

2003

An assessment of the Bald Eagle and Great Blue Heron breeding populations along High Rock, Tuckertown, Narrows, and Falls Reservoirs in central North Carolina: 2003 breeding season

B. D. Watts

The Center for Conservation Biology, bdwatt@wm.edu

D. S. Bradshaw

The Center for Conservation Biology

Follow this and additional works at: https://scholarworks.wm.edu/ccb_reports

Recommended Citation

Watts, B. D. and D. S. Bradshaw. 2003. An assessment of the Bald Eagle and Great Blue Heron breeding populations along High Rock, Tuckertown, Narrows, and Falls Reservoirs in central North Carolina: 2003 breeding season. CCBTR-03-08. Center for Conservation Biology Technical Report Series. College of William and Mary, Williamsburg, VA. 22 pp.

This Report is brought to you for free and open access by the Center for Conservation Biology (CCB) at W&M ScholarWorks. It has been accepted for inclusion in CCB Technical Reports by an authorized administrator of W&M ScholarWorks. For more information, please contact scholarworks@wm.edu.

**AN ASSESSMENT OF THE BALD EAGLE AND GREAT BLUE
HERON BREEDING POPULATIONS ALONG HIGH ROCK,
TUCKERTOWN, NARROWS, AND FALLS RESERVOIRS
IN CENTRAL NORTH CAROLINA: 2003 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:
2003 BREEDING SEASON**

Final Report

January, 2004

**Bryan D. Watts, PhD
Dana S. Bradshaw
Center for Conservation Biology
College of William and Mary
Williamsburg, VA 23187-8795**

Recommended Citation:

Watts, B. D. and D. S. Bradshaw. 2003. 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: 2003 breeding season. Center for Conservation Biology Technical Report Series, CCBTR-03-08. College of William and Mary, Williamsburg, VA. 22 p.

A Cooperative Project By:

**Alcoa Power Generating Inc.
&
Center for Conservation Biology
College of William and Mary**

TABLE OF CONTENTS

	Page
Background	1
Methods	1
Survey Findings	2
High Rock Reservoir	2
Bald Eagles	2
Great Blue Herons	5
Tuckertown Reservoir	10
Bald Eagles	10
Great Blue Herons	12
Narrows Reservoir	13
Bald Eagles	13
Great Blue Herons	16
Falls Reservoir	18
Bald Eagles	18
Great Blue Herons	20

Cover photo: Aerial view of bald eagle nest location DA-01-01 (B. Watts)
Inset photo: 10 week old bald eagle chick (A.C. Markham)

BACKGROUND

Context

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 60 pairs as of 2003.

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. A survey of this system in 2001 provided confirmation of these suggestions. Since that survey annual efforts to monitor this population have continued. Results of the 2003 survey follow.

Objectives

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 2003 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 Narrows Dam. The survey of Falls Reservoir included the waterway between Narrows 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 2 April 2003.

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 4 June 2003.

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

Only one Bald Eagle territory was observed to be active on High Rock Reservoir during 2003 surveys. Nest DA-01-01 was first located and has been active and productive since 2001. It is located on a bluff between the mouths of North Potts Creek and Swearing Creek. A second nest (RO-02-01) discovered in 2002 along the south shoreline between Panther Point and Camp Sapona was blown out of the tree that same spring and has not been rebuilt. No replacement nest has been located for that pair to date. The nest appeared to have been used in 2002 but no direct evidence of a breeding attempt was ever documented. Despite no evidence of re-nesting by that pair, it is still likely that a territory will be re-occupied in the southern portion of the reservoir.

NEST: DA-01-01

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
DA-01-01	Davidson	Southmont	Y	Y	1

Nest Location

This nest is located along the shoreline almost due east of Trading Ford. 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.

Nesting Activity

Bird Activity – On 2 April 2003 two adults were observed attending 1-2 chicks in the nest. Based on feather appearance, chicks were estimated to be 5-7 days old. On 4 June, 2003 a single chick was observed standing on edge of nest with no adults attending. Time interval between observations suggest that only a single chick could have fledged from this nest.

