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2017 Bald Eagle Nest Surveys at Fort A.P. Hill

July 2017

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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.

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Background

The bald eagle (*Haliaeetus leucocephalus*) was taken off of the federal endangered species list in August of 2007 but continues to receive federal protection through the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act. Department of Defense (DOD) guidance directs military installations to protect nesting locations by following the National Bald Eagle Management Guidelines published by the US Fish & Wildlife Service in order to maintain compliance with the Migratory Bird Treaty Act and the Bald & Golden Eagle Protection Act.

Due to its size, land use history, and geographic location, Fort A.P. Hill harbors a large and increasing population of nesting bald eagles (*Haliaeetus leucocephalus*). In the past two years, three new nesting locations have been discovered incidentally, and it is believed that many more exist and have yet to be located. A systematic inventory of nesting locations is critical to maintaining these protections without any adverse effects to the military training mission.

Objectives

Our objectives were to document the status, distribution, and productivity of nesting bald eagles within the boundary of Fort A.P. Hill.

Study Area

Fort A.P. Hill is located on approximately 76,000 acres in northern Caroline County, Virginia (Figure 1). The proximity of the Base to the Rappahannock River and the Base's numerous ponds and large creeks provide good nesting habitat for bald eagles.

Methods

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. We used two techniques in an effort to survey all accessible area of Fort A.P. Hill. To cover the most likely breeding habitat we systematically surveyed all known nests, large waterways, and impoundments on the Base. After the most likely breeding habitat was surveyed we transitioned to a transect survey to ensure complete coverage of the base. Transects were spaced 600 meters apart and GPS enabled tablet computers were used to guide pilots along transect routes. All suitable habitats along flight transects were examined. All nests detected were plotted on recent aerial imagery on GPS enabled tablet computers and coded according to nest substrate, nest condition, eagle presence, and breeding activity (Postupalsky 1974). Chicks were counted and aged by developmental stage (Bortolotti 1984a, Bortolotti 1984b). All nests, except those previously coded by Fort A.P. Hill, were given a unique

alphanumeric code consistent with protocols used for the National Bald Eagle breeding surveys (US Fish and Wildlife Service 2009).

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.

