

2016

An assessment of the Bald Eagle and Great Blue Heron breeding populations along High Rock, Tuckertown, Narrows, and Falls Reservoirs in central North Carolina: 2015 breeding season

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Recommended Citation

Paxton, B. J. and B. D. Watts, and F. M. Smith. 2016. An assessment of the Bald Eagle and Great Blue Heron breeding populations along High Rock, Tuckertown, Narrows, and Falls Reservoirs in central North Carolina: 2015 breeding season. The Center for Conservation Biology Technical Report Series, CCBTR-16-04. College of William and Mary & Virginia Commonwealth University, Williamsburg, VA. 44 pp.

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AN ASSESSMENT OF THE BALD EAGLE AND GREAT BLUE HERON BREEDING POPULATIONS ALONG HIGH ROCK, TUCKERTOWN, NARROWS, AND FALLS RESERVOIRS IN CENTRAL NORTH CAROLINA: 2015 BREEDING SEASON

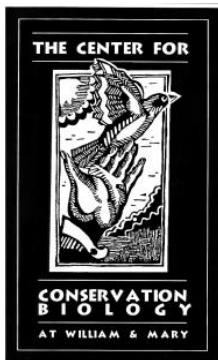


A Cooperative Project by: ALCOA POWER GENERATING INC., THE CENTER FOR CONSERVATION BIOLOGY, COLLEGE OF WILLIAM AND MARY, & VIRGINIA COMMONWEALTH UNIVERSITY

**AN ASSESSMENT OF THE BALD EAGLE AND GREAT BLUE HERON BREEDING
POPULATIONS ALONG HIGH ROCK, TUCKERTOWN, NARROWS, AND FALLS
RESERVOIRS IN CENTRAL NORTH CAROLINA: 2015 BREEDING SEASON**

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The Center for Conservation Biology is an organization dedicated to discovering innovative solutions to environmental problems that are both scientifically sound and practical within today's social context. Our philosophy has been to use a general systems approach to locate critical information needs and to plot a deliberate course of action to reach what we believe are essential information endpoints.

Cover Photo: Older chick on nest DA-10-01, with adult perched nearby, Bart Paxton 2014.

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Background and 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 were 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, eagle populations have experienced gradual recoveries in productivity and total numbers. The state of North Carolina has seen an increase from no breeding pairs in the late 1960s to approximately 60 pairs as of 2005.

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 2015 survey follow (a summary of all eagle and Great Blue Heron/Great Egret nesting activity since 2001 is provided at the end of this report).

Objectives

The objectives of the annual eagle survey on Yadkin Project reservoirs are:

- 1) To document the status, distribution and productivity of nesting pairs in association with the Yadkin reservoirs and associated river corridors.
- 2) To increase our understanding of Bald Eagle natural history in interior regions of North Carolina.
- 3) To determine the status and distribution of breeding Great Blue Herons (and associated Great Egrets and Double-crested Cormorants) within the Yadkin Project reservoirs.

METHODS

Bald Eagle Survey Coverage:

Waterways covered by the Bald Eagle survey of 2015 included the four Yadkin Project reservoirs:

- 1) High Rock Reservoir, 2) Tuckertown Reservoir, 3) Narrows Reservoir (Badin Lake), 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 (Badin 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 between the shoreline and 1 km inland to cover the most probable breeding locations for Bald Eagles. All nests detected were plotted on recent aerial imagery using GPS enabled tablet computers 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. The areas were searched for Bald Eagles and all detections were recorded. The Bald Eagle nest survey was conducted on 21 March 2015.

Bald Eagle 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 and determine structural condition. The number of eaglets present was recorded along with their approximate ages. Observations of all Bald Eagles detected were recorded. The Bald Eagle productivity survey was conducted on 3 May 2015.

Great Blue Heron Survey:

Breeding colonies of Great Blue Herons detected during survey flights were mapped and recorded. Colony locations were plotted on recent aerial imagery using GPS enabled tablet computers. 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. These surveys were conducted on 21 March and 3 May 2015.

RESULTS:

High Rock Reservoir

Bald Eagles

Two Bald Eagle territories and two nests were observed to be occupied on High Rock Reservoir during 2015 surveys. No adult eagle or nest structures were observed within the old territory

on upper Abbott’s Creek (DA-09-01). Nest DA-01-01, in a large dead white oak, was active and this nest produced 1 chick. The nest RO-10-01 is located between St. Matthews Church and Panther Creek and produced 2 chicks. The older nest of this pair (RO-02-01) is absent.

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 north shoreline almost due east of Trading Ford. The nest tree is positioned on a bluff above the reservoir in a large white oak tree. Nest is likely visible from the water from within the adjacent cove.

Nesting Activity

Bird Activity – On 21 March 2015, an adult was observed brooding. On 3 May 2015, one chick approximately seven to eight weeks old was observed in the nest.

Nest Condition – Nest structure is of moderate-large size. On both 21 March and 3 May 2015, the nest appeared in good condition.

Nest Substrate

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

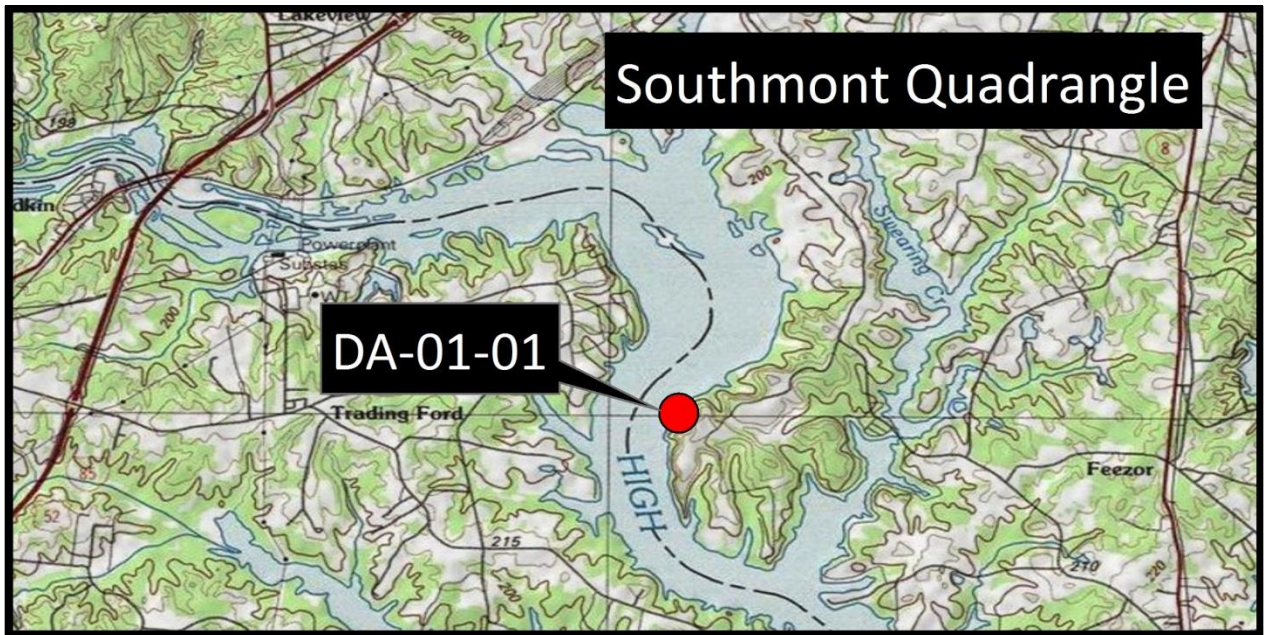
Nest Position – Nest is positioned in a deep stable crotch. Nest tree is on a knoll and in a supercanopy position above surrounding trees. Nest tree is in a commanding position on the landscape. Nest formerly had a deciduous crown, but now is fully exposed.

Substrate Condition – During the second flight in 2009, it appeared that the tree had been hit by lightning and was dying. The tree is now dead and has lost many branches from the crown.

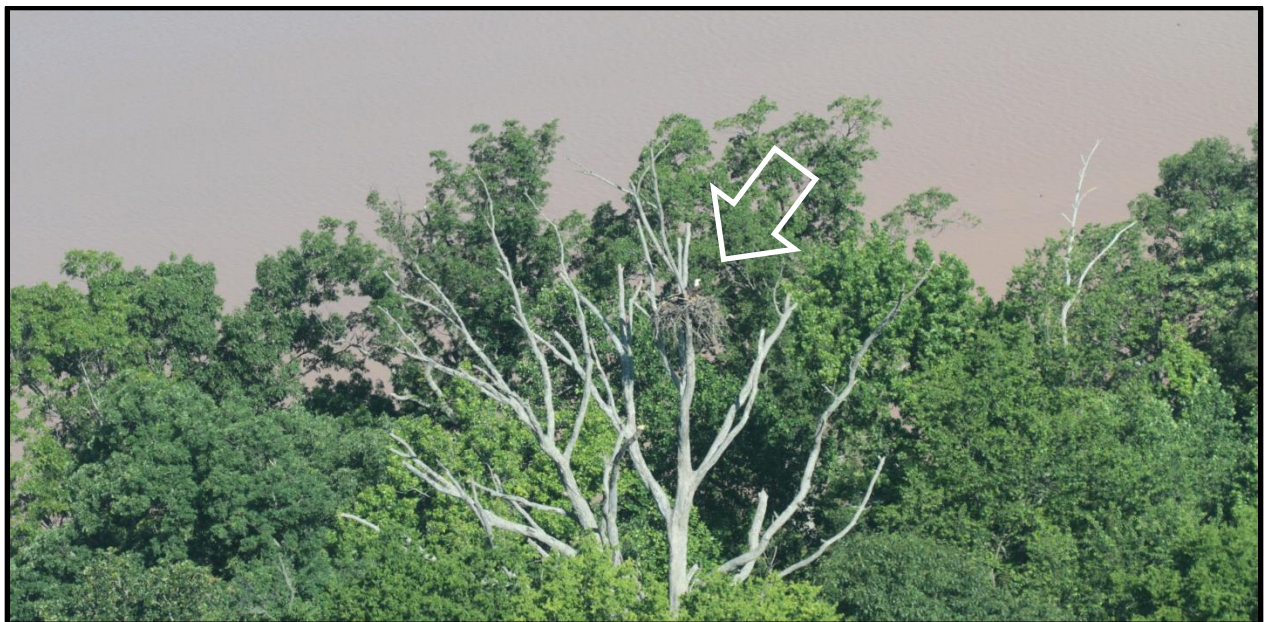
Potential Disturbance

Nest is easily visible and in a dead tree. 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 buffer on the upland side. Disturbance potential appears to be limited.

Map location of Bald Eagle nest DA-01-01.



Aerial photo of nest DA-01-01 (photo 2012; B. Watts)



Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
RO-10-01	Rowan	Gold Hill	Y	Y	2

Nest Location

This nest was located along the edge of a clear-cut within a buffer strip of loblolly pines between the clear-cut and the water. The nest is between St. Matthews Church and Panther Creek, northwest and across the clear-cut from the former territory RO-02-01. The tree may not be visible from the water due to a pine buffer along the shoreline and there are no public roads near this site.

Nesting Activity

Bird Activity – On 21 March 2015, two chicks approximately three weeks old were observed. On 3 May 2015, two chicks approximately eight to nine weeks old were observed within the nest.

Nest Condition – On both 21 March and 3 May 2015, the nest appeared in good condition.

