



Coastal Bird Conservation Program
**2007 Beach-nesting Bird Census and Report for
Coastal Mississippi**



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Coastal Bird Conservation Program

2007 Beach-nesting Bird Breeding Census and Report for Coastal Mississippi

***The Audubon Coastal Bird Conservation Program *2007 Beach-nesting Bird Census and Report for Coastal Mississippi* was written by Margo Zdravkovic, CBCP Field Director.*This paper contains original data and photographs which may not be used without permission. For use of data, maps, or photographs contained in this report, or for any questions, please contact: Margo Zdravkovic, National Audubon Society, Coastal Bird Conservation Program, Field Director - email: mzdravkovic@audubon.org**

Cover photograph: Black Skimmer chick, Horn Island, Mississippi.

Introduction

Coastal Bird Conservation Program - Overview

The first step in conserving coastal bird populations begins with identifying and locating nesting habitats and accurately censusing breeding pairs.

Comprehensive, coordinated census and monitoring efforts are essential to understanding and preserving beach-nesting species. Human activities represent the major persistent threat to all beach-nesting bird populations. Constant pressure from increased development and recreational use of beaches has resulted in the destruction of breeding and wintering habitats for all beach-nesting species. Efforts to assess and protect threatened coastal bird populations continue to be a high priority of Audubon from its local chapters to the national level.

In 2003 Audubon established the Coastal Bird Conservation Program (CBCP) and identified the Gulf of Mexico coastal region as its first priority for on-the-ground conservation work. The Coastal Bird Conservation Program is a field-based, science-driven effort whose goals are to: 1) to lead or assist in the assessment of coastal species populations and sites of critical importance, 2) conduct comprehensive field surveys and map populations of priority species, 3) conduct field research, draft comprehensive reports and training texts, and publish findings, 4) monitor and protect important nesting and foraging sites and 5) establish long-term protection programs for these birds and sites with the express purpose of maintaining or increasing their populations.

The Coastal Bird Conservation Program has worked with various Gulf coast partners to increase efforts to census, monitor, and protect nesting Snowy and Wilson's Plovers, terns, oystercatchers, skimmers, and other beach-nesting birds. Our partners within numerous Audubon Societies, U.S. Fish and Wildlife Service, National Park Service, state fish and wildlife agencies, and universities agree that increased monitoring and protection of this suite of birds should be a high priority. Before the recent survey and monitoring work of the CBCP few comprehensive statewide breeding censuses had been conducted for Snowy and Wilson's Plovers and other beach-nesting bird species on the Gulf coast.

In 2003 the CBCP conducted the first comprehensive survey of breeding Snowy and Wilson's Plovers in the lower Laguna Madre region of Texas. In 2004, with

the help of partners the CBCP completed the first comprehensive breeding census of the Texas coast for these two plover species. These new census data indicated the Laguna Madre region of Texas contained the most significant coastal nesting habitat and breeding pair populations of Snowy and Wilson's Plovers in the U.S. In 2005 the CBCP completed the first comprehensive census of Snowy and Wilson's Plovers and American Oystercatchers for coastal Mississippi and Louisiana. The CBCP also continued a third season of survey and monitoring work on these species in Texas. These efforts have yielded new baseline data on breeding distribution and abundance, habitat selection, nest chronology, and breeding biology for Snowy and Wilson's Plovers and other beach-nesting species, providing valuable information for future population assessments and conservation plans for these species on the Gulf coast. In 2006 the CBCP expanded its survey work on the Gulf coast to include Florida and the Tamaulipas region of Mexico.

Conservation Status of Focal Species

The **Snowy Plover** (*Charadrius alexandrinus*) U.S. population is estimated to be 18,000 individuals, the majority of which comprises the U.S. interior population (*C. a. nivosus*) of approximately 13,200 individuals (Brown *et al.* 2001). The federally threatened Pacific Coast population is estimated at 2,000 individuals and the Gulf of Mexico and Caribbean population (*C. a. tenuirostris*) is estimated at 2,200–2,800 individuals (Avian Waterbird Population Estimates, Wetlands International 2003). The U.S. Shorebird Conservation Plan lists the Snowy Plover as Category 5 (highly imperiled) and the Audubon WatchList designation is in the Red Category (Globally Threatened or Near-Threatened). The Snowy Plover population of the southeastern U.S. is currently under consideration for federal listing as Endangered. The species is state-listed as Endangered in Alabama and Washington; Threatened in Florida, Mississippi, Kansas, Oregon, and Puerto Rico; and a Species of Special Concern in California.

The **Wilson's Plover** (*Charadrius wilsonia*) U.S. population is estimated to be 6,000 individuals; however, low confidence is placed in this estimate (Brown *et al.* 2001). The Wilson's Plover is listed in the U.S. Shorebird Conservation Plan as Category 4 (species of high concern) based on the increased level of threats to this species on its breeding and non-breeding grounds, as well as its relatively limited breeding distribution. The Audubon WatchList designation for the Wilson's Plover is in the Yellow Category (Moderately High Priority). Although

the Wilson's Plover has no federal protection under the U.S. Endangered Species Act; it is state-listed as Endangered in Virginia and Maryland; Threatened in South Carolina; Rare in Georgia; and State-Protected in Alabama.

