2008

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B. D. Watts

The Center for Conservation Biology, bdwatt@wm.edu

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Recommended Citation
AERIAL SURVEYS OF POTENTIAL OUTLYING LANDING FIELD SITES FOR BALD EAGLES AND COLONIAL WATERBIRDS
Final Report

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

Recommended Citation:

Project Funded By:
Ecology and Environment, Inc.
Center for Conservation Biology

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.
BACKGROUND

During an interagency meeting in March of 2008, the U.S. Fish and Wildlife Service (USFWS) and the Virginia Department of Game and Inland Fisheries (VDGIF) identified the potential for bald eagles and colonial nesting birds to occur within four sites currently proposed by the U.S. Navy as potential Outlying Landing Field (OLF) sites. The occurrence of bald eagles and colonial nesting birds at the proposed sites may require additional consideration during planning and evaluation of the potential effects from the construction and operation of an OLF. Because existing survey information is not comprehensive on these potential sites, the Navy decided to conduct surveys for these species at the proposed sites to aid in development of the Environmental Impact Statement.

Because Bald Eagle and wading bird nest surveys must be completed in the late winter/early spring (February to early April), prior to when trees leaf out, it was recommend by the USFWS that these surveys be performed as soon as feasible. In order to allow for the consideration of results and the incorporation of findings into the draft Environmental Impact Statement, it was decided that the surveys should be conducted in the early spring of 2008.

The objective of this project is to conduct aerial surveys for Bald Eagles and colonial nesting birds within four proposed OLF sites from late March through early April, 2008. The total area of the survey is approximately 130,000 acres (each of the four sites is approximately 32,000 acres).

STUDY AREA

OLF sites included in the survey effort are Cabin Point, Dory, Mason, and Sandbanks (Figure 1). These sites are within southeastern Virginia and northeastern North Carolina. All of the sites are within the Chowan watershed with individual sites occurring within the drainages of the Meherrin, Blackwater, and Nottoway Rivers. The northern portion of the Cabin Point site lies within the James River watershed.
Figure 1. Overview of OLF sites surveyed.
METHODS

Bald Eagle

Nest Survey - All major waterways and tributaries associated with the OLF boundaries 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. In order to survey upland areas away from watercourses and lakes, aerial transects spaced approximately 500 m apart were flown. 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.

Productivity Survey - All active Bald Eagle nests within or near OLF boundaries 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.

Great Blue Herons

All breeding colonies of colonial waterbirds 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 < 40 pairs. Estimates for colonies > 40 pairs were rounded off using a graded scale: nearest 5 for < 50, nearest 10 for 50 – 200, nearest 25 for 200 – 450.

SURVEY RESULTS

Sandbanks

Landcover within the Sandbanks site is dominated by cutover forest with a long reach of the Chowan River along the western boundary. The main channel of the Chowan is surrounded by a relatively pristine swamp corridor that is a focal area for spring and fall migrating passerines based on analysis of emergence signatures on NEXRAD radar (Mabey et al. 2007). Supercanopy bald cypress
and isolated patches of older class loblolly pines within 1 km of the channel provide suitable nesting substrate for Bald Eagles, Great Blue Herons, and Great Egrets. This corridor represents the primary habitat for these species within the site.

**Bald Eagle** – The site contains habitat along the Chowan that appears adequate to support a single pair of Bald Eagles. However, no birds were detected and no evidence of nest structures was observed. The area should be monitored for future colonization by this species.

**Great Blue Heron** – The Chowan watershed including the Meherrin, Nottoway, and Blackwater rivers supports a significant population of breeding Great Blue Herons (Watts and Byrd 1998, Watts and Paxton 2004, Watts and Byrd 2006). The stretch of the Chowan that is within the site contains several locations that could support heron colonies. Only a single colony was located within this area during the survey. Based on surveys of this system over the past 20 years, small colonies tend to move between locations over time but usually within a relatively small area. Over the past 40 years, the number of known Great Blue Heron colonies in Coastal Virginia has increased from 5 to more than 200 (Watts 2004). The area should be monitored for additional locations in the future.