Nest Substrate

Substrate Type – Nest was built in a relatively young loblolly pine tree. The tree was positioned along the edge of a pine buffer between a regenerating pine stand and the water. Access into the nest was clearly from the upland side.

Nest Position – The nest was built in a top crotch of a young loblolly pine. Although the nest was near the crown, it was shaded with only 30-40% sky exposure.

Substrate Condition – Nest tree was in good condition.

Potential Disturbance

The nest tree was along the edge of a fairly recent clear-cut. The site is remote from human disturbance. There is no road access into the site and it is unlikely that the nest is visible from the water due to a tree buffer along the shoreline.

Map location of Bald Eagle nest RO-10-01.



Aerial photo of nest RO-10-01 (photo 2013. B. Paxton)



Great Blue Herons/Great Egrets

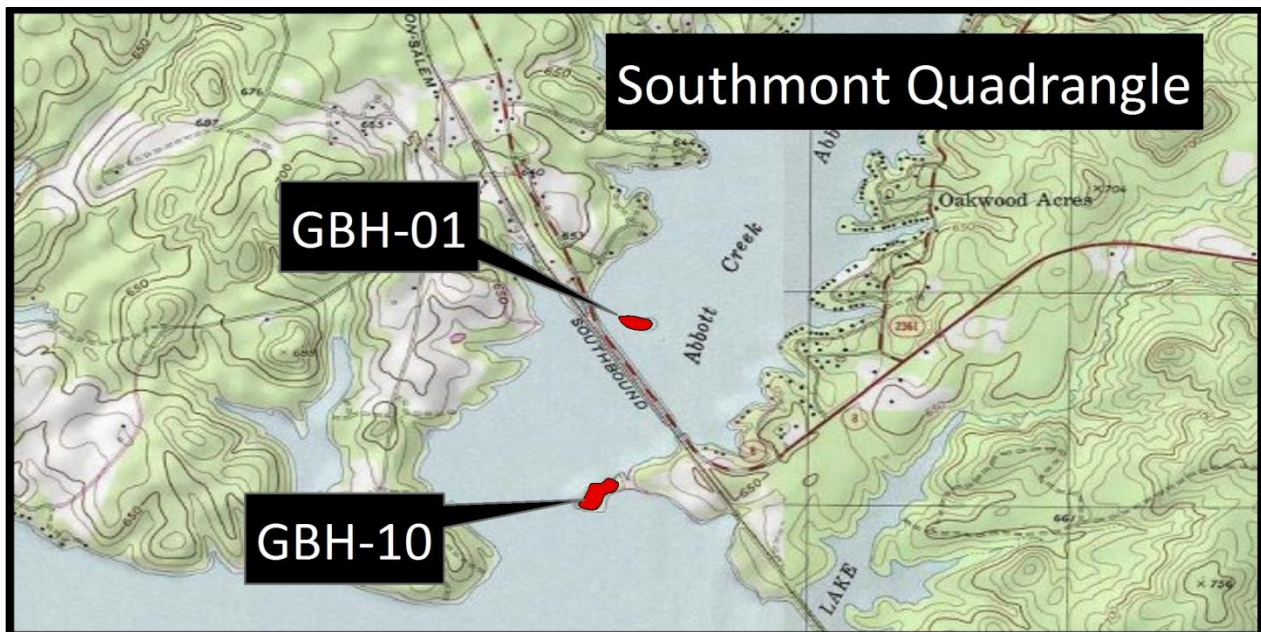
Eleven breeding colonies of Great Blue Herons (GBHE) were detected on High Rock Reservoir. Four colonies active in 2013 were not observed to be active in 2015 and two colonies active in 2014 were not observed to be active in 2015. The number of breeding pairs within colonies remained the same or increased in all colonies except GBH-01, GBH-10, GBH-21 and GBH-28 and ranged between 2 and 145 pairs. Total population estimate for this reservoir was 315 pairs. Forty-two pairs of Great Egrets (GREG) were found nesting on the reservoir during the surveys of 2015.

Code	County	Topo Quad	Pairs
GBH-01	Davidson	Southmont	25 GBHE

GBH-01 Colony Description

This Great Blue Heron colony was located on a small island near the Route 8 bridge at the mouth of Abbotts Creek. The island supports a mixed stand of loblolly pines and hardwoods. Nests were built in both pines and hardwoods. Twenty-five pairs of Great Blue Herons were observed. The island has become a significant roost site for Double-crested Cormorants in recent years.

Map location of Great Blue Heron colony GBH-01.



Aerial view of Great Blue Heron colony GBH-01 (Photo 2011; B. Watts).

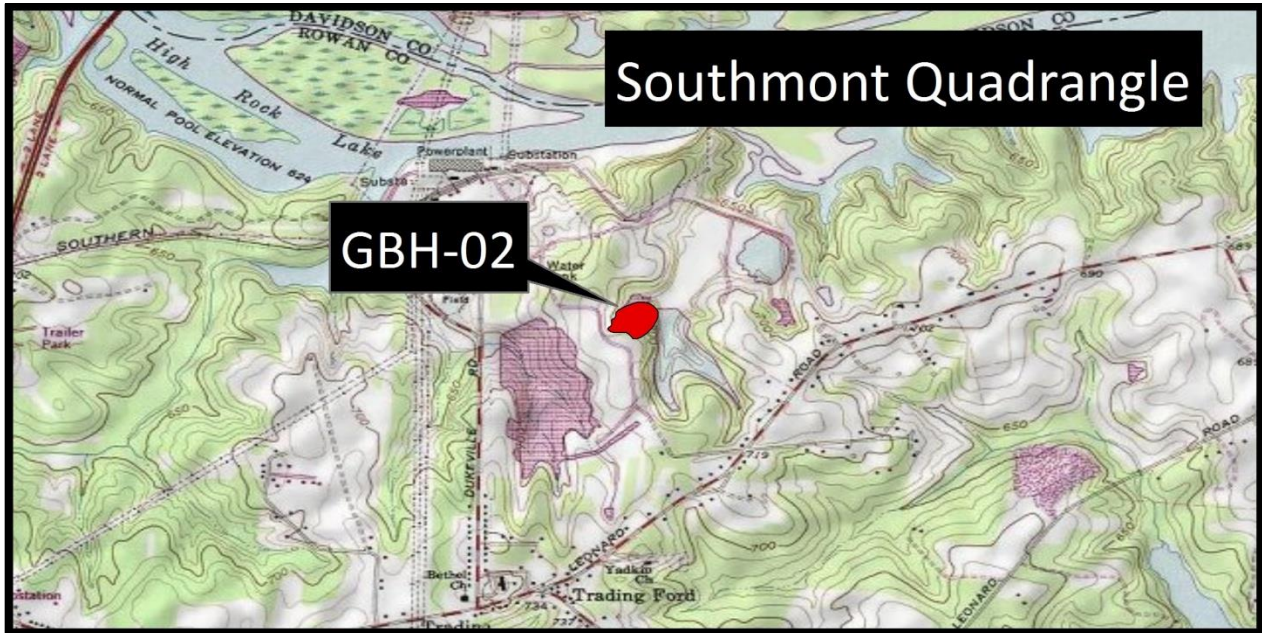


Code	County	Topo Quad	Pairs
GBH-02	Rowan	Southmont	145 GBHE, 42 GREG

GBH-02 Colony Description

This colony was located along the western edge of the Duke Power settling ponds just north of the intersection of Leonard Road and Long Ferry Road. The pond was bordered with a mixed stand of hardwoods and pines. A larger stand dominated by loblolly pines was positioned further from the pond edge. Nests were built along the pond margin in both the mixed stand of hardwoods and the pure pine stand. Nest distribution continues to be restricted due to partial harvest of the pine stand in 2002. One hundred and forty-five pairs of Great Blue Herons were observed during the 2015 survey. Forty-two pairs of Great Egrets were observed nesting in this colony.

Map location of Great Blue Heron colony GBH-02.



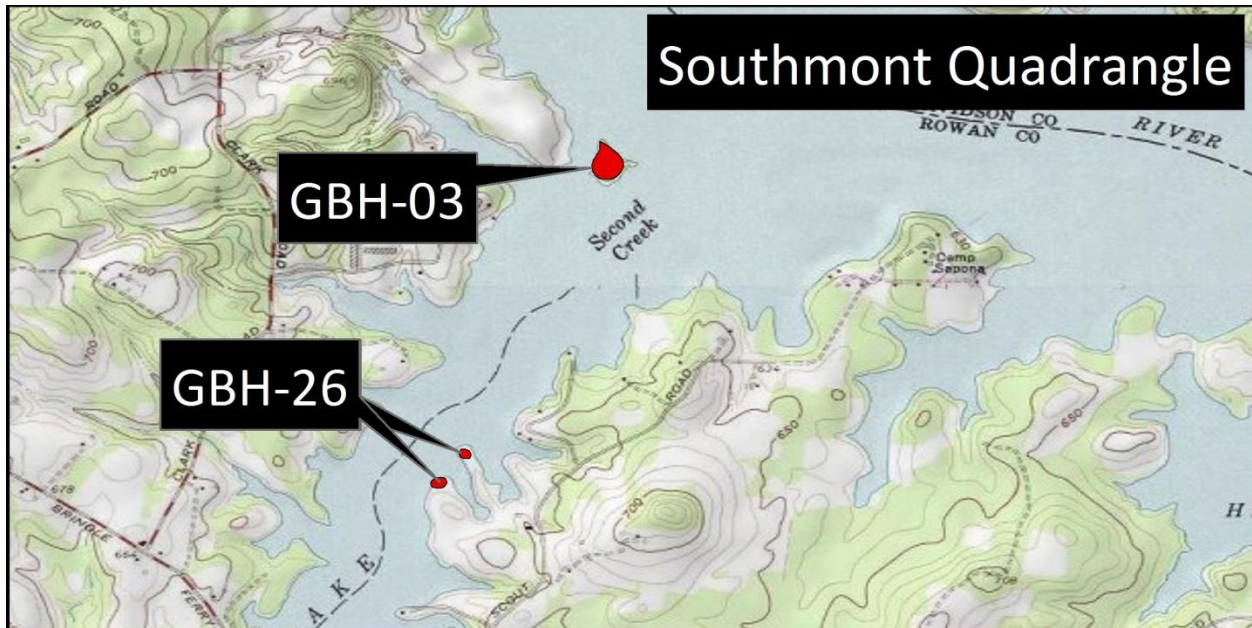
Aerial view of the western portion of Great Blue Heron colony GBH-02 (Photo 2011; B. Watts).

Code	County	Topo Quad	Pairs
GBH-03	Rowan	Southmont	0

GBH-03 Colony Description

This Great Blue Heron 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. No breeding activity was observed.

Map location of Great Blue Heron colonies GBH-03 and GBH-26.