Nest Condition – Nest structure is of moderate size. On 2 April, 2003 nest was observed to have a deep cup that was well lined. Nest structure was in very similar condition as observed in 2001 and 2002.

Nest Substrate

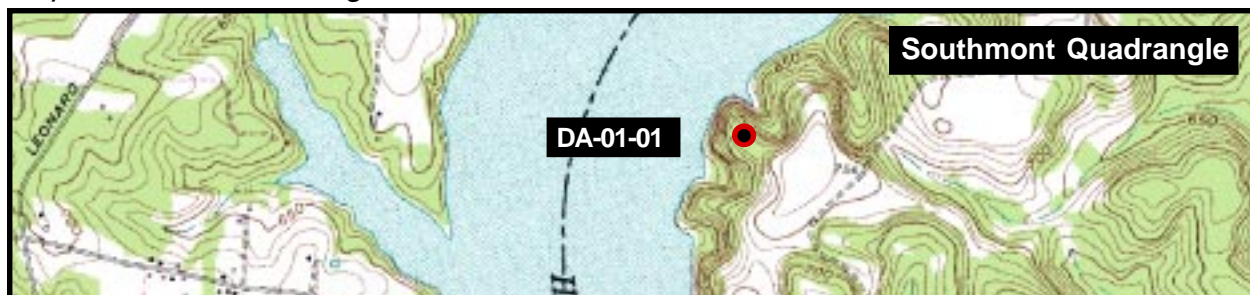
Substrate Type – Nest was built in a live white oak tree.

Nest Position – Nest is positioned in a deep stable crotch. Nest tree is on a knoll and in a supercanopy position above surrounding trees. Nest has large deciduous 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.

Map location of Bald Eagle nest DA-01-01

Aerial photos of Nest DA-01-01 from two perspectives. Upper photo facing west shows relationship of nest location to adjacent field and river. Lower photo facing south shows incubating adult as tiny black point just in front of arrow. (Photos 2003; B. Watts)



Great Blue Herons

Five breeding colonies of Great Blue Herons were detected on High Rock Reservoir. All but 1 of these colonies were located on small, forested islands isolated from the shoreline. Colony size ranged from 1 to 310 pairs. Total population estimate for this reservoir was 437 breeding pairs. This represents a reduction of 90 pairs from 2002 or essentially equivalent to 2001 levels (435 pairs).

GBH-01

Code	County	Topo Quad	Pairs
GBH-01	Davidson	Southmont	43

Description

This colony was located on a small island near the Route 8 bridge in the mouth of Abbotts Creek. The island had a mixed stand of loblolly pines and hardwoods. Nests were built in both pines and hardwoods. In previous years nests were built in pines only. Forty-three nests were counted. All nests had incubating birds on 2 April 2003.

Map location of Great Blue Heron colony GBH-01



Aerial view of Great Blue Heron colony GBH-01 (Photo 2002; B. Watts)



GBH-02

Code	County	Topo Quad	Pairs
GBH-02	Rowan	Southmont	310

Description

This colony was located along the western edge of one of Duke Power's settling ponds just north of the town of Trading Ford. 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. Nests were more restricted in 2003 compared to 2002. Colony size had decreased compared to both previous years. Pine stand to the north of colony and previously containing nests had been partially harvested. This disturbance may have resulted in the reduction in colony size. On 2 April 2003 85% of pairs were incubating. Remaining pairs were still building nests.

Map location of Great Blue Heron Colony GBH-02



Aerial view of Great Blue Heron colony GBH-02 (Photo 2002; B. Watts)



GBH-03

Code	County	Topo Quad	Pairs
GBH-03	Rowan	Southmont	38

Description

This colony was located on a small, forested island in the mouth of Second Creek. The island was forested with a middle-aged loblolly pine stand. This colony increased from 21 nests in 2002 to 38 nests in 2003. All nests were built in pine trees. On 2 April 2003, the majority of pairs were incubating.

Map location of Great Blue Heron colony GBH-03**GBH-06**

Code	County	Topo Quad	Pairs
GBH-06	Rowan	Southmont	45

Description

This colony was located on a small forested island within Swearing Creek just above the Linwood Southmont Road bridge. The island was forested with a middle-aged pine stand. On 2 April 2003 there were 45 nesting pairs, nearly all incubating.

