



United States  
Department of  
Agriculture

Animal and Plant  
Health Inspection  
Service

Wildlife Services

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Thayer Broili  
Chief of Resource Management  
National Park Service  
1401 National Park Drive  
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Dear Thayer:

On June 19, 2006 the National Park Service (NPS) entered into an interagency agreement with USDA North Carolina Wildlife Services (NC WS) to help protect threatened and endangered (T&E) shorebirds and sea turtles on Cape Hatteras National Seashore from predators. Between June 19 – 30, 2006, NC WS personnel removed 38 predators from Hatteras and Bodie Islands including 4 red fox (*Vulpes vulpes*), 3 gray fox (*Urocyon cinereoargenteus*), 21 raccoons (*Procyon lotor*), 8 Virginia opossums (*Didelphis virginiana*), and 2 feral cats (*Felis domesticus*). All 7 fox were removed from Bodie Island (see Table 1). For the second consecutive year there was no indication of fox activity found on Hatteras Island.

Table 1. Fox removed from Bodie Island, June 2006.

	Species	Age/Sex	GPS Location
1	Red Fox	Adult Male	N 35.84045 W 75.56136
2	Red Fox	Juvenile Female	N 35.83916 W 75.56074
3	Red Fox	Adult Female	N 35.77931 W 75.53733
4	Red Fox	Adult Male	N 35.77916 W 75.53810
5	Gray Fox	Juvenile Female	N 35.80534 W 75.54735
6	Gray Fox	Adult Male	N 35.84128 W 75.56213
7	Gray Fox	Adult Male	N 35.80584 W 75.54769

Following predator removal activities on Bodie Island, NC WS personnel saw no indication of further fox activity. However fox are opportunistic predators and are likely to repopulate the area and again disrupt the nesting efforts of sea turtles and shorebirds. Continued predator management efforts on Bodie Island will help decrease the chance of foxes getting onto Hatteras Island.

During the past two years, an increase in raccoon activity (i.e. tracks, droppings etc.) was observed around bird enclosures indicating the potential for further predation of T&E species. An increase in the raccoon population also increases the potential disease threat to humans (i.e. rabies) and to companion animals (i.e. rabies, canine distemper, parvovirus), especially around picnic areas with trash cans and the fishing cleaning stations. Without continued population management, the potential for conflicts between humans and raccoons will likely increase. NC WS personnel removed 99 raccoons from the Cape Hatteras National Seashore from 2002 - 2006 (see Table 2).

Table 2. Animals removed by NC WS on Cape Hatteras National Seashore, 2002 - 2006.

Year	Red Fox	Gray Fox	Raccoon	Opossum	Feral Cat	Nutria	Feral Dog	Muskrat
2002	28	0	2	0	0	0	0	0
2003	15	0	4	6	1	0	0	0
2004	9	6	18	0	0	2	0	0
2005	2	18	54	7	4	7	1	1
2006	4	3	21	8	2	0	0	0
Totals	58	27	99	21	7	9	1	1

NPS personnel told us that many of the nests had already been destroyed or nesting efforts disrupted by predators before predator management activities were initiated in mid-June. One notable range of beach where nests were heavily predated by raccoons was that area of Hatteras Island south of the point at Buxton.

Next year we recommend that the predator management efforts be initiated in February or March 2007 to reduce the potential for predation during the nesting season. Late winter trapping proved to be extremely productive at Cape Hatteras National Seashore during the 2005 predator management efforts. NC WS removed 2 red fox, 15 gray fox, 41 raccoons, 1 opossum, and 4 feral cats March 16-26, 2005 and removed 3 gray fox, 13 raccoons, and 6 opossums July 25 – August 5, 2005. Comparing late winter and summer trapping results shows further reasons why predator management efforts should occur prior to the nesting season. Not only are predators more active during the winter but human activity along the beach is less.

A second visit should be planned during the peak of the 2007 nesting period. If the second visit is not needed in August of this year we will not need to initiate a new interagency agreement until next year. If we need to return in August, we recommend a new interagency agreement be initiated in January 2007 to include two wildlife specialists working a minimum of 12 days each. The estimated cost for each 12-day visit by two wildlife specialists will be \$10,000 in 2007. Budgeting \$20,000 in 2007 will ensure adequate funding for predator damage management activities. If the 12-day visit in February/March 2007 is all that is needed any unused funds can be carried over into fiscal year 2008.

The continued monitoring of fox activity including locating and documenting den sites by NPS staff would be beneficial in managing fox population on Cape Hatteras National Seashore. Providing NC WS with this information allows personnel to spend more time setting traps as opposed to searching for sign. NC WS personnel located one new fox den (GPS coordinates: N 35.77910 W 75.53754) in the middle of the highest dune in the flats area on the south end of Bodie Island.

Per NPS direction, NC WS personnel used cage traps to remove raccoons, feral cats, and opossums. However, trap transportation can be difficult and time consuming because the size of the trap makes it difficult to put more than 25 in a truck and hard to carry more

than 2 any distance in the field. As in previous years, NC WS personnel observed instances at Cape Hatteras National Seashore where feral cats and raccoons avoided cage traps even though they were heavily camouflaged and baited with the best food and lure attractants. Predators showed little interest in entering the cage trap and even may have learned to avoid cage traps after witnessing other animals being captured. NC WS suggests that the continued use of multiple tools including foothold traps, snares, and conibears be implemented in the integrated predator damage management efforts.

Nutria damage to native vegetation was again observed on Cape Hatteras National Seashore. Nutria damage and tracks were observed long distances from water suggesting increased populations and increased pressure on native vegetation. The NPS may want to include a nutria eradication program as part of an overall wildlife damage management plan to combat the current problems and to prevent further damage to native vegetation. NC WS has the expertise, resources, and scientific research support to effectively address problems caused by nutria, a non-native species.

NC WS supports the completion of an Environmental Assessment (EA) for predator damage management at the Cape Hatteras National Seashore. NC WS is capable and willing to assist the NPS when and where necessary. NC WS is available to complete an EA in it's entirety for the NPS at an estimated cost of \$25,000. This cost could be reduced if the NPS organized and conducted the public involvement, mailings, printings, etc. NC WS has experience and expertise in writing predator management EA's. NC WS would work closely with the NPS to be sure the EA follows NPS guidelines and regulations.

As part of the EA, we recommend the NPS conduct a strategic planning meeting to discuss the role that predator damage management activities can play in protecting T&E species and species of special concern at the Cape Hatteras National Seashore. We suggest inviting the US Fish and Wildlife Service, the Pea Island National Wildlife Refuge, the Fort Raleigh National Historic Site, the Wright Brothers National Memorial, and the North Carolina Wildlife Resource Commission as well as any other groups who may have an interest in the project. A multi-agency cooperative service agreement could be developed as a part of this process. We would also encourage the NPS to include all of the groups who have expressed interest, whether positive or negative, about the current predator damage management program during the EA process.

We enjoyed working with the NPS staff and hope that our efforts met your expectations. Feel free to contact us with any questions and we look forward to assisting you in the future.

Best regards,

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Wildlife Specialist

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Assistant State Director