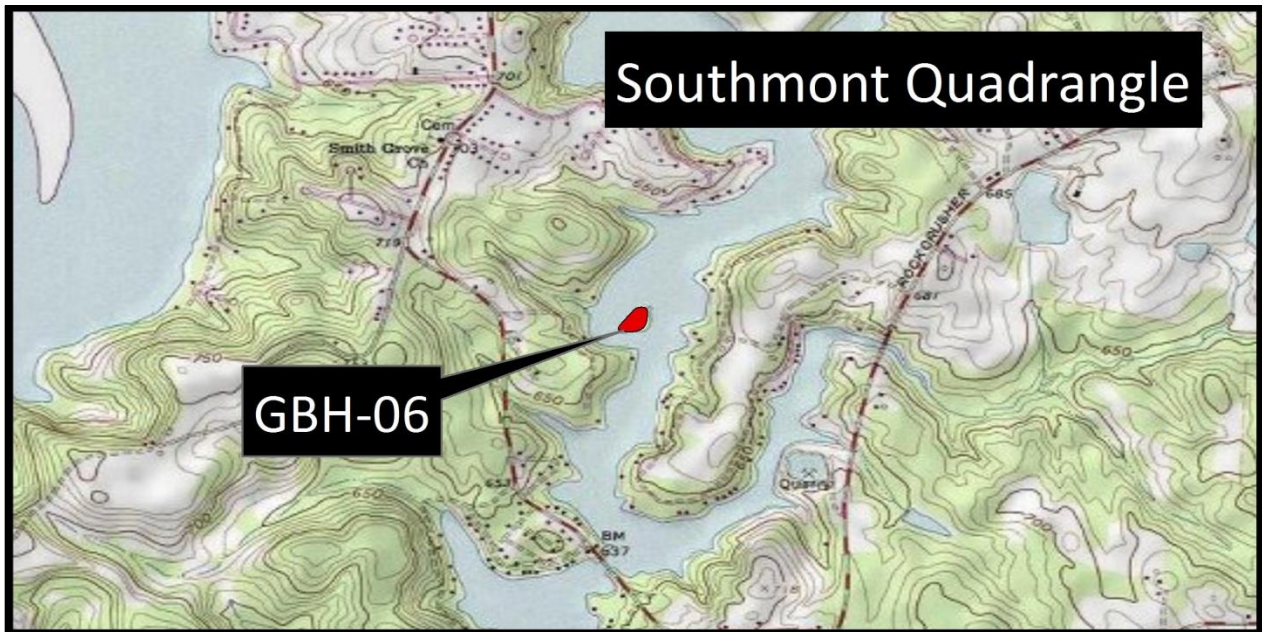
Aerial view of Great Blue Heron colony GBH-03 (Photo 2006, B. Watts).

Code	County	Topo Quad	Pairs
GBH-06	Rowan	Southmont	45 GBHE

GBH-06 Colony Description

This Great Blue Heron colony is located on a small forested island within Swearing Creek just above the Linwood Southmont Road bridge. The island is forested with a middle-aged pine stand. There were 45 nesting pairs observed.

Map location of Great Blue Heron colony GBH-06.



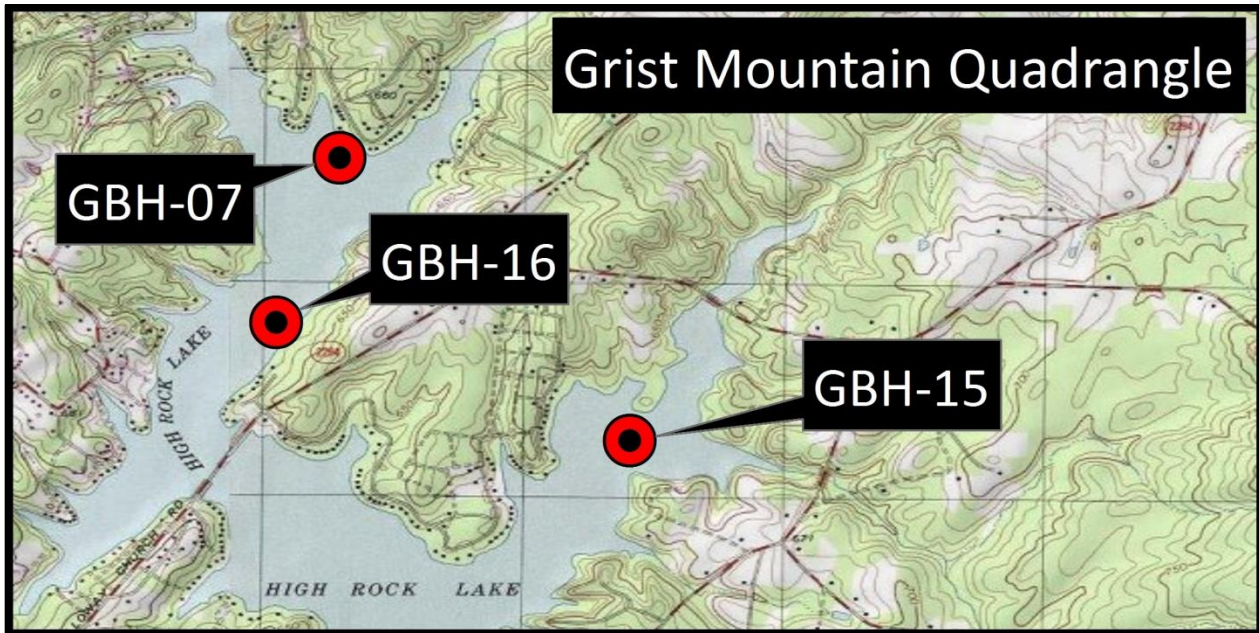
Aerial view of Great Blue Heron colony GBH-06 (Photo 2011; B. Watts).

Code	County	Topo Quad	Pairs
GBH-07	Rowan	Grist Mountain	24 GBHE

GBH-07 Description

This Great Blue Heron colony was located on a small forested island within Abbots Creek off shore of a small development at the end of Route 2373. The island was forested with a mix of pine and hardwood. There were 24 pairs observed nesting on the island.

Map location of Great Blue Heron colony GBH-07.



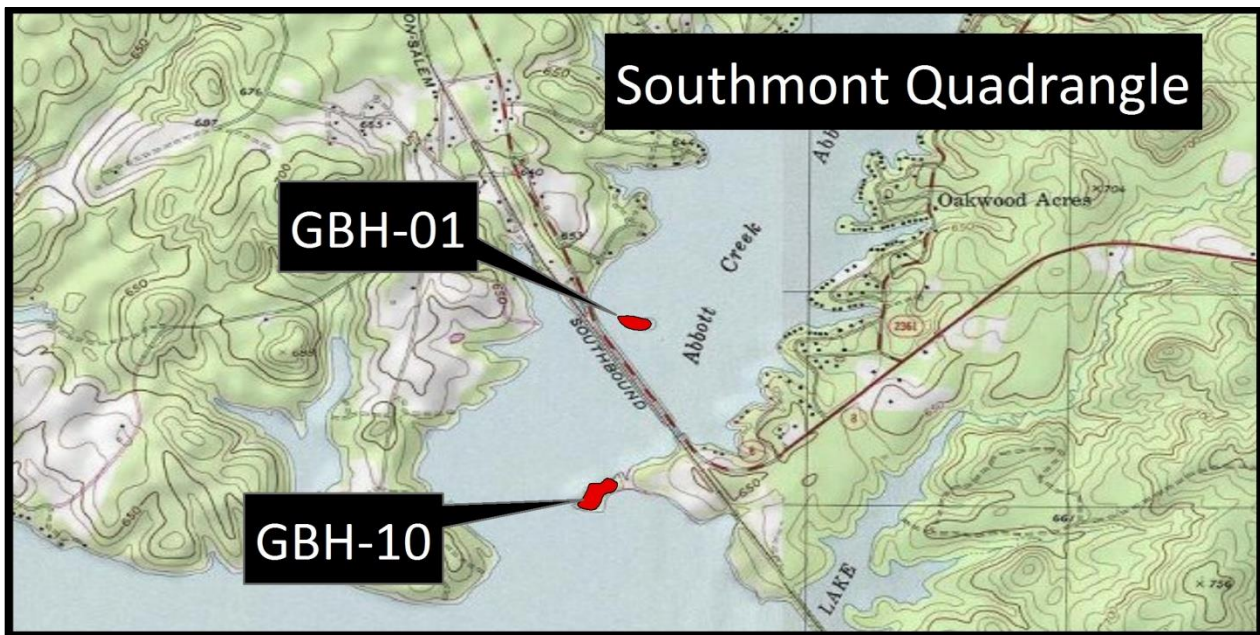
Aerial view of Great Blue Heron colony GBH-07 (Photo 2013; B. Paxton).

Code	County	Topo Quad	Pairs
GBH-10	Davidson	Southmont	0

GBH-10 Colony Description

This Great Blue Heron colony was located on a small forested peninsula that forms the southeastern mouth of Abbotts Creek. The site was forested with a mix of pine and hardwood. Old unoccupied nests were observed but no Great Blue Herons were detected on this island.

Map location of Great Blue Heron colony GBH-10.



Aerial view of Great Blue Heron colony GBH-10 (Photo 2006, B. Watts).

Code	County	Topo Quad	Pairs
GBH-11	Davidson	Grist Mountain	27 GBHE

GBH-11 Colony Description

This Great Blue Heron colony was located on a small forested island in Abbotts Creek. The site was forested with a mix of pine and hardwood. There were 27 pairs nesting on the island.

Map location of Great Blue Heron colony GBH-11.



Aerial view of the southern portion of Great Blue Heron colony GBH-11 (Photo 2011; B. Watts).

Code	County	Topo Quad	Pairs
GBH-15	Davidson	Grist Mountain	0

GBH-15 Colony Description

This Great Blue Heron colony was located on a small forested island in Abbotts Creek, southwest of Holloway Church. The site was forested with a mix of pine and hardwood. No breeding activity was observed.

Map location of Great Blue Heron colony GBH-15.



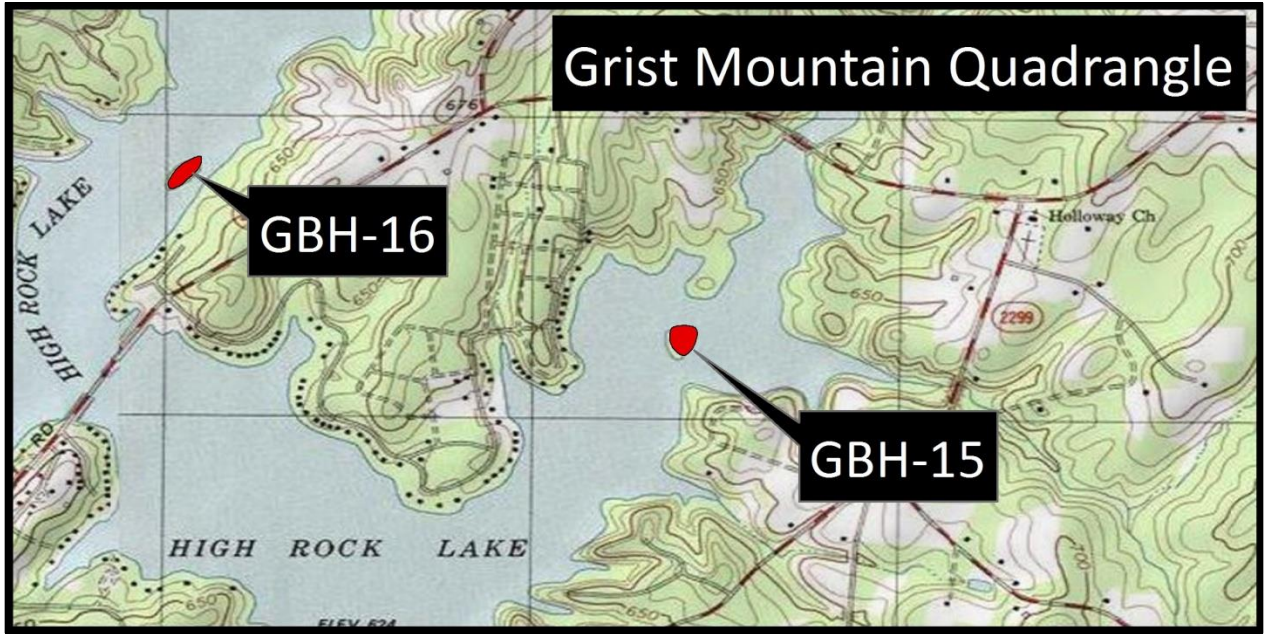
Aerial view of Great Blue Heron colony GBH-15 (Photo 2010; B. Watts).