Map location of Great Blue Heron colony GBH-06



Aerial view of Great Blue Heron colony GBH-06 (Photo 2002; B. Watts)



GBH-07

Code	County	Topo Quad	Pairs
GBH-07	Rowan	Grist Mountain	1

Description

This colony was located on a small forested island within Abbott Creek off shore of a small development at the end of Route 2373. The island was forested with a mix of pine and hardwood. On 2 April 2003 there was only 1 pair nesting on the island. This bird was incubating.

Map location of Great Blue Heron colony GBH-07**Tuckertown Reservoir****Bald Eagles**

A single Bald Eagle nest was detected for the second year in a row within the Tuckertown Reservoir system. The nest was located within the upper section supporting previous suggestions that this area could support a breeding pair.

NEST: RO-02-02

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
RO-02-02	Rowan	High Rock	Y	Y	1

Nest Location

This nest was located along the south shoreline just down from Cedar Creek. The nest tree is isolated within a recently clearcut area of private land above a farm. The tree is set back from the shoreline with a buffer strip of trees between the nest tree and the shoreline. The nest is not likely visible from the water due to tree buffer. The nest is likely visible from route 2152.

Nesting Activity

Bird Activity – On 2 April 2003 an adult was observed attending a single chick in the nest. Based on plumage characteristics, the chick appeared to be approximately 5 days old. A second adult was not observed. On 4 June 2003, a single chick was observed standing in the nest. No adults were attending.

Nest Condition – Nest structure was of moderate size and appeared to have been built up compared to 2002. On 2 April 2003 nest was in good condition with a complete lining.

Nest Substrate

Substrate Type – Nest was built in an isolated loblolly pine. Nest tree was a specimen loblolly in an ideal condition to be used for a nest tree.

Nest Position – Nest was positioned in a top crotch deep below the crown. This configuration is the most common and apparently most stable position for eagle nests. the very top of the tree crown. Nest was under large crown with less than 20% sky exposure.

Substrate Condition – Nest tree appeared to be in good condition with no evidence of crown damage.

Potential Disturbance

Nest tree is in a fairly remote location with a considerable buffer on upland side and tree buffer on water side. Disturbance potential appears to be limited.

Map location of Bald Eagle nest RO-02-02



Aerial view of location of Bald Eagle nest RO-02-02 (Photo 2003: B. Watts)



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 60 pairs.

GBH-04

Code	County	Topo Quad	Pairs
GBH-04	Davidson	High Rock	60

Description

This colony was located on a small forested island and the adjacent forested shoreline just below the High Rock Dam. This island is long and linear and contains a mixed stand of hardwoods and pines. The adjacent shoreline is pine-dominated. There were 2 sub-colonies within this location. The larger sub-colony contained 45 pairs and was within the pines along the shoreline. The second sub-colony was on the island and contained 15 pairs. Approximately 85% of pairs were incubating with the remainder still building on 2 April, 2003.

Map location of Great Blue Heron colony GBH-04



Narrows Reservoir

Bald Eagles

Two Bald Eagle nests were located along the shoreline of Narrows Reservoir. The older nest (ST-01-01) was located along the edge of a canal behind Graveyard Island. The new nest (MO-03-01) is located across the river on Uwharrie National Forest.

NEST: ST-01-01

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
ST-01-01	Stanly	Badin	N	N	-----

Nest Location

This nest 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— The nest was in good structural condition with a well-formed cup but did not appear to have a recent lining on 2 April, 2003. No birds were observed within the vicinity of this nest on either 2 April or 4 June, 2003. The new nest (MO-03-01) across the river is believed to be a replacement nest.

Nest Condition – Nest structure is of moderate size and appears to be in good condition. On 2 April, 2003 nest appeared to have well-formed but an old lining. The depth of the tree crotch appears to constrain nest depth.

Nest Substrate

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

Nest Position – Nest is positioned in a shallow 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.

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.

