

**CAPE HATTERAS NATIONAL SEASHORE  
WILSON'S PLOVER (*CHARADRIUS WILSONIA*) MONITORING  
2014 REPORT**

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## **ABSTRACT**

Plover monitoring began at Cape Hatteras National Seashore (CAHA) in 1985 and the first Wilson's plover (WIPL) nest was documented in 2009. Monitoring has focused on identifying nesting habitat, locating and protecting WIPL breeding territories and nests, and determining nest and brood success. This report contains a summary of monitoring results for the 2014 breeding season.

In 2014, three WIPL pairs and three nests were identified. All nests were found on Ocracoke Island; one nest on North Ocracoke and two nests on South Point. No chicks fledged.

## **INTRODUCTION**

The WIPL is a ground-nesting shorebird native to North Carolina. The preferred nesting habitat is vulnerable to destruction from development, erosion, and weather events (tropical storms, extreme high tides). Disturbance from recreational activities can cause plovers to abandon their nests leaving their eggs exposed to predation and overheating. The WIPL is listed as a Species of Special Concern in North Carolina.

Wilson's plovers generally lay two to three eggs in a small, shallow depression or scrape. The pair can take up to five days from the laying of the first egg to completion of the clutch (Bergstrom 1988). Upon completion of the clutch, the pair incubates the nest for 23-27 days until hatching. Both the eggs and chicks are cryptic in coloration which makes them difficult to locate. Chicks are precocial and follow the adults to locations where they forage for crustaceans, particularly fiddler crabs, and insects found in and on the sand.

### **ORV Management Plan**

On February 15, 2012 the ORV Management Plan was enacted at CAHA. It was developed from 2007-2012 and was accompanied by a special regulation detailing requirements for ORV use at CAHA. A copy of the ORV Management Plan and other related documents are available electronically at <http://parkplanning.nps.gov/caha>. It includes establishment of an ORV permit system to drive on CAHA beaches. It also establishes pre-nesting closures and buffer requirements for nesting birds and chicks. This was the third year the ORV Management Plan guided the management of protected species at CAHA.

## **METHODS**

### **Closures**

Pre-nesting closures were installed in areas where the habitat was suitable for nesting and where nesting has occurred in more than one of the past five years. As per the ORV Management Plan, WIPL require a 75-meter buffer for breeding activity, scrapes and nests and a 200-meter buffer for unfledged chicks. When multiple species were present, the greatest applicable buffer distance was used.

While pre-nesting closures minimize disturbance in potential breeding areas, they also enable birds to establish territories and nest in their preferred habitat. An annual habitat evaluation was conducted from February 3 - February 20, 2014, prior to the onset of the breeding season. This evaluation, along with maps of historic nesting locations, was used to determine the boundaries for the pre-nesting closures (Appendix A, Maps 1-3).

### **Monitoring**

Field staff began monitoring for WIPL arrival and breeding behavior in early March. After a nest was located, a predator exclosure was installed when the nest contained three eggs. Thereafter, the nest was briefly approached weekly to inspect the exclosure, verify the number of eggs, and check for predator tracks. The nests were also monitored daily, from a distance, to document incubation, nest abandonment, and/or to detect other potential problems. Due to the alert and protective nature of WIPL adults, the pairs were rarely observed incubating but were documented outside the exclosure. Observation times were minimized to reduce disturbance to the nesting pair.

After hatching staff attempted to monitor the broods daily, though this proved to be a difficult task. Adult WIPL prefer to forage with their chicks in vegetated intertidal mudflats where the chicks can easily be concealed for safety. Broods were assumed to be in areas where adult WIPL were documented being territorial with other shorebirds. In accordance with the ORV Management Plan, chicks were considered fledged at 35 days of age or when observed in sustained flight of at least 15 meters

### **Predator Exclosures**

Predator exclosures have been used at CAHA since 1994 to reduce impacts from predators on nesting plovers. Exclosures are circular in shape (roughly ten feet in diameter), made of two inch by four inch welded-wire fence anchored by steel rebar and topped with a three-quarter inch mesh bird netting. Exclosures were installed following the guidelines established in the USFWS' Piping Plover Recovery Plan (USFWS 1996, Appendix F).

### **Predator Control**

Mammalian predation is a major factor in shorebird nest loss and chick mortality at CAHA. Predator control was conducted to target predators near nests and chicks. Trapping was conducted in all park districts. When technicians surveyed areas they documented and reported any signs (prints, scat, etc.) of predators they observed. If predator sign was found in a closure trapping efforts were increased in that area. Traps were installed in the vicinity of the closure with the intent of targeting the specific predator in that area.

## **RESULTS**

In 2014, three WIPL pairs and three nests were identified. All nests were found on Ocracoke Island, one nest on North Ocracoke and two nests on South Point. Two of the three nests hatched and produced a maximum of five chicks. Due to the evasive behavior and mobility of the broods, an exact number of chicks hatched is unknown. No chicks were fledged (Table 1).

