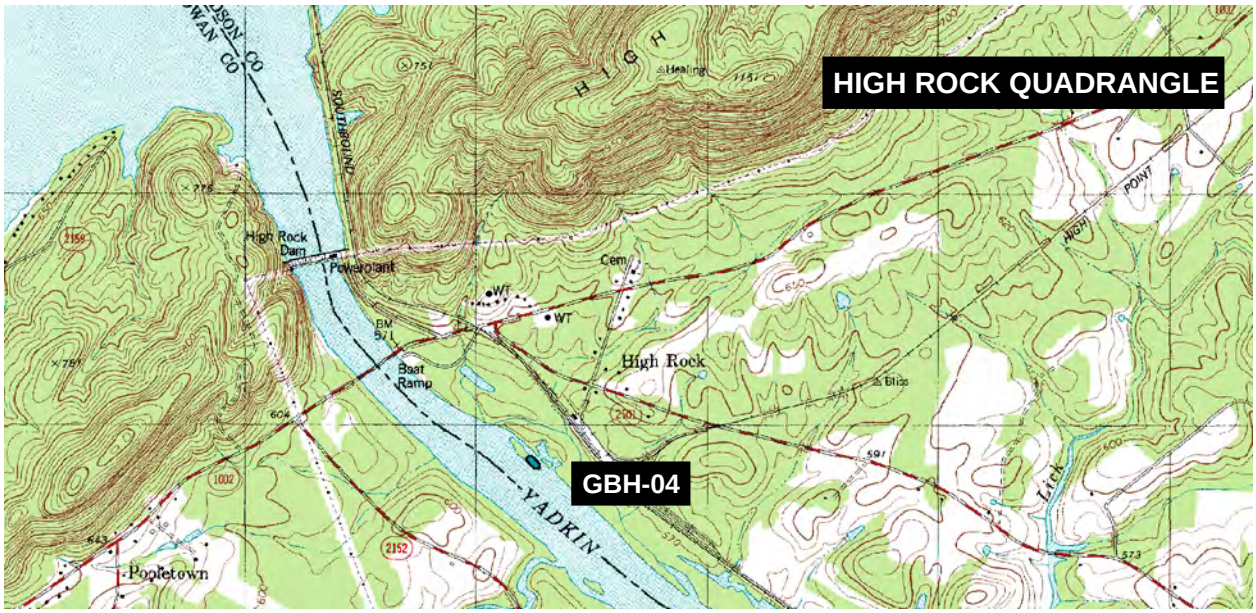


Figure 7. Location of heron colony GBH-04 on forested island (foreground) below High Rock Dam.

