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*The Center for Conservation Biology*

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## **BACKGROUND**

Naval Air Station Patuxent River conducts annual monitoring of breeding eagles on the installation to inform management and prevent conflicts with military activities. One of the main sources of potential conflict is the airfield at Patuxent River and the risk of potential airstrikes of an eagle with Naval aircraft. Banding data from nestlings will be used to help determine whether or not bald eagle nests on the installation constitute a hazard to aviation on NAS Patuxent River

The annual monitoring currently includes an aerial survey to document eagle nest locations and breeding status (funded by a separate contract). In 2017, there were three known eagle nests located in the habitat surrounding the airfield. The first round of the survey in March found incubating and brooding behavior by the adult eagles. The second round of surveys in early April confirmed small chicks in all three nests.

## **OBJECTIVES**

- 1) Support ongoing Bird Airstrike Safety Hazards by identifying individual eagles with leg bands
- 2) Band nestlings in bald eagle nests on the main installation.

## **STUDY AREA**

The NAS Pax River Complex is located on approximately 15,000 acres along the Patuxent River and the Chesapeake Bay, including the main installation (6,400 acres) and outlying parcels at Webster Field (859 acres) and Bloodsworth Island and Adam Island (4,900). For this project we are only focusing on the bald eagle nests in close proximity to the airfield on the main installation.

## **METHODS**

Aerial Surveys - A Cessna 172 aircraft flew low over the landscape, allowing trained observers to search for nests and examine nest contents. Nests were mapped and coded according to nest substrate, nest condition, eagle presence, and breeding activity (Postupalsky 1974). Any new nests detected were plotted using recent aerial imagery on GPS enable tablet computers and given a unique alphanumeric code consistent with protocols used for the National Bald Eagle breeding surveys (US Fish and Wildlife Service 2009). Chicks were counted and aged by developmental stage (Bortolotti 1984a, Bortolotti 1984b).

Following national conventions, a breeding territory was considered “occupied” if a pair of birds was observed in association with the nest and there was evidence of recent nest maintenance (e.g., well-formed cup, fresh lining, or structural maintenance). Nests will be considered “active” if a bird is observed in an incubating posture or if eggs or young are detected in the nest.

Nest Access and Banding - A climber ascended nest trees using standard arborist equipment when the young were between 31 and 52 days old. Young were lowered to the ground for processing. Morphometric measurements were taken on all chicks processed. In addition to weight, we measured linear measurements including wing length, tail length, culmen length, culmen depth, and hallux talon length. Wing and tail length was measured with a metal ruler ( $\pm 1$  mm) and culmen length, culmen depth, and hallux talon length, and tarsus length were measured with dial calipers ( $\pm 0.1$  mm). Nestlings were marked with USGS tarsal bands and field-readable, alpha-numeric color bands under federal permit #21567 issued to the Dr. Bryan D Watts.

Blood samples were collected from a single young within each brood. These samples were used to augment samples taken from nestlings elsewhere along the Potomac River to assess exposure of nestling eagles to contaminants (heavy metals, legacy classes of organochlorine compounds, Polybrominated diphenyl ethers, etc.) Blood samples were collected from the brachial vein using 23 gauge butterfly needles and 4cc vacutainers. No more than 6 ccs of blood was taken from each eaglet. Harvested blood samples were immediately packed on ice and marked with a unique nest ID and the latitude and longitude coordinates of the nest. Methodology for tissue collection will be in compliance with protocols approved by the Institutional Animal Care and Use Committee at the College of William and Mary (Protocol IACUC-2013-12-16-9141).

## **Results**

Survey flights confirmed three active bald eagle nests, with chicks, in close proximity to the main airfield. The active nest were; Pax-5 (Goose Creek), Pax-11 (Pine Hill Run), and Pax-13 (Golf Course).

Climbing and banding was conducted on 2 May 2017. Two chicks were present and banded from nests Pax-11 and Pax-13, and a single chick was present and banded from nest Pax-5. Banding and morphometric data can be found in table 1.

Table 1. Banding and morphometric data of bald eagle chicks banded at Patuxent River NAS in 2017.

FEDERAL BAND NUMBER	COLOR BAND	COLOR BAND TEXT	DATE BANDED	SEX	AGE (DAYS)	Origin	Mass (g)	CULMEN LENGTH WITH CERE (mm)	CULMEN LENGTH NO CERE (mm)	CULMEN DEPTH (mm)	HALUX LENGTH (mm)	Tail (cm)	Wing Chord (cm)	BLOOD	FEATHER	CROP	NEST_CODE	LATITUDE	LONGITUDE
0679-01403	Purple	UA	5/2/2017	M	38	Local	2808	51.9	40.0	28.2	31.4	10.5	28.5	FALSE	TRUE	1/3	PAX-11 Pine Hill Run	38.2663618	-76.42607
0679-01404	Purple	UB	5/2/2017	F	38	Local	3650	56.7	44.5	30.6	32.4	10.5	29.5	TRUE	TRUE	2/3	PAX-11 Pine Hill Run	38.2663618	-76.42607
0679-01405	Purple	UC	5/2/2017	F	52	Local	5020	61.4	49.8	33.5	37.5	20.4	40.5	TRUE	TRUE	Full	PAX-13 Golf Course	38.305733	-76.39356
0679-01406	Purple	UD	5/2/2017	F	52	Local	4670	56.5	46.5	32.8	36.0	16.1	36.5	FALSE	TRUE	Empty	PAX-13 Golf Course	38.305733	-76.39356
0679-01419	Purple	UZ	5/2/2017	M	31	Local	2700	51.4		27.2	28.9	6.9	21.2	TRUE	TRUE	Empty	PAX-5 Goose Creek	38.298713	-76.383305