Map location of Bald Eagle nest ST-01-01



Aerial view of location of Bald Eagle nest ST-01-01 (Photo 2002: B. Watts)



MO-03-01

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
MO-03-01	Montgomery	Badin	Y	Y	1

Nest Location

This nest was located along on a bluff set back from the shoreline on Uwharrie National Forest. The nest tree was within a scattered stand of supercanopy trees. The nest does not appear to be visible from the water along the shoreline but may be visible from logging road 6558.

Nesting Activity

Bird Activity – A single chick was observed standing in the nest on 2 April, 2003. Based on feather conditions the chick appeared to be approximately 8 weeks old at that time. A single adult was perched on a limb above the nest. On 4 June, 2003 a single adult was standing in the nest and the fledged chick was perched in a tree approximately 50 m from the nest tree.

Nest Condition – Nest structure is of moderate size and is fairly shallow consistent with a first-year nest. The nest was in good condition on both 2 April and 4 June, 2003.

Nest Substrate

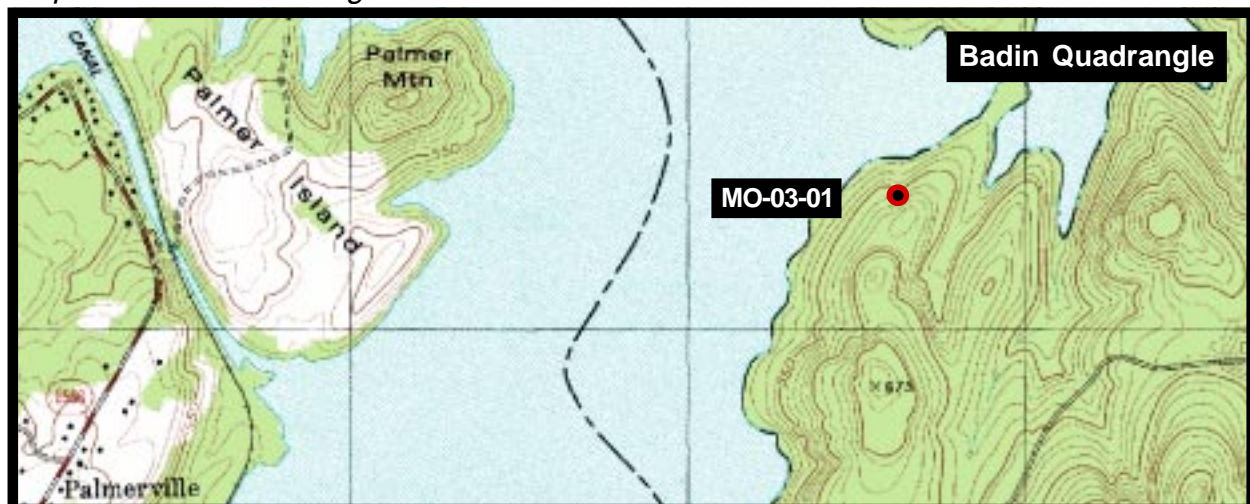
Substrate Type – The nest was built in a live loblolly pine.

Nest Position – Nest is positioned on a lateral limb up against the trunk. Crown limbs are fairly sparse such that sky exposure was 70%.