Narrows Reservoir

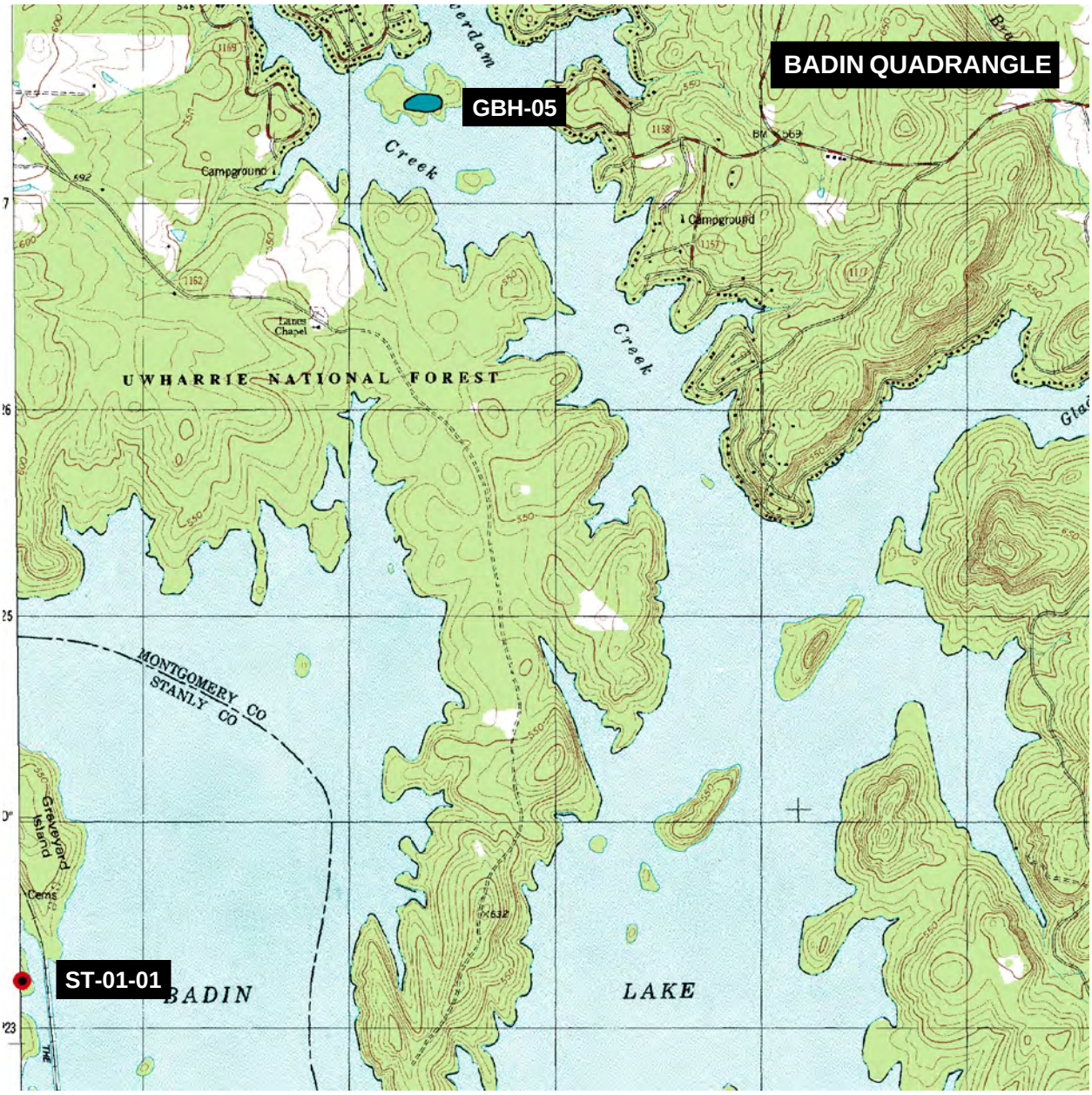
Bald Eagles

A single Bald Eagle nest was located along the shoreline of Narrows Reservoir. The nest was located along the edge of a canal behind Graveyard Island and was determined to be active and productive (see details below). Narrows Reservoir supports considerable residential development in the lower reaches near Badin Dam. Along much of this shoreline, development is high enough to exclude use by breeding eagles. Habitat surrounding Badin Dam could support breeding eagles. However, this habitat appears to fall within the new eagle territory located on Falls Reservoir. Considerable blocks of potential breeding habitat occur on the upper reach of Narrows Reservoir. It is possible that this habitat could support an additional eagle territory in the future.

NEST: ST-01-01

NEST CODE	COUNTY	TOPO QUAD	ACTIVE TERR.	ACTIVE NEST	CHICKS PRODUCED
ST-01-01	Stanly	Badin	Y	Y	2

Figure 8. Topo location of Nest ST-01-01 and heron colony GBH-05.



Nest Location

The bald eagle nest within Narrows Reservoir was located along the edge of a canal just behind Graveyard Island. The nest was positioned within the first row of trees along the shoreline. Surrounding trees were of similar age and height. However, the position of the nest tree on the edge allowed direct access to the nest from the water side. This nest would be visible from the water on the canal or on the main stem of Narrows Reservoir. The nest would also be visible from the railroad tracks on the opposite side of the canal.