Code	County	Topo Quad	Pairs
GBH-16	Davidson	Grist Mountain	8 GBHE

GBH-16 Colony Description

This Great Blue Heron colony was located on a small forested island in Abbotts Creek. The site was forested with a mix of pine and hardwood. There were 8 pairs nesting on the island during the 2015 survey.

Map location of Great Blue Heron colony GBH-16.



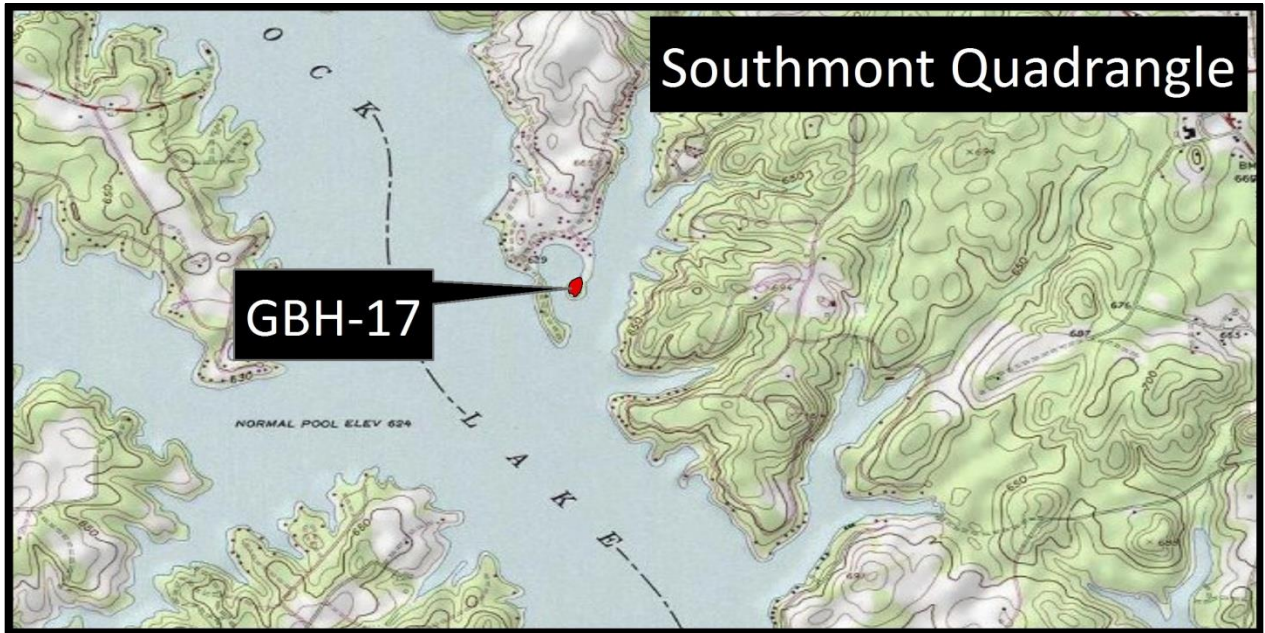
Aerial view of Great Blue Heron colony GBH-16 (Photo 2010; B. Watts).

Code	County	Topo Quad	Pairs
GBH-17	Davidson	Southmont	15 GBHE

GBH-17 Colony Description

This Great Blue Heron colony is located in a patch of forested land along Abbotts Creek, south of Southmont. The patch of forest is comprised of middle-aged pines. Fifteen nesting pairs were observed.

Map location of Great Blue Heron colony GBH-17.

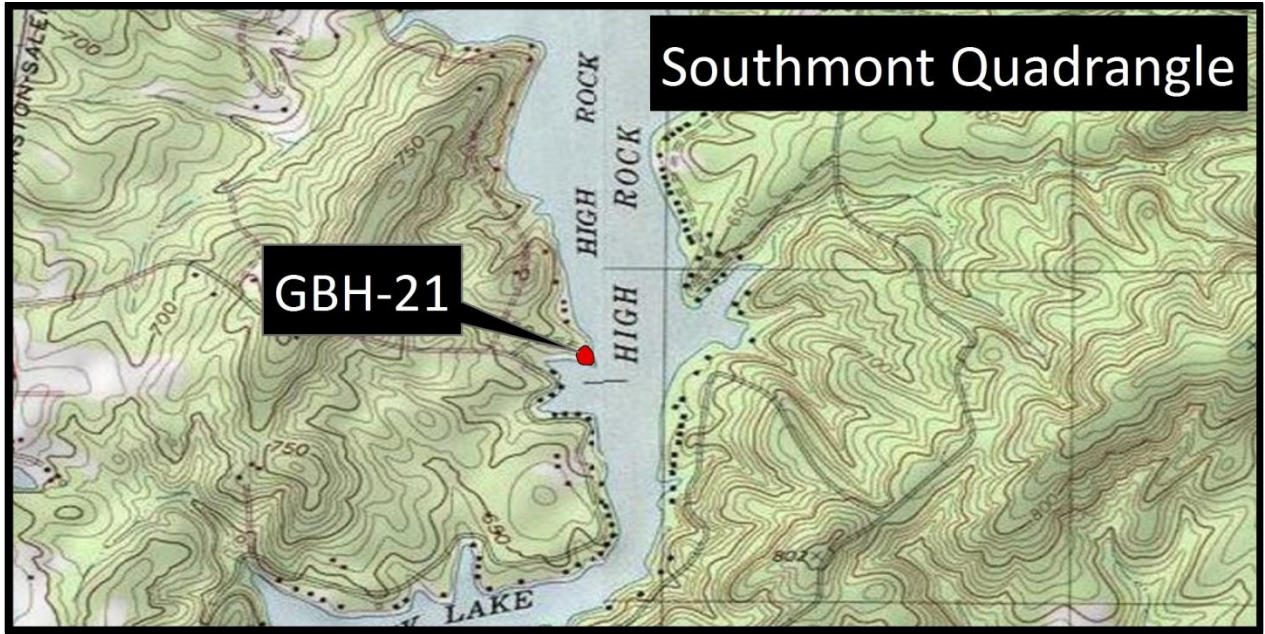


Code	County	Topo Quad	Pairs
GBH-21	Davidson	Southmont	2 GBHE

GBH-21 Colony Description

This Great Blue Heron colony is located in a patch of forested land along Abbotts Creek at the end of Fern Creek Drive, northeast of Feezor. The patch of forest is comprised of middle-aged pines. Two nesting pairs were observed.

Map location of Great Blue Heron colony GBH-21.



Aerial view of Great Blue Heron colony GBH-21 (2012; B. Watts).

Code	County	Topo Quad	Pairs
GBH-23	Davidson	Grist Mountain	5 GBHE

GBH-23 Colony Description

This Great Blue Heron colony is located in a patch of forested land along Flat Swamp Creek, northeast of High Rock. The patch of forest is comprised of middle-aged pines. Five nesting pairs observed.

Map location of Great Blue Heron colony GBH-23.



Code	County	Topo Quad	Pairs
GBH-24	Rowan	Gold Hill	14 GBHE
GBH-25	Rowan	Gold Hill	0 GBHE
GBH-26	Rowan	Gold Hill	5 GBHE

GBH-24, GBH-25, and GBH-26 Colony Descriptions

These Great Blue Heron colonies are located along the wooded edge of Second Creek. All three patches of forest are comprised of middle-aged pines. There were 15 nesting pairs observed at GBH-24, an increase from the 9 pairs observed in 2014. No active nests were observed at GBH-25 and 5 pairs were observed at GBH-26.

Map location of Great Blue Heron colony GBH-24, GBH-25, and GBH-26.

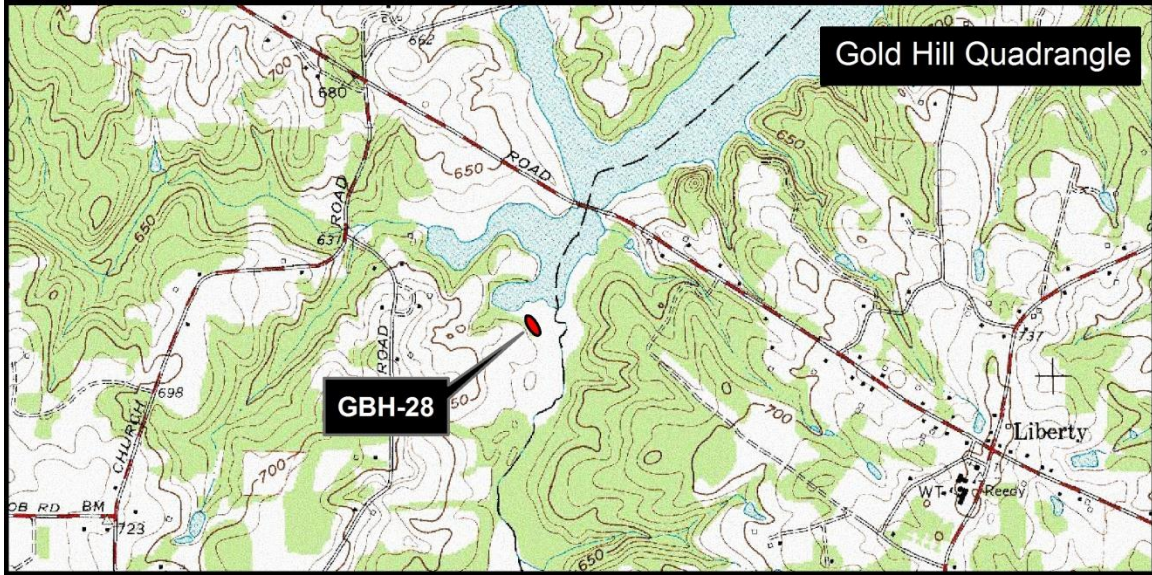


Code	County	Topo Quad	Pairs
GBH-28	Davidson	Gold Hill	0 GBHE

GBH-28 Colony Description

This Great Blue Heron colony is located in a forested patch near the mouth of Branch Creek. The patch of forest is comprised of middle-aged pines. One old unoccupied nest was observed but no nesting pairs were present.

Map location of Great Blue Heron colony GBH-28.



Aerial view of Great Blue Heron colony GBH-28 (2014; B. Paxton).

Tuckertown Reservoir

Bald Eagles

A single Bald Eagle territory was occupied within the Tuckertown Reservoir system. The nest (RO-02-02) is now absent, but the nest found nearby in 2010 (DA-10-01) was active.

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
DA-10-01	Davidson	High Rock	Y	Y	0 chicks

Nest Location

This nest was located along the east shoreline between Lick and Cabin Creeks. The nest tree is within a buffer strip of loblolly pines between a regenerating pine stand and the water. The nest is likely visible from the water and from the railroad.

Nesting Activity

Bird Activity – On 21 March 2015, there were no adults nearby, and the nest had a lining with some fresh material. On 3 May 2015, the nest was empty. It is likely that this pair made an attempt that failed.