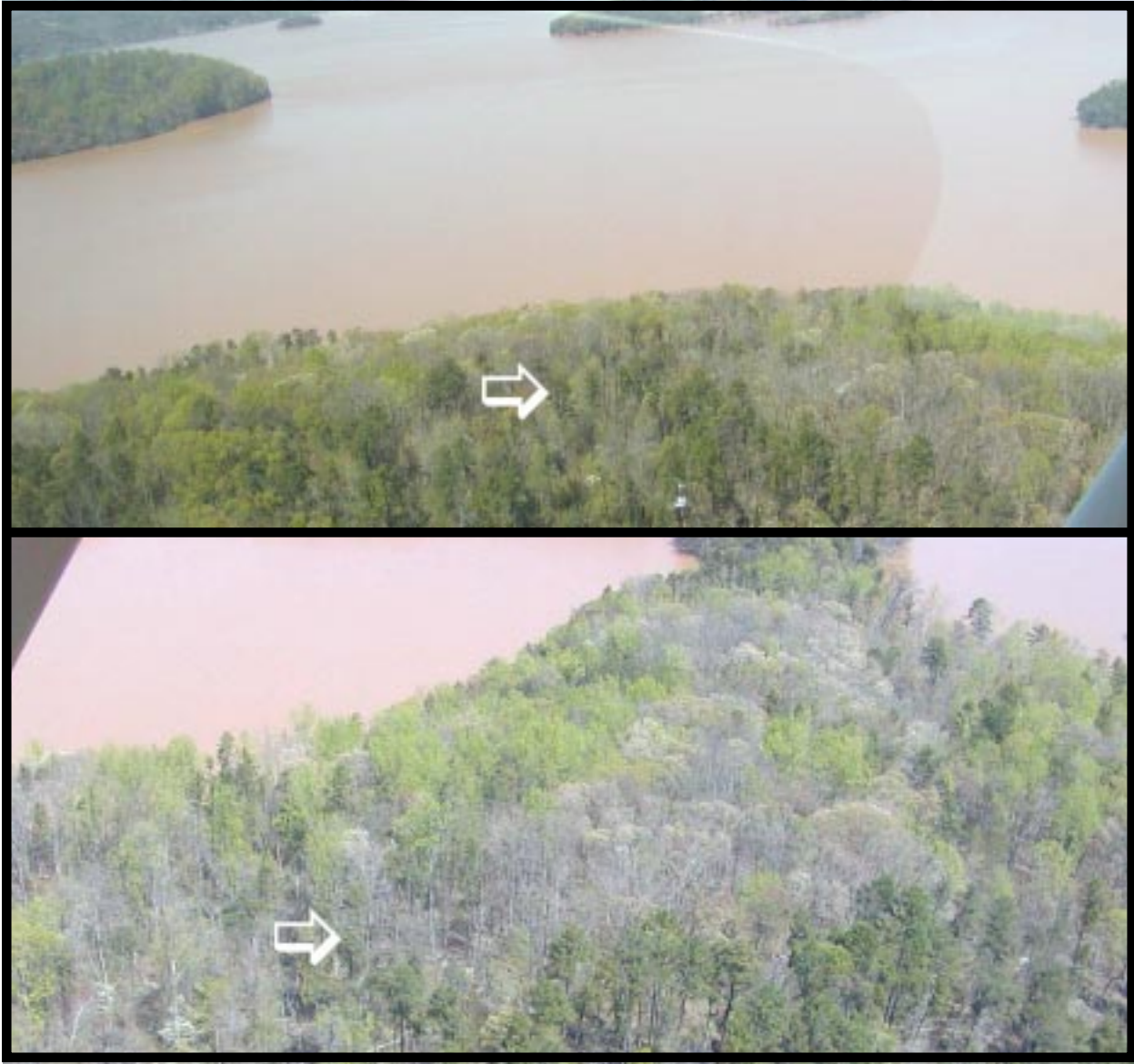
Substrate Condition – Nest tree appeared to be in relatively good condition.

Potential Disturbance

Nest tree was protected by a visual buffer of scattered trees. It does not appear to be visible from shoreline but may be seen and accessed from nearby logging road.

Map location of Bald Eagle nest MO-03-01.

Aerial photos showing location of Bald Eagle nest MO-03-01. Top photo facing WNW with Palmer Mtn on left of background; bottom photo facing NNE toward neck of Pear Tree Island. (Photos 2003: B. Watts)



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 185 pairs.

GBH-05

Code	County	Topo Quad	Pairs
GBH-05	Montgomery	Badin	185

Description

This colony was located on a small forested island near the Pine Haven residential development at the confluence of Beaverdam and Reynolds Creeks. 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. This colony had increased from 140 pairs in 2002 to 185 pairs in 2003.

Aerial view of Great Blue Heron colony GBH-05 (Photo 2002: B. Watts)



Map location of Great Blue Heron colony 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. 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 Territory	Active Nest	Chicks Produced
ST-01-02	Stanly	Badin	N	N	-----

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. 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.