Nesting Activity

Bird Activity – On 27 March, 2001 a single adult eagle was standing on the nest with 2 small chicks. The chicks were estimated to be less than 2 weeks old. On 2 May, 2001 no birds were present in the immediate area around the nest. Two young of the year and one adult were perched on the shoreline of Graveyard Island facing out into Narrows Reservoir.

Nest Condition – Nest structure is of moderate size and appears to be in good condition. On 27 March, nest appeared to have well-formed cup and good lining. The depth of the tree crotch appears to constrain nest depth. On both 27 March and 2 May the nest had considerable whitewash around the outer cup.

Nest Substrate

Substrate Type – The nest was built in a live loblolly pine.

Nest Position – Nest is positioned in a shallow top crotch very near the top of the crown. Supporting limbs were widely splayed such that sky exposure was approximately 80%.

Substrate Condition – Nest tree appeared to be in relatively good condition. Whitewash may be having an impact on tree condition.

Potential Disturbance

Nest tree was not protected by a visual buffer and was easily visible from water and railroad tracks. It is not clear if nest is directly visible from residential area near Palmer Island. Nest was protected by extensive forest buffer on upland side and by railroad tracks and canal on the lake side. Access to nest tree would be fairly difficult from both land and water. Disturbance appears to be limited.

Figure 9. Location of Nest ST-01-01facing west across railroad dike

Great Blue Herons

A single colony of breeding Great Blue Herons was detected within Narrows Reservoir on an island at the confluence of Beaverdam and Reynolds Creeks. Total population estimate for this reservoir is 150 pairs.