**Sandbank – GBH-01** – Colony is located within 3 supercanopy bald cypress over extensive swamp. The colony site is situated near the western edge of the swamp but is protected by swamp buffer on all sides (Figure 2). 38 pairs of Great Blue Herons were counted. On 29 March, 2008 75% of pairs were incubating and 25% were building nests. Due to the early stage of nesting, the colony could have increased in size during the spring.

**Mason**

Landcover within the Mason site is dominated by cutover forest with interspersed, open farmland. The site contains very little open water habitat. Open water is restricted to the narrow channel of the Three Creek Swamp and a few mill or farm ponds including Herrells Pond and River Pond. Three Creek Swamp is positioned along a significant portion of the southern boundary of this site.

**Bald Eagle** – This site contains very limited and marginal habitat for Bald Eagles. It is possible that a pair could use the network of ponds within and beyond the buffer boundary to form a breeding territory but this is unlikely. No birds were detected and no evidence of nest structures were observed on the flight conducted 29 March, 2008. Given the lack of habitat within this site, future monitoring for this species does not seem warranted.

**Great Blue Heron** – Nesting habitat for this species is focused on the Three Creek Swamp. The system provides open marsh foraging habitat interspersed
with nesting substrate. This drainage has been known to support a nesting population of Great Blue Herons and Great Egrets since the systematic survey of 1993 (Watts and Byrd 1998). The population was also monitored in 2003 (Watts 2004, Watts and Paxton 2004). Over this 10-year period the configuration of colonies within this drainage changed from few large colonies to several small colonies. The aerial survey conducted on 29 March, 2008 located 6 colony sites that were within or near the buffer boundary (Figure 3). This includes 1 abandoned site and 5 active colonies with a total of 87 pairs. Only Great Blue Herons were detected during this flight. However, the date was early for Great Egrets and it is likely that pairs joined the colonies later in the season. This area will likely continue to be used by Great Blue Herons and likely Great Egrets into

**Figure 2.** Map of Sandbanks OLF with Great Blue Heron Colony.
the future and the location of colonies is dynamic. The site should be monitored for these species in the future to document population size and the distribution of colonies.

Mason-GBH-01 – This colony was located in scattered hardwoods isolated within open swamp. The site is situated within the Three Creek Swamp west and downstream of the buffer boundary (Figure 3). 35 pairs of Great Blue Herons were counted. On 29 March, 2008, 75% of pairs were incubating and the remaining pairs were building nests. Due to the early stage of nesting, the colony could have increased in size or included Great Egrets during the spring.

Figure 3. Map of Mason OLF with Great Blue Heron colonies.
Mason-GBH-02 – This colony was located in scattered hardwoods isolated within open swamp. The site is situated within Three Creek Swamp just within the southern buffer boundary (Figure 3). 42 nests were counted. On 29 March, 2008, nests were empty and did not appear to be worked during 2008. The condition of the nests suggests that the site was used in 2007. Pairs have likely moved to the nearby Mason-GBH-03 site and possibly joined in with other colonies.

Mason-GBH-03 – This colony was located in scattered hardwoods isolated within open swamp. The site is situated within Three Creek Swamp just within the southern buffer boundary (Figure 3). 22 nests were counted. On 29 March, 2008, 40% of pairs were incubating and 60% were building nests. Due to the early stage of nesting, the colony could have increased in size or included Great Egrets during the spring.

Mason-GBH-04 – This colony was located in 3 large hardwoods on the edge of an open water channel. The site is situated within Three Creek Swamp within the southern buffer boundary (Figure 3). 6 nests were counted. On 29 March, 2008, all pairs were incubating.