Nest Condition – The nest was in good structural condition.

Nest Substrate

Substrate Type – Nest was built in a loblolly pine. Nest tree was on the landward edge of a pine buffer between a regenerating pine stand and the water.

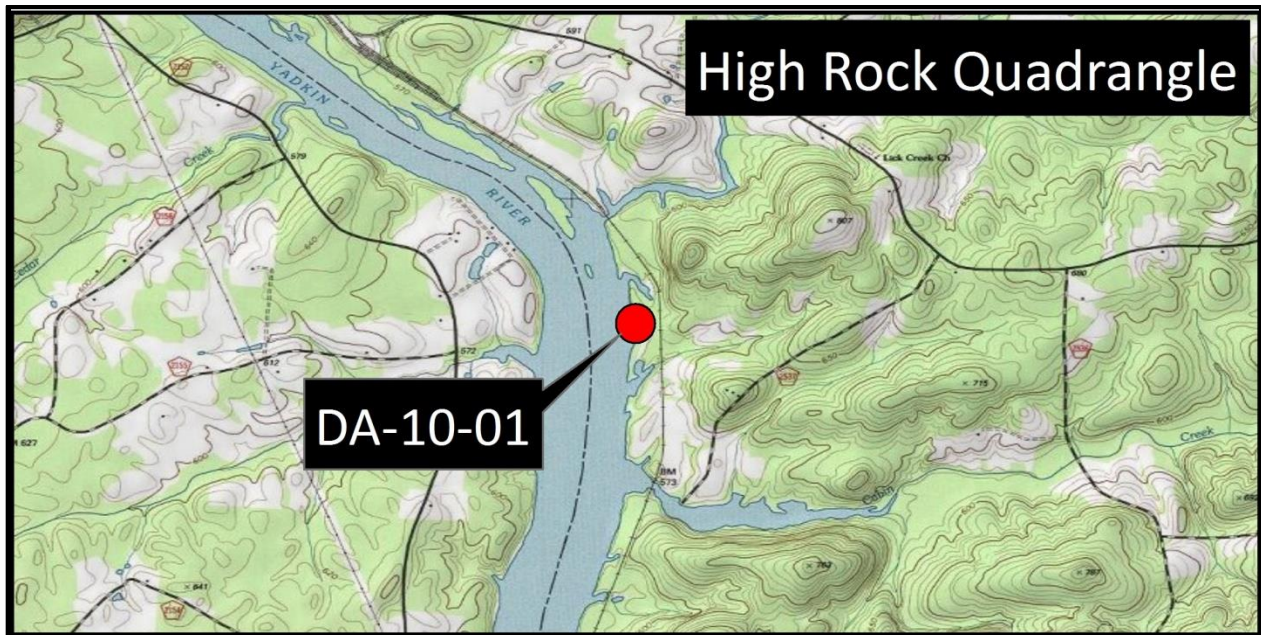
Nest Position – Nest was positioned on side limbs up against the main trunk and down below the crown. Nest had greater than 50% sky exposure.

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

Potential Disturbance

The nest may be visible from the water and the railroad tracks. Nest would be most accessible from the water side. The land is not near easy road access. Disturbance potential appears to be limited.

Map location of Bald Eagle nest DA-10-01.



Aerial photo of nest DA-10-01 (photo 2012; B. Watts).

Great Blue Herons/Great Egrets

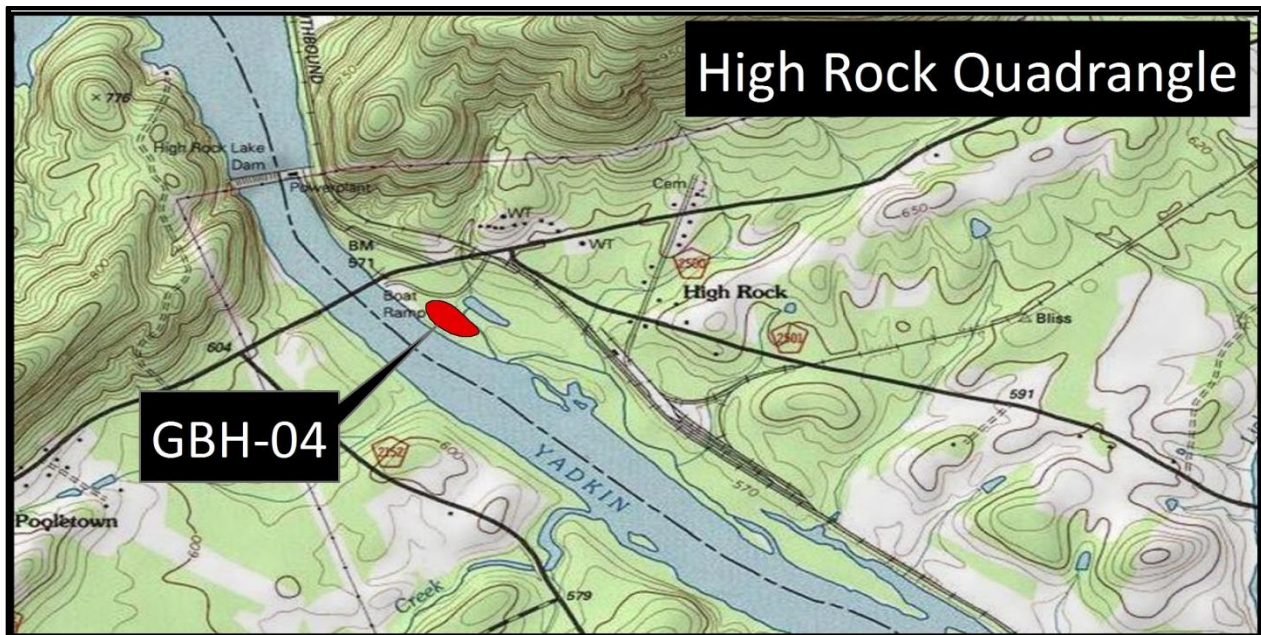
A single colony of breeding Great Blue Herons was detected on Tuckertown Reservoir on an island just below the High Rock Dam. The total population estimate for this reservoir is 95 pairs of Great Blue Herons and 23 pairs of Great Egrets.

Code	County	Topo Quad	Pairs
GBH-04	Davidson	High Rock	95 GBHE, 23 GREG

GBH-04 Colony Description

This mixed Great Blue Heron and Great Egret colony is 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. The colony is now restricted to use of the hardwood trees along the pond, whereas in previous years the colony used pine trees as well. During the 2015 surveys, 95 pairs of Great Blue Herons were observed and 23 pairs of Great Egrets were present.

Map location of Great Blue Heron colony GBH-04



Aerial view of Great Blue Heron colony GBH-04 (photo 2011, B. Watts).

Narrows Reservoir

Bald Eagles

Four active Bald Eagle nests were located along the shoreline of Narrows Reservoir.

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
MO-03-01	Montgomery	Badin	Y	Y	2 chicks

Nest Location

This nest was located along a bluff set back from the shoreline on Uwharrie National Forest. The nest tree is 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 – On 21 March 2015 an adult was observed in the nest brooding. On 3 May 2015, two chicks approximately seven to eight weeks old were observed in the nest.

Nest Condition – Nest structure is of moderate size and in good structural condition.

Nest Substrate

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

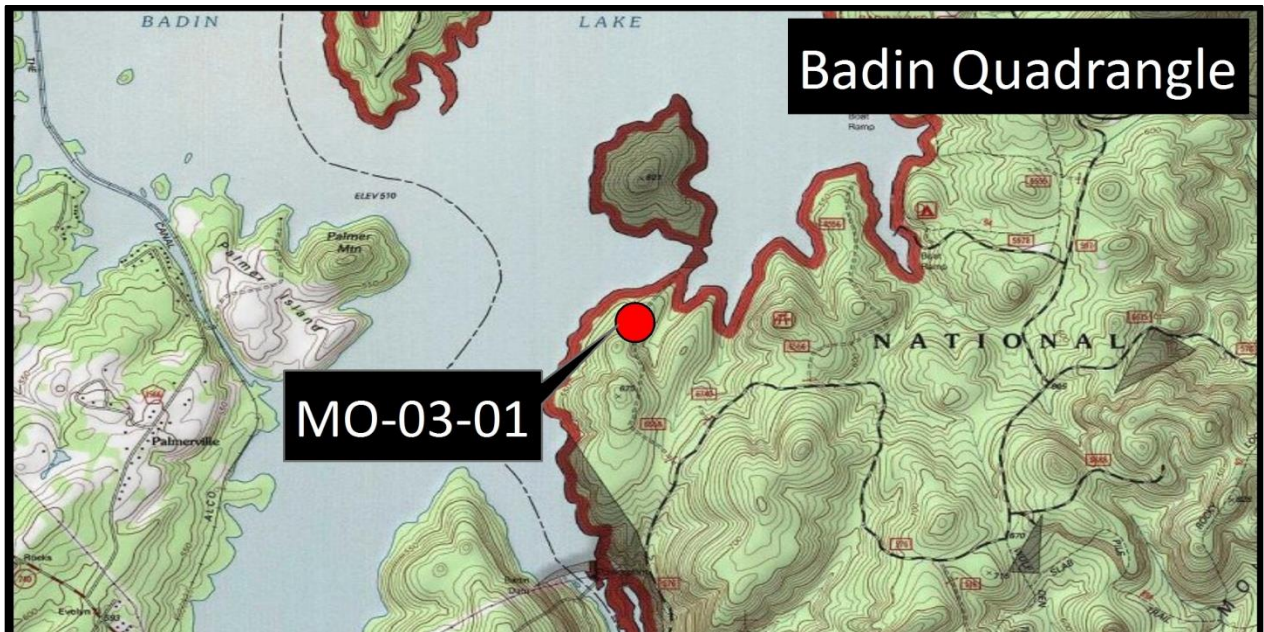
Nest Position – Nest is positioned on a lateral limb up against the trunk. Crown limbs are fairly sparse such that sky exposure was 70%.

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 the shoreline, but may be seen and accessed from nearby logging road.

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



Aerial view of Bald Eagle nest MO-03-01 (photo 2011, B. Watts).



Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
ST-12-01	Stanly	New London	Y	Y	2 chicks

Nest Location

This nest was located near a power line right-of-way southeast of Tuckertown Dam. The tree may not be visible from the water due to a pine buffer along the shoreline and there are no public roads near this site.

Nesting Activity

Bird Activity – On 21 March 2015, two chicks (approximately four weeks old) were observed. On 3 May 2015, there were two chicks approximately nine to ten weeks old within the nest.

Nest Condition – The nest was in good structural condition and had a well-developed cup and lining.

Nest Substrate

Substrate Type – Nest was built in a loblolly pine tree. The tree is positioned along a power line corridor.

Nest Position – The nest was built in a top crotch of a loblolly pine. Although the nest was near the crown, it was shaded with only 30-40% sky exposure.

Substrate Condition – Nest tree was in good condition.

Potential Disturbance

The nest tree was along a power line corridor. The site is remote from human disturbance. There is no road access into the site and it is unlikely that the nest is visible from the water due to a tree buffer along the shoreline.

Map location of Bald Eagle nest ST-12-01.



Aerial view of Bald Eagle nest ST-12-01 (photo 2013, B. Paxton).



Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
MO-13-01	Montgomery	Badin	Y	Y	3 chicks

Nest Location

This eagle nest is located on a small forested island near the Pine Haven residential development at the confluence of Beaverdam and Reynolds Creeks. The nest is located within the mixed Great Blue Heron and Great Egret colony on the island (GBH-05).