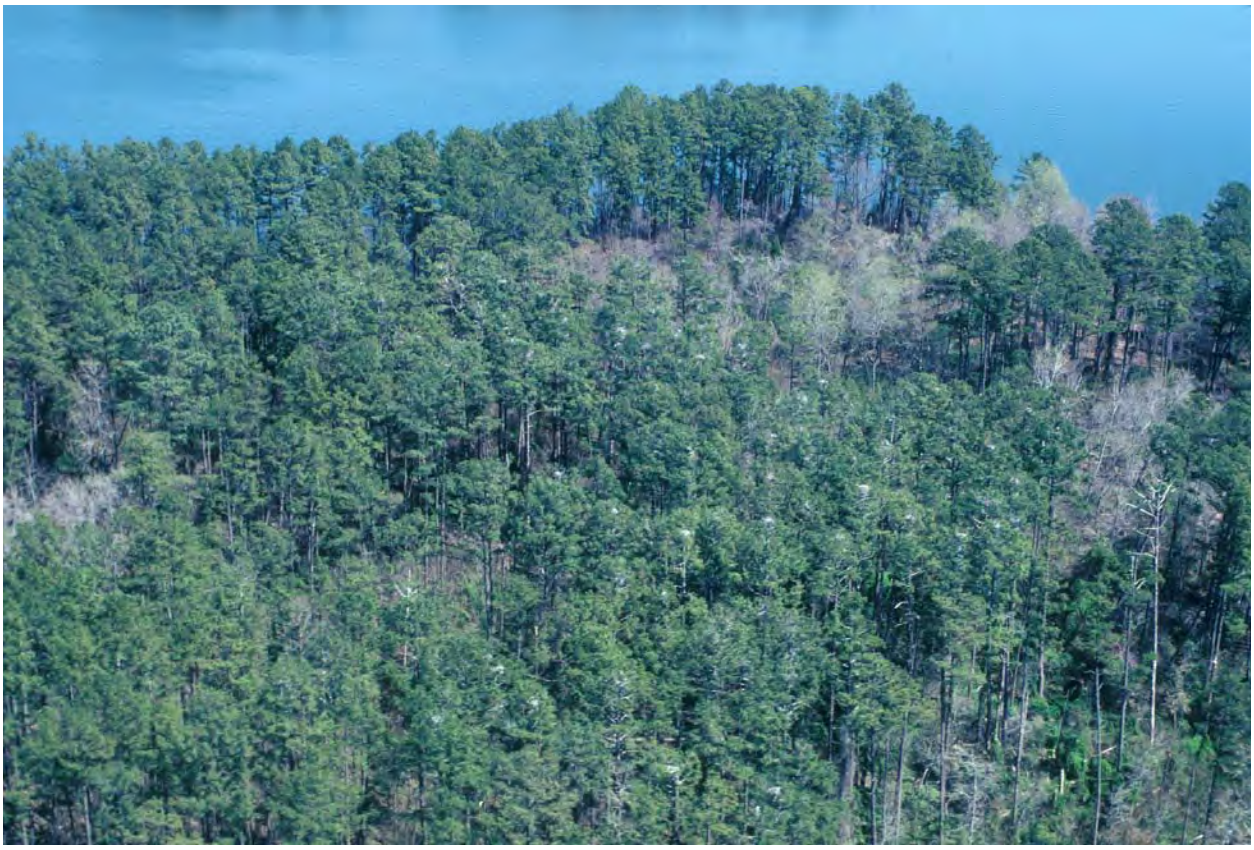
GBH-05

Code	County	Topo Quad	Pairs
GBH-05	Montgomery	Badin	150

Description

This colony was located on a small forested island near the Pine Haven residential development at the confluence of Beaverdam and Reynolds Creeks (Figure 8). The drainage is highly developed in this area with considerable boat traffic. The island supports a middle-age stand of loblolly pines that has numerous canopy gaps. Nests were built throughout the stand. Approximately 90% of the pairs were incubating on 27 March, 2001.

Figure 10. Aerial view of heron coloy GBH-05.