Mason-GBH-05 – This colony was located in scattered hardwoods isolated within open swamp. The site is situated within Three Creek Swamp very near the southeastern boundary of the buffer (Figure 3). 14 Great Blue Heron nests were counted. On 29 March, 2008, 10 pairs were incubating and 4 pairs were building. Great Egrets were observed in the vicinity of the colony but none were attending nests. Due to the early stage of nesting, the colony could have increased in size or included Great Egrets during the spring.

Mason-GBH-06 – This colony was located in an even-height, middle-aged, bald cypress stand. The site is along Poplar Swamp just above River Mill. 14 Great Blue Heron nests were counted. On 29 March, 2008, 50% were incubating and 50% were building nests. Due to the early stage of nesting, the colony could have increased in size or included Great Egrets during the spring.

Dory

Landcover within the Dory site is dominated by pine forest with scattered agriculture concentrated along the southeastern boundary. Water habitat includes the Assamuosick Swamp and Airfield Pond. The Assamuosick Swamp is likely a focal area for spring and fall migrating passerines. Patches of older pines and cypress associated with the open swamp provide suitable nesting substrate for both Bald Eagles and Great Blue Herons. The tributaries of Airfield Pond also have suitable substrate for both species.

Bald Eagle – The section of the Assamuosick Swamp that is included within the buffer boundary does not have suitable open water for Bald Eagles. No birds
were detected and no evidence of nest structures were observed on the flight conducted 29 March, 2008. Given the lack of habitat within this site, future monitoring for this species does not seem warranted. The Airfield Pond and associated tributaries do contain suitable nest substrate and there is limited foraging habitat within the pond area. Birds have been observed in past years perching along the shoreline. No birds were detected and no evidence of nest structures were observed on the flight conducted 29 March, 2008. It is possible that a pair could colonize this site in the future. A nest was located in a bald cypress tree along Seacock Swamp southeast of the town of Wakefield (Figure 4).

**Bald Eagle Nest VA-SS-08-01 – Ivor topographic quadrangle (Watts and Byrd 2008)**

*Nest Location* – This nest is located southeast of the town of Wakefield along Seacock Swamp. The swamp runs parallel to the railroad tracks and Route 460 but is not likely visible from the road due to the forest buffer. The nest tree is isolated within the center of an open swamp.

*Bird Activity* – On 29 March, 2008 a single adult was present and in incubating posture. On 13 May, an adult was perched in the canopy and a single chick was in the nest approximately 35 days old.

*Nest Condition* – On 29 March, 2008 the nest was in good structural condition with a well-formed cup and lining. The nest is shallow and small which is characteristic of a first-year nest.

*Nest Tree* – The nest was built within a large bald cypress. The tree was in good condition with no crown damage. The tree was isolated within an area of open swamp.

*Potential disturbance* – The nest tree is isolated with a good swamp buffer on all sides. Potential for human disturbance is low.

**Great Blue Heron** – The Assamuosick Swamp has been known to support a population of Great Blue Herons since the systematic survey of 1993 (Watts and Byrd 1998, Watts 2004, Watts and Paxton 2004). However, no colonies were detected within the segment of the swamp within the buffer boundary during the 29, March survey. This location does have suitable substrate and should be monitored for the formation of colonies in the future. Great Blue Herons and Great Egrets have not been documented to use Airfield Pond and associated tributaries during the 1993 or 2003 systematic surveys. The tributaries have suitable habitat and are in a landscape context that is typically attractive to Great Blue Herons and Great Egrets. No colonies were present during the 29 March survey. This area should be monitored in the future for the formation of new colonies.
Landcover within the Cabin Point site is a mixture of pinelands, agricultural fields, and swamps. Water habitat includes a small portion of the Blackwater River and its tributary Otterdam Swamp. A portion of the swamp has been damned to create Avery’s Pond. It should be noted that at the time of the survey, the dam had been breached and the pond had been drained. The Blackwater is positioned along the southern buffer boundary. The headwaters of Upper Chippokes Creek, a tributary of the James River, enters into the buffer along the northern boundary. Both of these water features provide potential habitat for Bald Eagles, Great Blue Herons, and Great Egrets.
**Bald Eagles** – The small reach of the Blackwater River that runs along the buffer boundary provides little suitable habitat for Bald Eagles. However, Avery’s Pond may have adequate foraging habitat in combination with other ponds and the James River to support a single breeding territory. Nesting substrate is available within this site. No birds were detected and no evidence of nest structures were observed on the flight conducted 29 March, 2008. Upper Chippokes Creek is a productive tributary of the James River and in 1981 was the first location that Bald Eagles re-colonized the James after DDT. The small tributary has supported, as many as, 6 active eagle territories. A single active nest is located on this creek within the buffer boundary, just downstream of Route 10 (Figure 5). This nest location has been known and active since 2006.