Nesting Activity

Bird Activity – On 21 March 2015, an adult was observed brooding. On 3 May 2015, there were three chicks approximately five to six weeks old observed within the nest.

Nest Condition – The nest was in good structural condition and had a well-developed cup and lining.

Nest Substrate

Substrate Type – Nest is in a supercanopy loblolly pine tree.

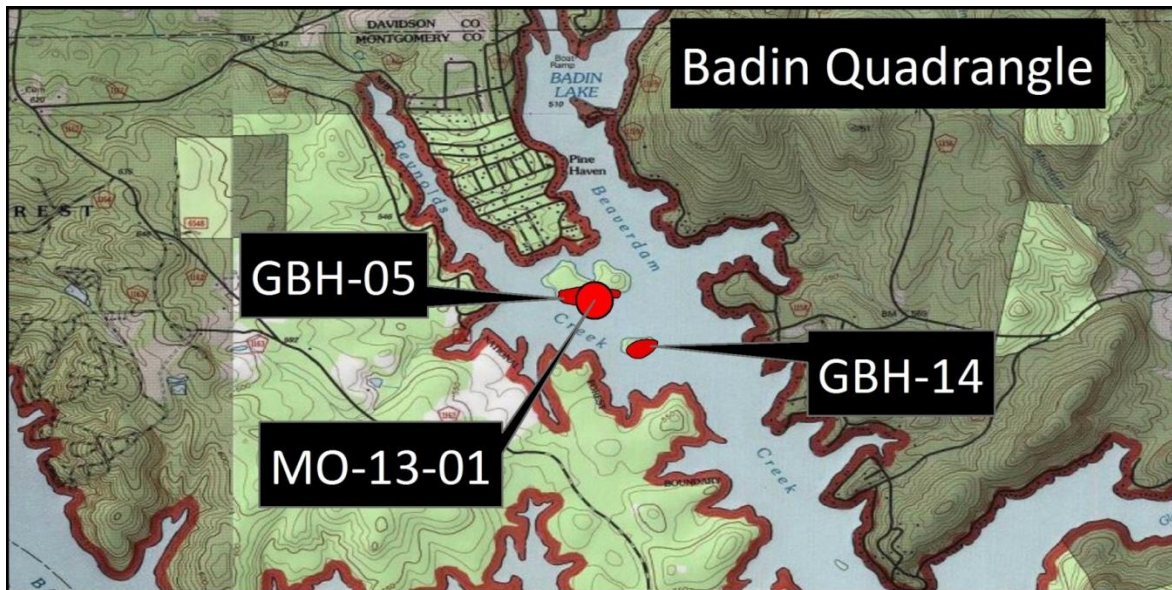
Nest Position – Nest is positioned in a high stable crotch. Nest is exposed with 70% sky exposure.

Substrate Condition – Nest tree is in good condition.

Potential Disturbance

The drainage is highly developed in this area with considerable boat traffic. Nest is exposed and boat traffic has the potential to disturb this nest.

Map location of Bald Eagle nest MO-13-01.



Aerial photo of nest MO-13-01 (photo 2013; B. Paxton)



Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
MO-13-02	Montgomery	Badin	Y	Y	0 chicks

Nest Location

This nest is located in a relatively undeveloped section of mixed hardwood-pine forest, just south of Lanes Chapel. The new Great Blue Heron colony GBH-27 is located in the same forest as this new eagle nest.

Nesting Activity

Bird Activity – On 21 March 2015, there were no adults nearby, and the nest had a lining with some fresh material. On 3 May 2015, the nest was empty. It is likely that this pair made an attempt that failed.

Nest Condition – The nest was in good structural condition.

Nest Substrate

Substrate Type – Nest is built in a large supercanopy loblolly pine tree. Nest is surrounded by a Great Blue Heron colony (GBH-27).

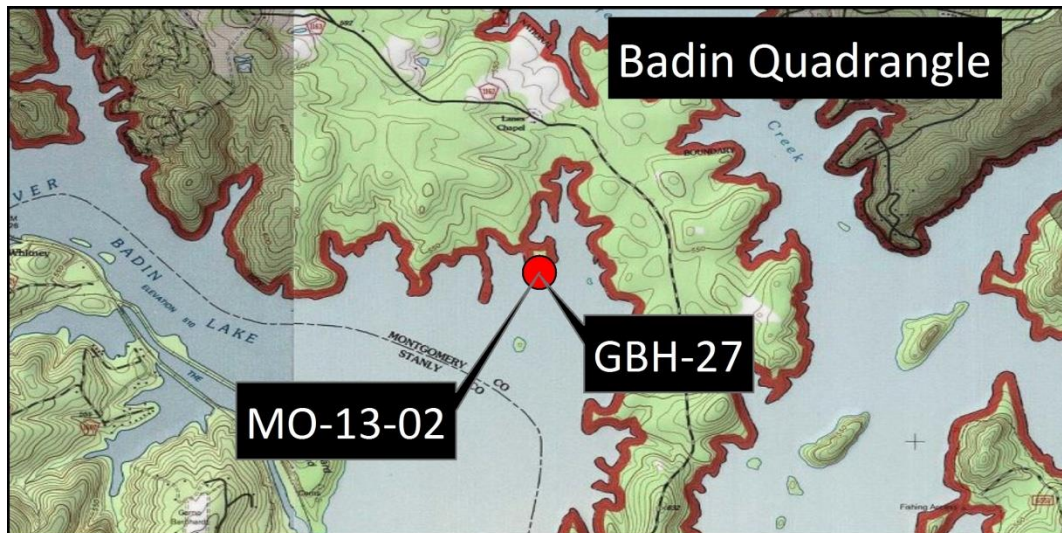
Nest Position – Nest is positioned in a stable crotch at the top of the tree. Nest is shaded and has approximately 25% sky exposure.

Substrate Condition – Nest tree is in good condition.

Potential Disturbance

The nest appears to be in a relatively undisturbed portion of the lake. There are no nearby developments and the possibility of human disturbance at this site appears to be low.

Map location of Bald Eagle nest MO-13-02.



Aerial photo of nest MO-13-02 (photo 2013, B. Paxton)



Great Blue Herons and Great Egrets

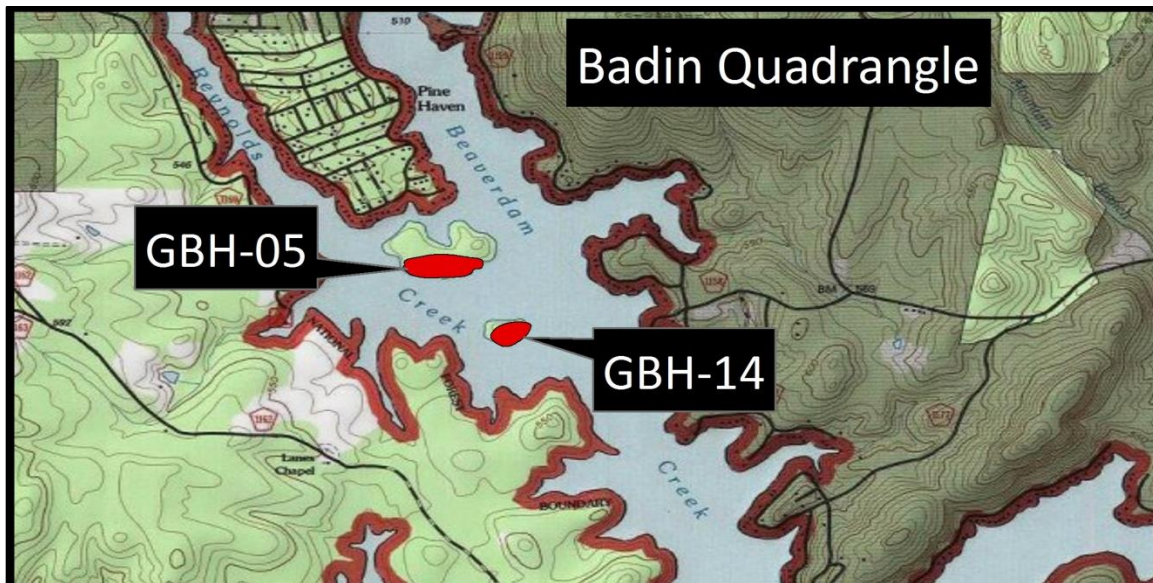
Six colonies of breeding Great Blue Herons were detected within Narrows Reservoir during the 2015 survey. Total population estimate for this reservoir was 176 pairs of Great Blue Herons. A total of 270 pairs of Double-crested Cormorants were found nesting on the reservoir in 2015.

Code	County	Topo Quad	Pairs
GBH-05	Montgomery	Badin	95 GBHE

GBH-05 Colony Description

This Great Blue Heron 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-aged stand of loblolly pines with numerous canopy gaps. Nests were built throughout the stand. The colony was estimated to contain 95 pairs of Great Blue Herons.

Map location of Great Blue Heron colony GBH-05.



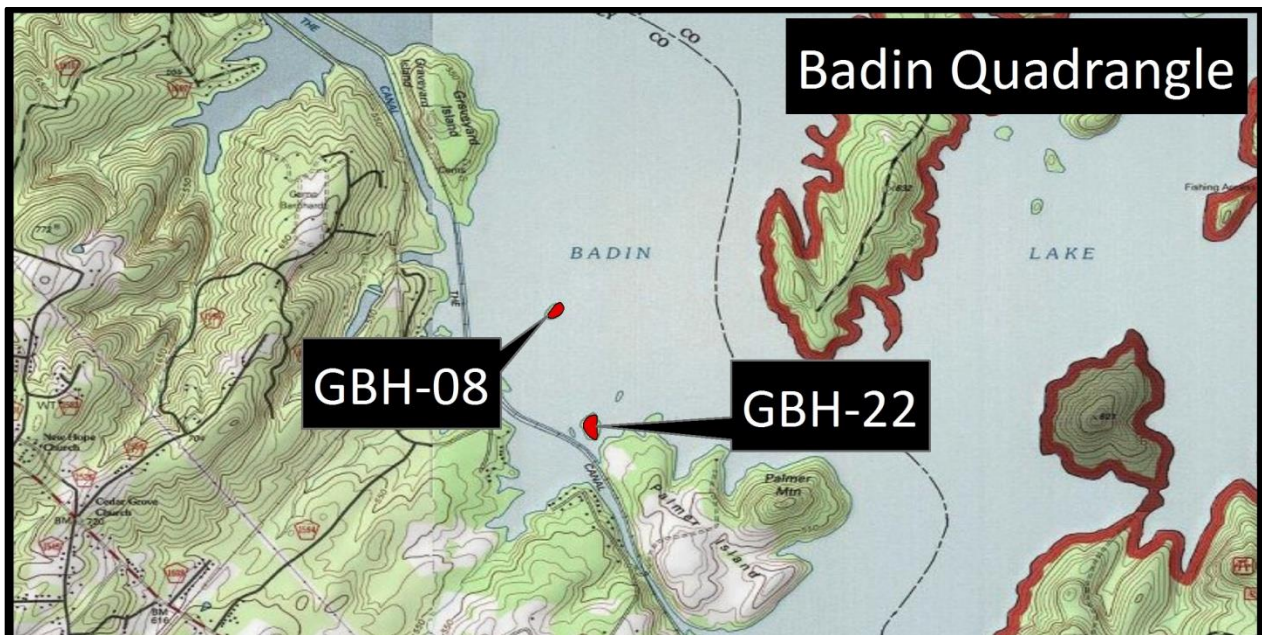
Aerial picture of Great Blue Heron colony GBH-05 (photo 2006, B. Watts).