Nesting Activity

Bird Activity – This nest was located on 27 March 2001. Although the nest was in good structural condition when examined on 23 April 2002 and again on 2 April, 2003 there was no indication that the surface of the nest had been worked during the either season. No birds were present within the area. This nest appears to be abandoned.

Nest Condition – Nest structure is of fairly large size and was in good structural condition during both observations. Nest still had recognizable cup but no recent 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 more than 25% of its bark indicating that it had been dead more than 1 year.

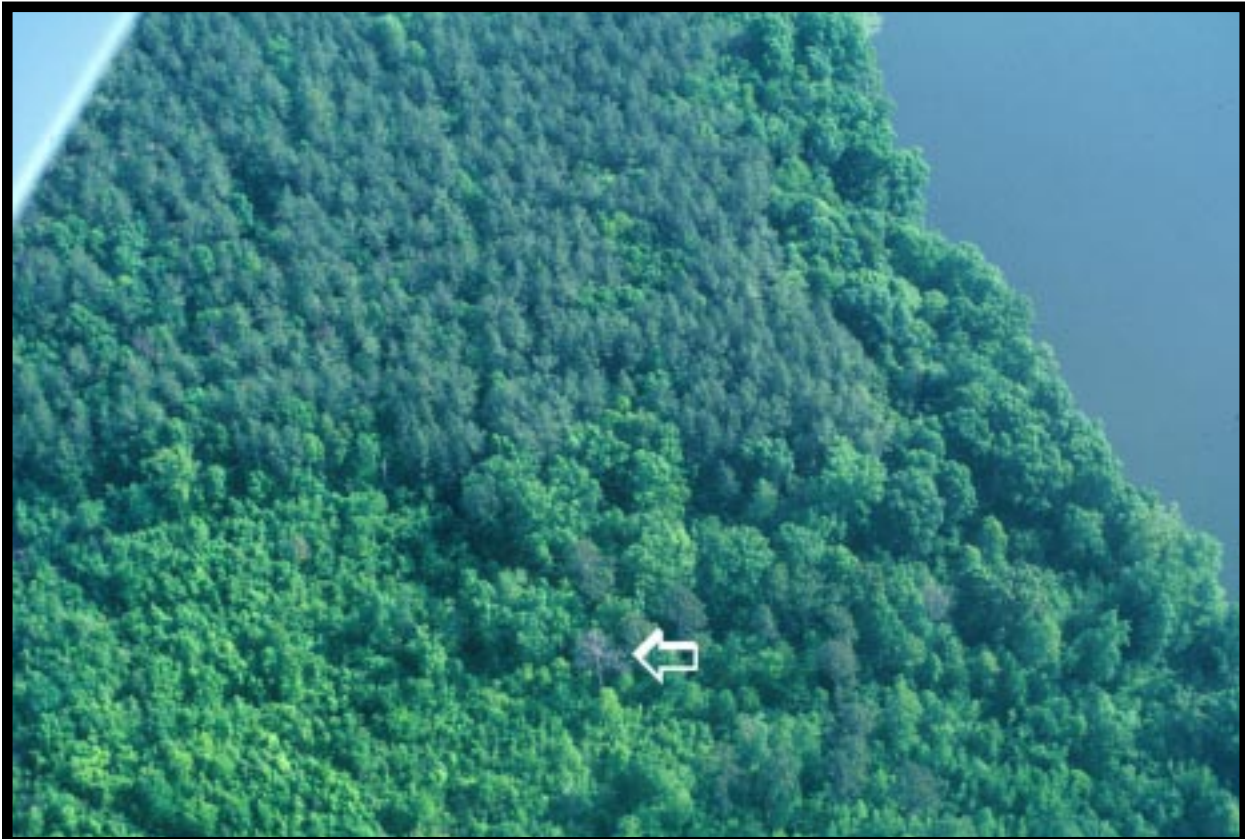
Potential Disturbance

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.

Map location of Bald Eagle nest ST-01-02



Aerial view of location of Bald Eagle nest ST-01-02 (Photo 2002: B. Watts)



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.