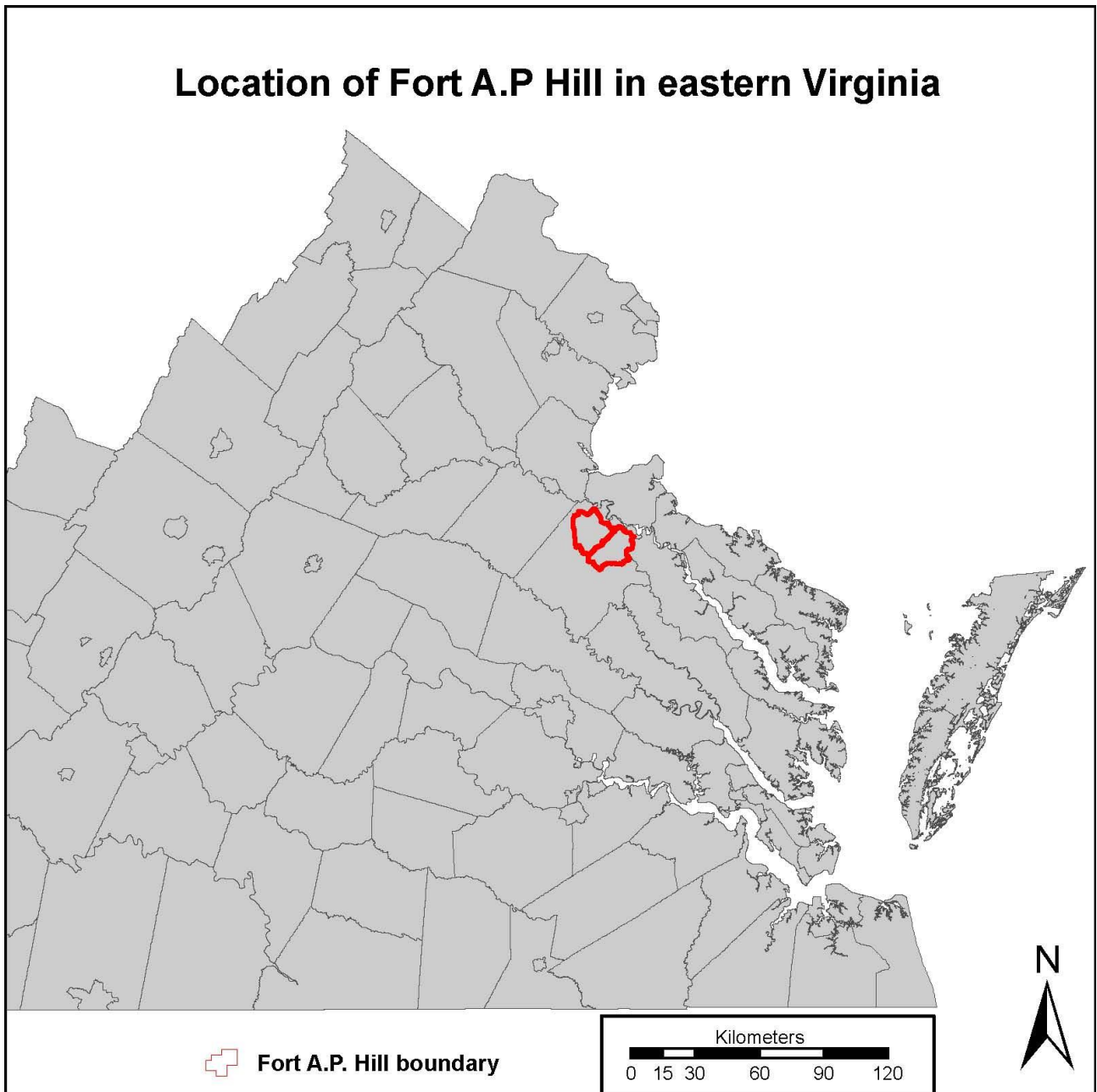


Figure 1. The study area consisted of the entire Fort A.P. Hill base

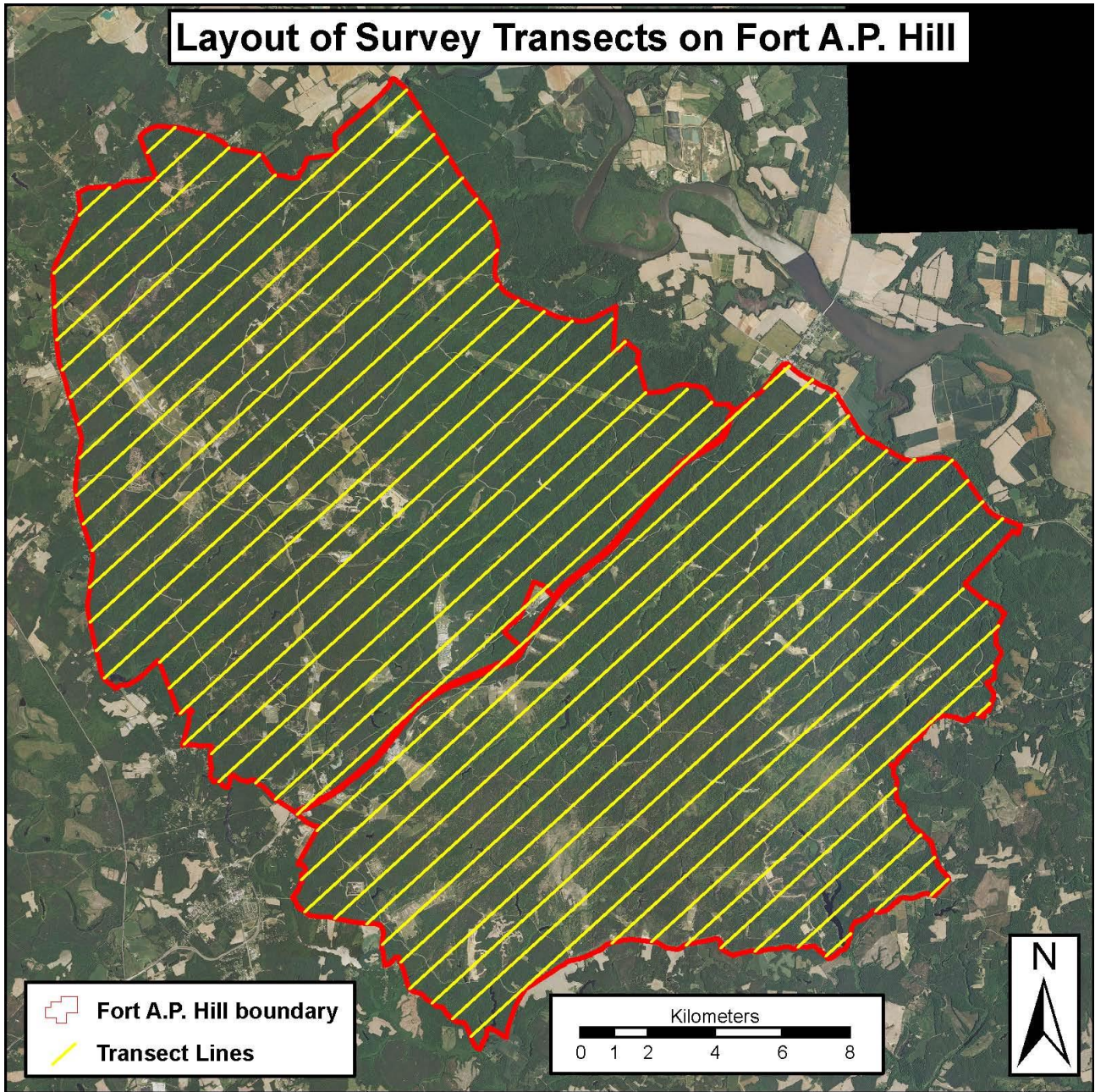


Figure 2. Layout of transect lines used to conduct aerial surveys of Fort A.P. Hill.

Results and Discussion

The nest survey for Fort A.P. Hill was flown on 13 March 2017 and the productivity survey was conducted on 14 April 2017. Surveys resulted in the observation of 14 bald eagle nests, 11 of which were active, and the absence of 4 previously known nests (Figure 3, Table 1). Bald Eagle breeding success (1.18 chicks/active nest) at Fort A.P. Hill was above population maintenance levels estimated for the species (0.7 chicks/active nest; Sprunt et al. 1973). During the productivity flight, adults were still brooding small chicks at two nests,

preventing an accurate count of the number of chicks. A value of 1 chick was used for these nests in the calculation of the breeding success rate. The actual breeding success rate at Fort A.P. Hill could be higher than 1.18 chicks/active nest if these two nests produced more than one chick per nest.

The three new nests located during the surveys in 2017 are most likely replacement nests for nest documented as absent. Nests CA-17-03, CA-17-04, and CA-17-05 are likely replacement nests for the eagle pairs that used to occupy the now absent nests CA-00-02, CA-01-05, and CA-04-04, respectively.