Code	County	Topo Quad	Pairs
GBH-08	Stanly	Badin	2 GBHE, 90 DCCO

GBH-08 Colony Description

This Great Blue Heron colony was located on a small forested island along the western shoreline of Badin Lake between Graveyard Island and Palmer Island. The island is well isolated from shoreline but subject to regular boat traffic. Nests were scattered in loblolly pines throughout the center of the island. Two pairs of Great Blue Herons were observed and 90 pairs of Double-crested Cormorants were observed.

Map location of Great Blue Heron colony GBH-08.



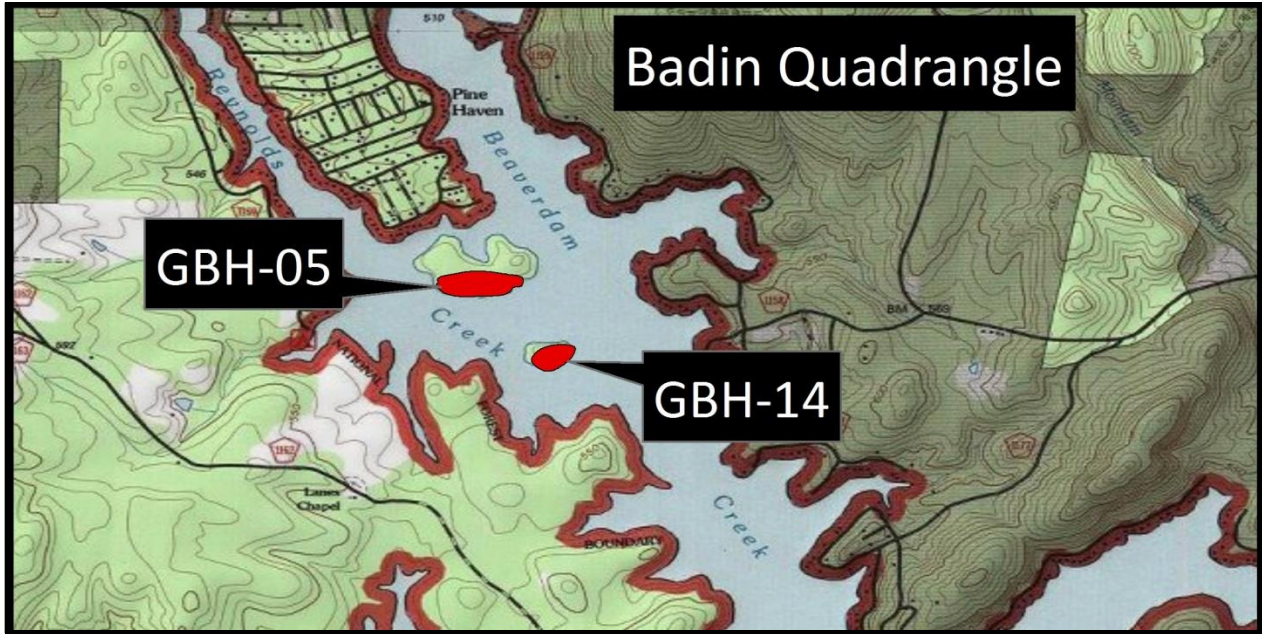
Aerial picture of Great Blue Heron colony GBH-08 (photo 2011, B. Watts).

Code	County	Topo Quad	Pairs
GBH-14	Montgomery	Badin	4 GBHE, 100 DCCO

GBH-14 Colony Description

This Great Blue Heron colony was located on a small forested island within the confluence of Reynolds and Beaverdam Creeks. The island is well isolated from the shoreline. The forest was dominated by loblolly pines. Nests were scattered across the island in two clusters. Recently the island has lost many trees due to wind. Four pairs of Great Blue Herons were observed and 100 pairs of Double-crested Cormorants were observed.

Map location of Great Blue Heron colony GBH-14.



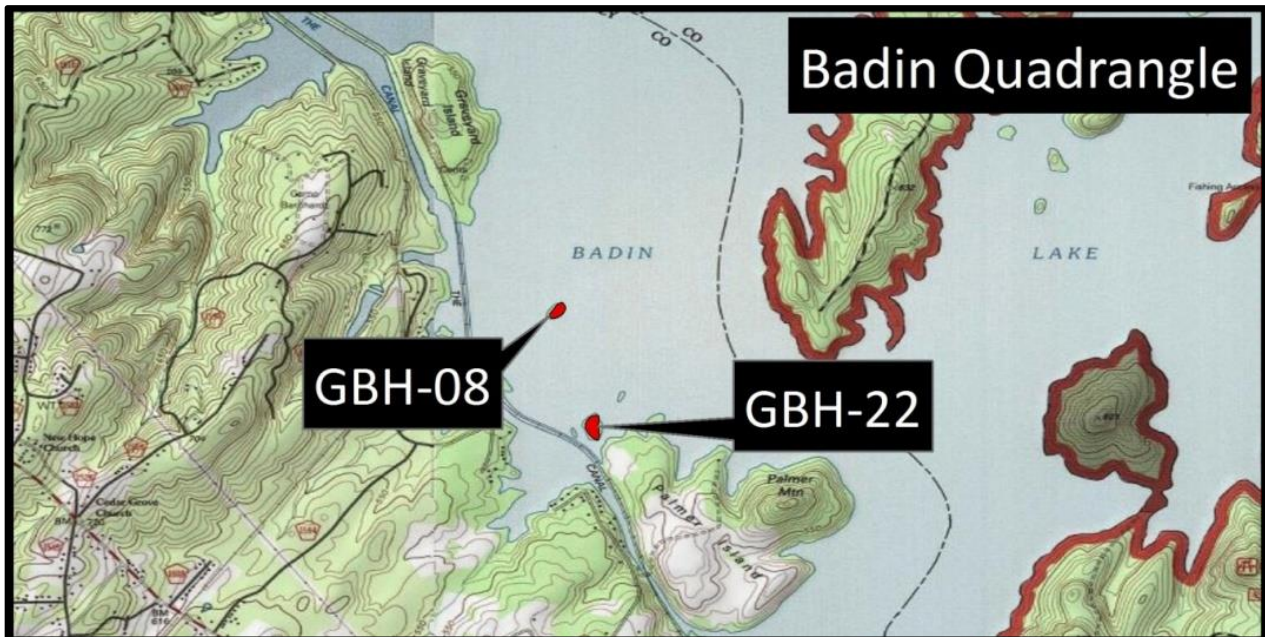
Aerial picture of Great Blue Heron colony GBH-14 (photo 2014, B. Paxton).

Code	County	Topo Quad	Pairs
GBH-22	Stanly	Badin	10 GBHE, 80 DCCO

GBH-22 Colony Description

This Great Blue Heron colony is located in a patch of forested land along Badin Lake on the northwest corner of Palmer Island. Ten pairs of Great Blue Herons were observed and 80 pairs of Double-crested Cormorants were observed.

Map location of Great Blue Heron colony GBH-22.

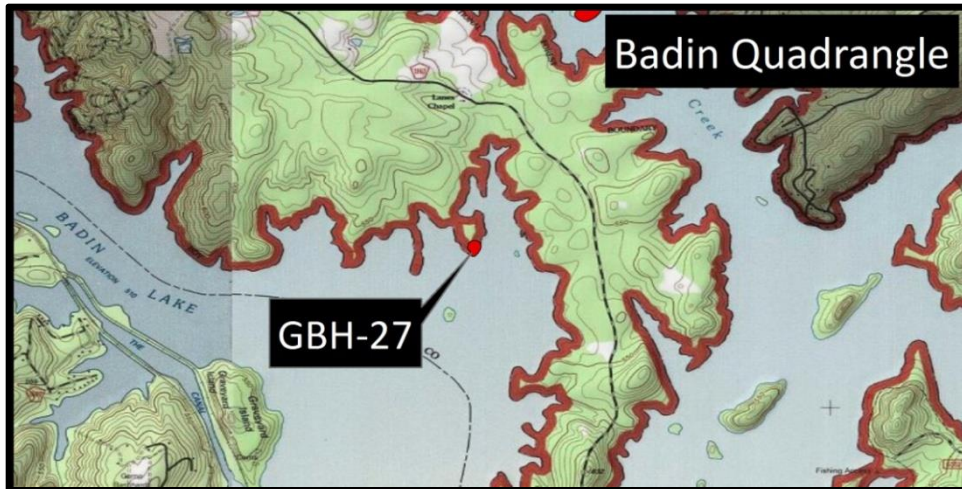


Code	County	Topo Quad	Pairs
GBH-27	Stanly	Badin	62 GBHE

GBH-27 Colony Description

This Great Blue Heron colony is located in a patch of forested land along Badin Lake, south of Lanes Chapel. The Bald Eagle nest MO-13-02 is located within this colony. Sixty-two nesting pairs were observed.

Map location of Great Blue Heron colony GBH-27.

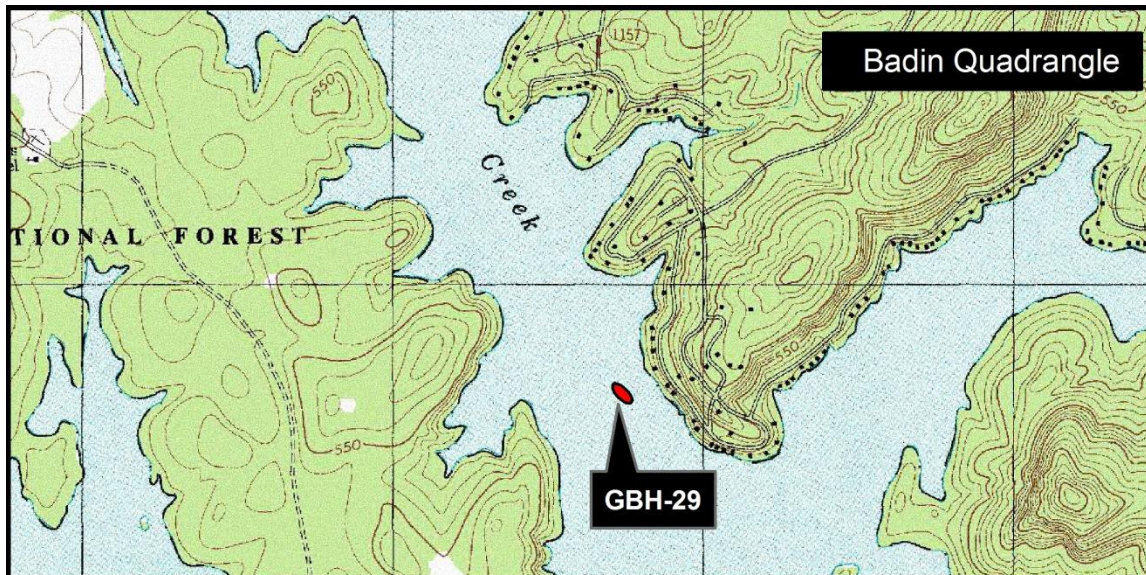


GBH-29	Montgomery	Badin	3 GBHE
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GBH-29 Colony Description

This Great Blue Heron colony was located on a small forested island near the confluence of Glady and Beaverdam Creeks. The island is well isolated from the shoreline. The forest was dominated by loblolly pines with mixed hardwoods. Nests were scattered across the island in loblolly pines. Three pairs were observed.