**Bald Eagle Nest VA-SU-07-03** – Savedge topographic quadrangle (Watts and Byrd 2008)

_Nest Location_ – This nest is located on Upper Chippokes Creek just north of the Route 10 bridge. The nest is within a cluster of supercanopy loblolly pines west and north of the abandoned gravel operation but isolated within the marsh.

_Bird Activity_ – On 9 March, 2008 (flown as part of the annual Virginia Bald Eagle survey) a single adult was present and in incubating posture. On 23 April, 2008 an adult was observed perching in an adjacent tree and 2 chicks approximately 45 days old were present in the nest.

_Nest Condition_ – On all dates observed the nest was in good structural condition. On 9 March, 2008 the nest had a well-formed cup and good lining. The nest is positioned in a deep top crotch in the crown.

_Nest Tree_ – The nest was built within a large loblolly pine. The tree was in good condition with no crown damage. The tree is within a small cluster of pines isolated and supercanopy above the surrounding marsh.

_Potential Disturbance_ – The nest tree is on a short distance north of Route 10 but is not visible from the road due to forest buffer. The tree is has a good marsh buffer on all sides so is not vulnerable to disturbance from the ground.

**Great Blue Heron** – The Blackwater River has been known to support a population of Great Blue Herons and Great Egrets since the systematic survey of 1993 (Watts and Byrd 1998, Watts 2004, Watts and Paxton 2004). Three heron colonies were detected near or within the buffer boundary during the 29 March survey (Figure 5). These colonies collectively supported 57 Great Blue Heron nests and 12 Great Egret nests. The location and size of these colonies is dynamic and should be monitored in the future. The headwaters of Upper Chippokes Creek has suitable substrate and foraging habitat to support nesting.
colonies. However, no colonies were detected during the 29 March survey. This area should be monitored in the future for the formation of new colonies.

Figure 5. Map of Cabin Point OLF with Great Blue Heron/Great Egret colonies and Bald Eagle nest.

Cabin Point-GBH-01 – This colony was located in a densely forested wetland along Otterdam Swamp just upstream of Avery’s Pond. The colony is likely visible from a road that crosses the swamp just above the pond. 12 pairs of Great Blue Herons were counted. On 29 March, 2008, 6 pairs were incubating and 6 pairs were building nests.

Cabin Point-GBH-02 – The colony was located below Avery’s Pond on in a forested wetland on Otterdam Swamp. 23 nests of Great Blue Herons were
counted. Nests were tightly packed in 4 supercanopy cypress trees. On 29 March, 2008, 12 pairs were incubating and the remaining were building nests.

Cabin Point-GBH-03 – The colony was located along the Blackwater River near the southern buffer boundary in a dense forested wetland with scattered cypress. 22 Great Blue Heron and 12 Great Egret nests were counted. On 29 March, 2008, all Great Blue Herons were incubating and all Great Egrets were building nests. Due to the early stage of nesting, it is likely that the number of Great Egrets in the colony increased during the spring.

ACKNOWLEDGMENTS

Captain Fuzzzo Shermer and Mitchell Byrd assisted with aerial surveys. Bart Paxton produced survey maps and GIS layer for survey results. Funding for this project was provided by Ecology and Environment, Inc.

LITERATURE CITED