Falls Reservoir

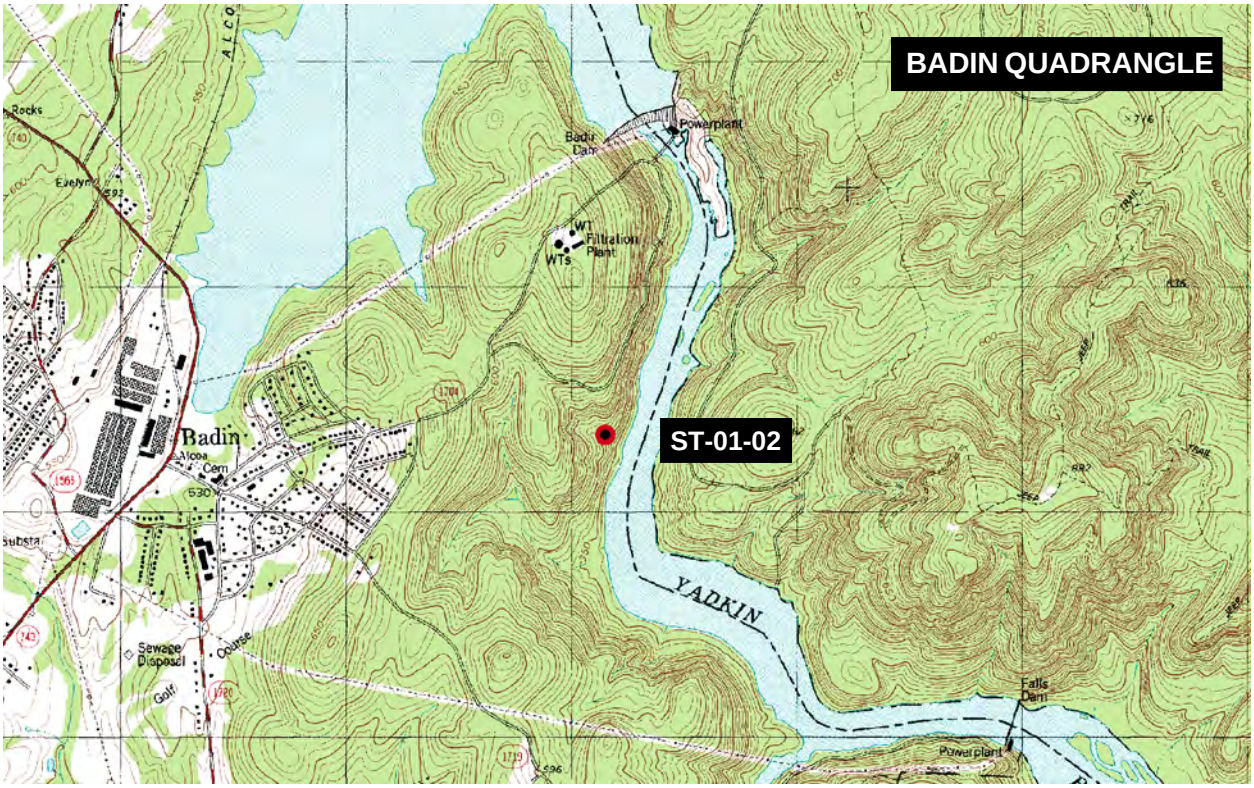
Bald Eagles

A single Bald Eagle nest was located along the shoreline of Falls Reservoir. This nest was located along the reservoir shoreline east of the town of Badin (Figure 11). The nest appeared to be in good condition and to have had recent work but no nesting attempts were documented. The short waterway comprising Falls Reservoir appears to be an ideal breeding location for Bald Eagles. The area is remote with extensive forest cover. Many trees are available that are large enough to support a nest structure. The two dams in close proximity would likely provide good foraging opportunities. Due to the small size of this waterway, it is unlikely that more than one eagle pair could be accommodated. Future work should monitor this territory for breeding activity.

NEST: ST-01-02

NEST CODE	COUNTY	TOPO QUAD	ACTIVE TERR.	ACTIVE NEST	CHICKS PRODUCED
ST-01-02	Stanly	Badin	Y	N	0

Figure 11. Location of nest ST-01-02 on Badin Quadrangle.



Nest Location

The Bald Eagle nest within Falls Reservoir was located on a steep embankment along the shoreline just east of the town of Badin. The nest tree was located in a small grove of 8-10 old supercanopy pines surrounded by younger growth (Figure 12). This nest has an extensive forest buffer on all sides and may not be visible from any access points. The nest is accessible from the loop road that comes from route 1704.

Figure 12. Overview of Nest ST-01-02 with Falls Dam in the background.

Nesting Activity

Bird Activity – This nest was located on 27 March, 2001. No birds were present on or near the nest at that time. The nest had recent work during the early portion of this year. This was evidenced by new material within the structure of the nest, a well-formed cup, a new lining for the cup, and whitewash around the outer cup. It is possible that an earlier breeding attempt had failed. Observations on 2 May, 2001 did not document any change in nest appearance or eagle activity.

Nest Condition – Nest structure is of fairly large size and was in good structural condition during both observations. Nest had well-formed cup and good lining.

Nest Substrate

Substrate Type – The nest was built in a dead loblolly pine. The tree was one of several old seed trees left over a regenerating stand. These trees were in a supercanopy position over surrounding forest. Crown access for birds to the nest was very good.

Nest Position – Nest is positioned in a deep top crotch. Nest appeared to be in a very solid position. Because limbs were dead, sky exposure was 100%.

Substrate Condition – Nest tree was dead but limbs forming top crotch were complete. Nest tree was missing less than 10% of its bark indicating that It had likely died within the past year. Main stem and lateral branches appeared to be sound but needles had been lost.

Potential Disturbance

Nest tree was protected by a visual and structural buffer on all sides. Location is fairly remote and access is somewhat difficult from nearby roadway. Disturbance potential appears to be very limited.

Figure 13. Position of Nest ST-01-02 after leaf-out in spring

Great Blue Heron

No Great Blue Heron colonies were detected on Falls Reservoir. Nesting habitat is fairly limited on this waterway. The small forested islands located on the upper reach are the most likely location for future breeding. However, potential for colonization appears limited.