Map location of Great Blue Heron colony GBH-29.



Aerial picture of Great Blue Heron colony GBH-29 (photo 2014, B. Paxton).

Falls Reservoir

Bald Eagles

One Bald Eagle nest was present along this waterway during the 2015 survey. Nest ST-10-01 is now absent. Nest ST-08-01 was rebuilt and was active.

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
ST-08-01	Stanly	Badin	Y	Y	2 chicks

Nest Location

This nest was located within a stand of mixed pine-hardwood forest near the shoreline on Morrow Mountain State Park. The nest tree is just north of an active parking lot. The nest was in a forest stand with buffers on all sides. The nest is likely visible during the winter months from both the water and the parking lot.

Nesting Activity

Bird Activity – On 21 March 2015, an adult was observed brooding a chick approximately two weeks old. On 3 May 2015, two chicks approximately six to seven weeks old were observed in the nest.

Nest Condition – This nest was in good structural condition.

Nest Substrate

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

Nest Position – The nest was built in a deep crotch in a very low position under the tree crown. The nest surface likely had only 10-20% sky exposure due to its low position.

Substrate Condition – The nest tree was in good condition.

Potential Disturbance

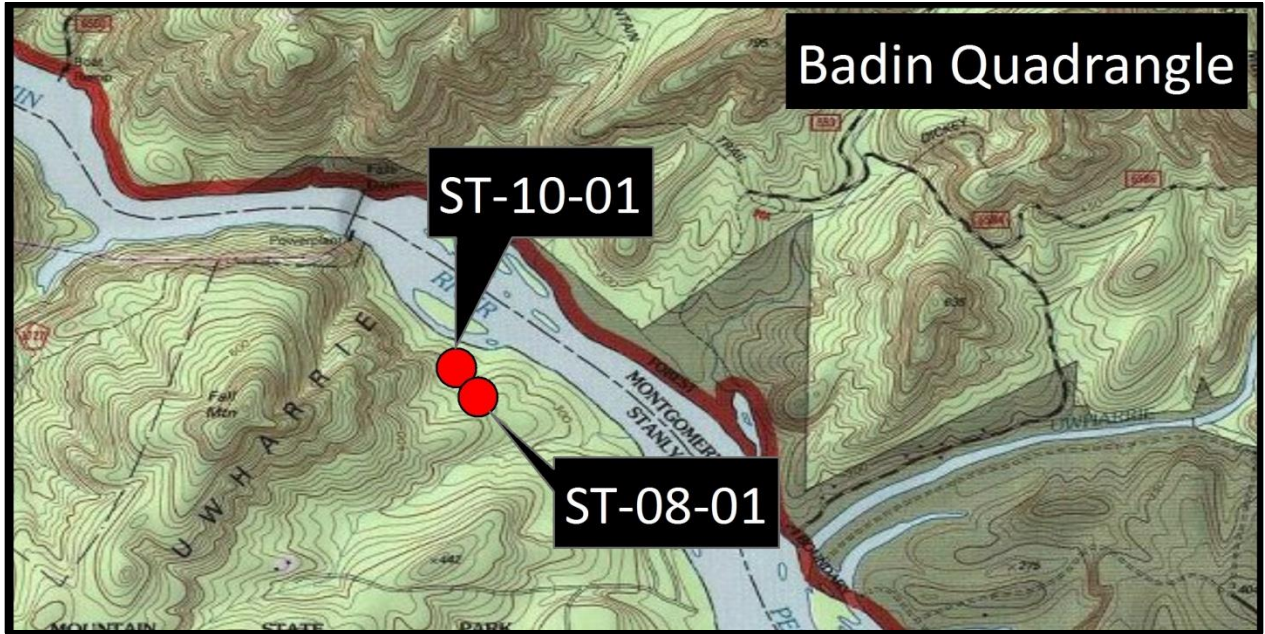
Nest tree was protected by a forest buffer on all sides. However, the nest was likely visible from both the parking lot and from the water during winter and summer. The nest is fairly close to a public parking lot that appears to receive considerable use. There is potential for human disturbance at this site.

Nest Code	County	Topo Quad	Active Territory	Active Nest	Chicks Produced
ST-10-01	Stanly	Badin	N	N	0

Nest Location

This nest is now absent but was located within a stand of mixed pine-hardwood forest near the shoreline on Morrow Mountain State Park. The nest tree was northwest of ST-08-01. The nest was in a forest stand with buffers on all sides. The nest was likely visible during the winter months from both the water and the parking lot.

Map location of Bald Eagle nest ST-08-01 and ST-10-01.



Aerial view of nest ST-10-01 (photo 2011: B. Watts).



Great Blue Heron

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

Bald Eagle nest summary (2001-2015).

Nest Code	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DA-01-01	1 chick	2 chicks	1 chick	Not used	Not used	Absent	Absent	Absent	2 chicks	2 chicks	2 chicks	2 chicks	2 chicks	3 chicks	1 chick
ST-01-01	2 chicks	Not used	Not used	Not used	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
ST-01-02	Not used	Not used	Not used	Not used	Not used	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
RO-02-01		Lost/storm	Absent	Absent	Absent	Absent	Absent	Absent	Rebuilt	Not used	Absent	Absent	Absent	Absent	Absent
RO-02-02		0 chicks	1 chick	1 chick	2 chicks	2 chicks	3 chicks	0 chicks	Not used	Not used	Absent	Absent	Absent	Absent	Absent
MO-03-01			1 chick	1 chick	1 chick	Not used	2 chicks	2 chicks	2 chicks	2 chicks	1 chick	0 chicks	2 chicks	2 chicks	2 chicks
RO-04-01				2 chicks	2 chicks	0 chicks	2 chicks	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
MO-06-01						Not used	Not used	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
DA-07-01							0 chicks	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
ST-07-01							2 chicks	Not used	Not used	Absent	Absent	Absent	Absent	Absent	Absent
RO-08-01								Not used	Not used	Not used	Not used	Not used	Absent	Absent	Absent
DA-08-01								0 chicks	Not used	Absent	Absent	Absent	Absent	Absent	Absent
DA-08-02								0 chicks	Not used	Absent	Absent	Absent	Absent	Absent	Absent
ST-08-01								0 chicks	0 chicks	Not used	Not used	Partial nest present	GHOW using nest	Absent	2 chicks
DA-09-01									1 chick	0 chicks	0 chicks	1 chick	Absent	Absent	Absent
DA-10-01										2 chicks	3 chicks	0 chicks	3 chicks	1 chick	0 chicks
RO-10-01										0 chicks	0 chicks	2 chicks	2 chicks	1 chick	2 chicks
ST-10-01										0 chicks	2 chicks	1 or 2 chicks	2 chicks	2 chicks	Absent
MO-11-01											Not used	Absent	Absent	Absent	Absent
ST-12-01												2 chicks	3 chicks	2 chicks	2 chicks
MO-13-01													1 chick	1 chick	3 chicks
MO-13-02													2 chicks	2 chicks	0 chicks

Great Blue Heron (GBHE)/Great Egret (GREG) and Double-crested Cormorant (DCCO) colony summary (high count in first or second flight, 2001-2015)

Colony Code	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GBH-01	11 GBHE	21 GBHE	43 GBHE	43 GBHE	44 GBHE	48 GBHE	54 GBHE, 1 GREG	52 GBHE	57 GBHE	43 GBHE	56 GBHE	29 GBHE	35 GBHE	26 GBHE	25 GBHE
GBH-02	425 GBHE	480 GBHE	310 GBHE	440 GBHE, 15 GREG	380 GBHE, 15 GREG	320 GBHE, 2 GREG	340 GBHE, 26 GREG	380 GBHE, 32 GREG	270 GBHE, 28 GREG	255 GBHE, 38 GREG	240 GBHE, 48 GREG	240 GBHE, 55 GREG	210 GBHE, 63 GREG	85 GBHE	145 GBHE, 42 GREG
GBH-03	5 GBHE	21 GBHE	38 GBHE	33 GBHE	52 GBHE	55 GBHE	73 GBHE	75 GBHE	87 GBHE	92 GBHE	58 GBHE	7 GBHE	5 GBHE	0	0
GBH-04	7 GBHE	19 GBHE	60 GBHE	75 GBHE	90 GBHE	83 GBHE	95 GBHE	135 GBHE	158 GBHE, 3 GREG	145 GBHE, 19 GREG	180 GBHE, 22 GREG	215 GBHE, 18 GREG	220 GBHE, 45 GREG	45 GBHE, 1 GREG	95 GBHE, 23 GREG
GBH-05	150 GBHE	140 GBHE	185 GBHE	110 GBHE	180 GBHE	145 GBHE	180 GBHE	220 GBHE	195 GBHE, 2 GREG	225 GBHE, 7 GREG	185 GBHE, 5 GREG	185 GBHE, 5 GREG	165 GBHE, 1 GREG	125 GBHE	95 GBHE
GBH-06		5 GBHE	45 GBHE	44 GBHE	52 GBHE	73 GBHE	68 GBHE	59 GBHE	55 GBHE	58 GBHE	55 GBHE	48 GBHE, 3 GREG	42 GBHE	37 GBHE	45 GBHE
GBH-07		1 GBHE	1 GBHE	4 GBHE	8 GBHE	8 GBHE	34 GBHE	34 GBHE	42 GBHE	48 GBHE	42 GBHE	45 GBHE	45 GBHE	15 GBHE	24 GBHE
GBH-08				8 GBHE	38 GBHE	63 GBHE	58 GBHE	76 GBHE	82 GBHE	75 GBHE, 32 DCCO	95 GBHE, 83 DCCO	25 GBHE, 215 DCCO	12 GBHE, 155 DCCO	2 GBHE	2 GBHE, 90 DCCO
GBH-10					6 GBHE	6 GBHE	10 GBHE	0	0	0	0	26 GBHE	35 GBHE	8 GBHE	0 (old unoccupied nests)
GBH-11					4 GBHE	5 GBHE	8 GBHE	12 GBHE	16 GBHE	17 GBHE	28 GBHE	31 GBHE, 2 GREG	35 GBHE	24 GBHE	27 GBHE
GBH-13								8 GBHE	7 GBHE	3 GBHE	6 GBHE	5 GBHE	Colony abandoned	Colony abandoned	Colony abandoned
GBH-14									21 GBHE	18 GBHE	10 GBHE	22 GBHE	25 GBHE	6 GBHE	4 GBHE, 100 DCCO
GBH-15										6 GBHE	6 GBHE	12 GBHE	8 GBHE	0	0
GBH-16										10 GBHE	12 GBHE	18 GBHE	26 GBHE	6 GBHE	8 GBHE
GBH-17												18 GBHE	24 GBHE	11 GBHE	15 GBHE
GBH-21												7 GBHE	5 GBHE	4 GBHE	2 GBHE
GBH-22												12 GBHE	23 GBHE, 8 DCCO	12 GBHE	10 GBHE, 80 DCCO
GBH-23													4 GBHE	5 GBHE	5 GBHE
GBH-24													3 GBHE	9 GBHE	14 GBHE
GBH-25													10 GBHE	0	0
GBH-26													11 GBHE	4 GBHE	5 GBHE
GBH-27													16 GBHE	65 GBHE	62 GBHE
GBH-28														2 GBHE	0 (1 old unoccupied nest)
GBH-29														10 GBHE	3 GBHE