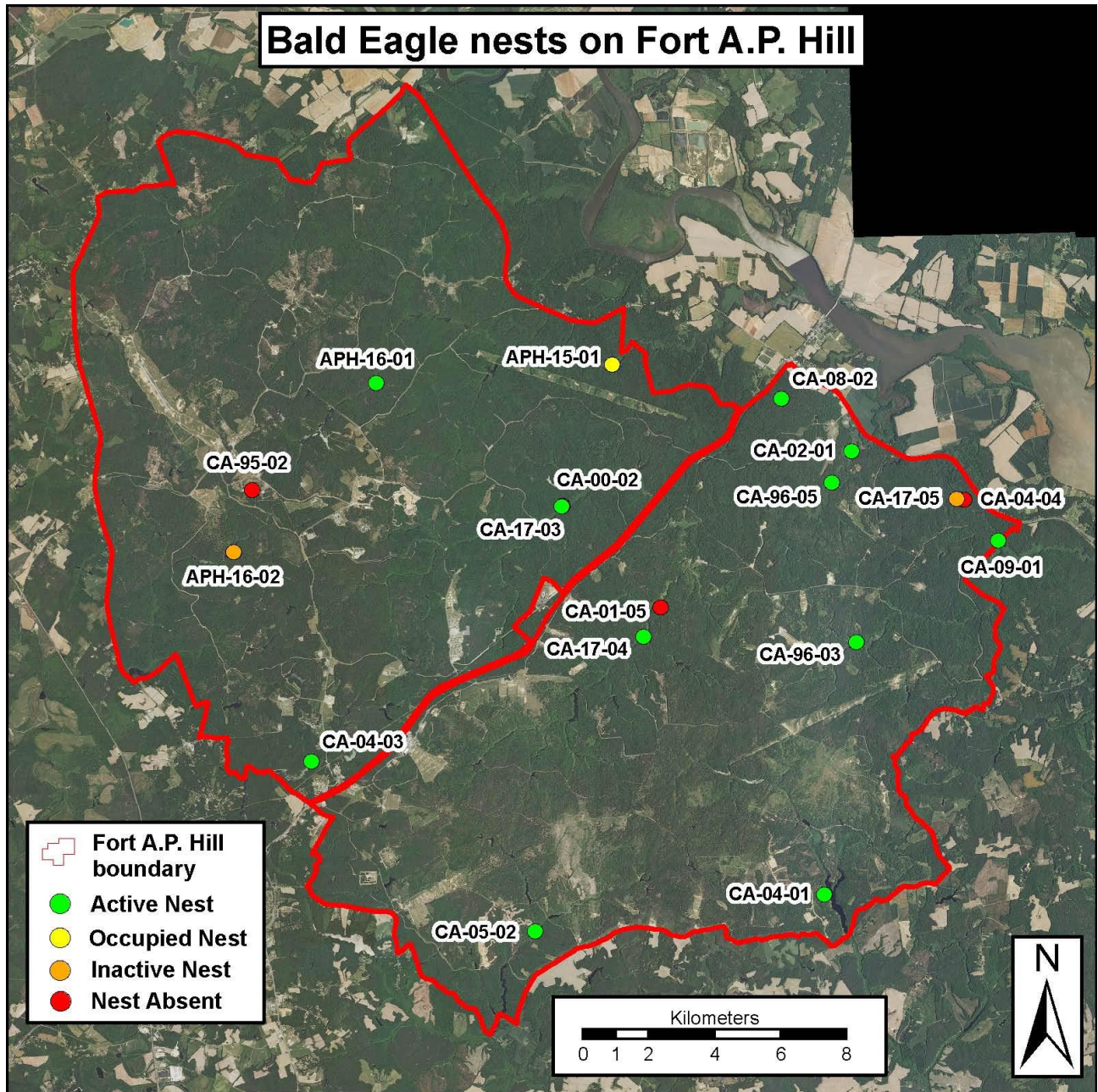


Figure 3. Map of Bald Eagle nest on Fort A.P. Hill.

Table 1. Summary of 2017 Fort A.P. Hill bald eagle survey and productivity.

Nest Code	UTM NAD83 Z18 X	UTM NAD83 Z18 Y	Tree Type	Feature Description	Nest Activity/Status	Number of Chicks
APH-15-01	303046	4226263	Pine	Laser Range	Occupied	
APH-16-01	297394	4225954	Pine	NEW	Active	1
APH-16-02	293893	4221999	Pine	NEW	Inactive	
CA-95-02	294357	4223475	Pine	Fish hook	Absent	
CA-96-03	308734	4219476	Pine	Ashcake #1	Active	1+ ¹
CA-96-05	308239	4223319	Pine	Cook Camp #1	Active	3
CA-00-02	301773	4222917	Pine	Mill Creek	Absent	
CA-01-05	304069	4220422	Pine	Range 19	Absent	
CA-02-01	308728	4224053	Pine	Cook Camp #2	Active	0
CA-04-01	307821	4213453	Pine	White's lake	Active	0
CA-04-03	295612	4216938	Pine	Headquarters	Active	1
CA-04-04	311386	4222833	Pine	Mexico Trail	Absent	
CA-05-02	300873	4212738	Pine	Smoots Pond #2	Active	2
CA-08-02	307077	4225344	Pine	New	Active	3
CA-09-01	312182	4221824	Pine	Portobago Creek	Active	1
CA-17-03	301757	4222890	Pine	New	Active	0
CA-17-04	303646	4219724	Pine	New	Active	1+ ¹
CA-17-05	311205	4222857	Pine	New	Inactive	

¹Adults were still brooding small chicks at nests CA-96-03 and CA-17-04. A chick value of one was used for these nests to calculate breeding success rate.

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