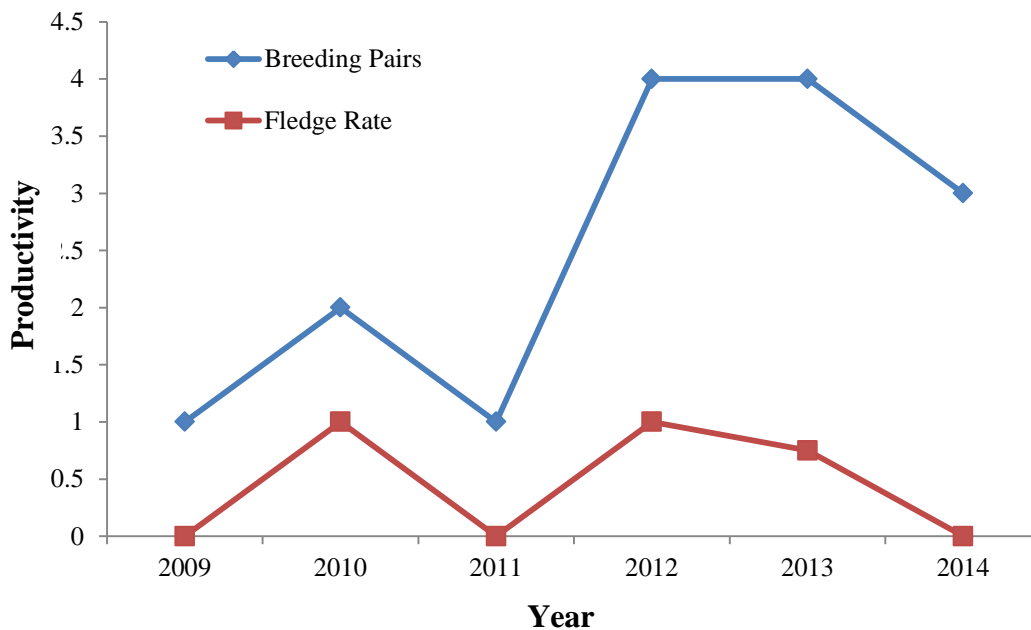
The earliest nest was discovered on May 5, 2014 and the latest nest was found on June 30, 2014. The average time to hatch was 26 days.

Since 2009, six pairs of WIPL fledged nine chicks which represents a 0.67 fledge rate per pair (Figure 1). The average time to fledge for the three broods with known fledge dates was 28 days. Three of the six broods were not observed with fledged chicks until more than 35 days after hatching. Although few pairs of WIPL are documented each year, the breeding population at CAHA appears to be increasing.

**Table 1.** Summary of WIPL Reproductive Success 2009 – 2014

Year	Breeding Pairs	Total Nests	Nests Hatched	Successful Pairs (at least 1 chick fledged)	Number of Chicks Fledged	Fledge Rate
2009	1	1	1	0	0	0
2010	2	2	2	1	2	1.0
2011	1	1	1	0	0	0
2012	4	4	2	2	4	1.0
2013	4	4	3	3	3	0.75
2014	3	3	2	0	0	0

**Figure 1.** WIPL Reproductive Success 2009-2014.



### **Nest Failures and Chick Mortality**

In 2014, one WIPL nest was abandoned. Of the five chicks assumed to be hatched, all were lost prior to fledging and all losses were attributed to unknown causes. Determining the cause of chick mortality is difficult due to the tendency of WIPL broods to spend most of their time within vegetation. Mammalian, ghost crab, and avian predators could be responsible for the chicks lost.

### **Human Disturbance**

Human disturbance, direct or indirect, can lead to the abandonment of nests or loss of chicks. Throughout the season, resource management staff documented twenty pedestrian violations in the WIPL nesting closures. It is important to note that most of the closures contained multiple species, including least terns, American oystercatchers, and piping plovers. Most illegal entries were not witnessed, but documented based on vehicle, pedestrian, or dog tracks left in the sand. Pedestrian entry into a closure most often required visitors to lift or stoop under the string that connected all posted signs, while vehicular entry required visitors to drive through or around a sign boundary. Disturbance was not documented to be a major factor for the loss of nests or chicks during the 2014 breeding season.

### **Banded WIPL**

While CAHA does not participate in banding WIPL, there are several projects throughout the southeastern United States banding WIPL with unique color band combinations. Scientists study the banded birds to gain a better understand of movement patterns related to migration, nesting, wintering, foraging, etc. Since 2012, there have been nine individual WIPL with color bands observed at CAHA. Five individuals have been attributed to four separate nests at CAHA since 2012. The banded birds enable staff to identify pairs, broods and unpaired individuals with confidence.

### **DISCUSSION**

Cape Hatteras National Seashore is located at the northern end of the WIPL breeding range and although few pairs have been documented, the breeding population at CAHA appears to be increasing. Both PIPL and WIPL prefer similar nesting and foraging habitats which are usually found on points and spits. South Point on Ocracoke Island provides excellent habitat for the plovers and is one of the largest points at CAHA. The higher incidents of WIPL nests on Ocracoke Island could be attributed to the larger area decreasing competition between WIPL and PIPL for territory and foraging habitat.

## REFERENCES

National Park Service. 2010. Cape Hatteras National Seashore Off-Road Vehicle Management Plan and Environmental Impact Statement. U. S. Department of the Interior, National Park Service, Cape Hatteras National Seashore, North Carolina.

Bergstrom, Peter W. Breeding Biology of Wilson's Plovers. *The Wilson Ornithological Society* 100 (1988): 25-35

## **APPENDICES**

### **APPENDIX A: MAPS**

Map 1: Cape Point WIPL Nesting Activity, 2009-2014

Map 2: North Ocracoke WIPL Nesting Activity, 2009-2014

Map 3: South Point WIPL Nesting Activity, 2009-2014



# Map 1: Cape Point WIPL Nesting Activity, 2009 - 2014







## Map 2: North Ocracoke WIPL Nesting Activity, 2009 - 2014





### Map 3: South Point WIPL Nesting Activity, 2009 - 2014