The **American Oystercatcher** (*Haematopus palliatus*) U.S. population is estimated to be 7,500 individuals (Brown *et al.* 2001). This species is listed in the U.S. Shorebird Conservation Plan as Category 4 (species of high concern) based upon the increased level of threats on its breeding and non-breeding grounds, as well as its limited distribution. The Audubon WatchList designation for the American Oystercatcher is in the Yellow Category (Moderately High Priority) and it is state-listed as a Species of Special Concern in Florida.

CBCP Survey Methods

The CBCP uses standardized methods to conduct full breeding censuses of beach-nesting birds as described in *Locating Breeding Snowy and Wilson's Plovers on the U.S. Gulf Coast- Census Guidelines 2005* (Zdravkovic and Hecker 2005). These methods are consistently applied to all sites surveyed. Following the U.S. Shorebird Conservation Plan, which cites that the highest confidence is placed in population estimates obtained from a dedicated census effort (Brown *et al.* 2001), the CBCP conducts exact pair counts of breeding beach-nesting birds. Breeding pairs of Snowy and Wilson's Plovers, American Oystercatchers, and Least Terns are defined as: 1) birds exhibiting courtship behavior or joint or group defensive behavior, 2) a single bird or pair at a nest, 3) a single bird or pair with young, or 4) birds located together as a pair. Global Positioning System (GPS) coordinates are collected for each breeding pair, and maps are produced indicating the locations of each pair by species. Based on existing available data (Boyd 1972, Bergstrom 1988a, Chase and Gore 1989, Chase 1991) and CBCP plover breeding data collected on the Gulf coast (Zdravkovic 2004), we assumed for the purpose of our census that both Snowy and Wilson's Plovers nesting on the Gulf coast are seasonally monogamous.

Methods and Study Area

The CBCP 2007 census and study area covered all potential beach-nesting bird habitats in coastal Mississippi and included the Gulf Islands National Seashore barrier islands, the artificially-created mainland beach from Pass Christian to Biloxi, Harrison and Jackson counties, and Grand Bay National Estuarine Research Reserve (NEER) in Jackson county. Surveys were conducted from 29

April to 13 July 2007. Data were collected on abundance, distribution and habitat use of Snowy Plovers, Wilson's Plovers, American Oystercatchers and Least Terns.

Our 2007 Mississippi census was timed to include the estimated peak-nesting period for these two plover species based on prior CBCP nest data (Zdravkovic 2005) and Florida panhandle nest dates (Chase and Gore 1989). Breeding plover pair counts to assess total pair numbers were completed by mid June. Boats were used to access all barrier islands. All surveys were conducted on foot and all breeding pair coordinates were recorded by GPS. Marginal habitats were first visually surveyed by boat to determine if full surveys on foot should be conducted. The main focus of our survey was to count breeding pairs and identify breeding habitat. For all breeding pairs located, data were collected on macro and microhabitats used by each species including data on vegetation and substrate type. For all nests located additional data were collected on microhabitat, including the distance of each nest to the nearest vegetation, dune edge, wrack line, salt marsh edge, and water. All beach-nesting bird habitats and nests were digitally photographed.

Results

Mississippi 2007 Beach-nesting Bird Census Results and Pair Distribution by Habitat

The CBCP census covered ~ 191 km of the Mississippi coast and islands. CBCP staff located 23 breeding pairs of Snowy Plovers, 55 breeding pairs of Wilson's Plovers, 35 breeding pairs of American Oystercatchers. All nesting Snowy Plover and American Oystercatcher pairs were found on barrier island habitat. Both of these species preferred open sandy areas with little or no vegetation for nesting. Nests were primarily located behind the secondary wrack line on the gulfside (front beach) and tips of barrier islands. Both species used the entire length of front beach habitat for nesting, particularly on the longer islands of Horn and Petite Bois. Wilson's Plovers were found on barrier island and mainland coastal bay habitat. Nests were found in areas of sparse to moderate vegetation on the Gulf side, Mississippi Sound side, and tips of barrier islands. Wilson's Plovers were also found nesting on the mainland coastal bay beaches of Grand Bay NEER. The CBCP conducted flush counts (counts of individuals in flight) for breeding Least Terns and Black Skimmers locating approximately 781 pairs of Least Terns and 221 pairs of Black Skimmers on barrier islands, oyster reef

islands and along Mississippi's 26 miles of artificial mainland beach. Five breeding pairs of Gull-billed Terns were also located on Mississippi's barrier islands.

Discussion

The CBCP 2007 comprehensive breeding census of Snowy Plovers, Wilson's Plovers, and American Oystercatchers in Mississippi provides a third year of baseline data on breeding distribution, abundance and habitat use. This information can be used for future population assessments and conservation and management plans for these species in coastal Mississippi. Breeding pair number comparisons from 2006 to 2007, showed a marked increase in Snowy Plover pairs from 6 pairs to 23 pairs. American Oystercatcher pairs also increased from 18 to 35 pairs, however 2005 pair numbers were higher than 2006 totals for both species. Refer to table in Appendix 1 for a comparison of CBCP survey numbers for 2005-2007. Wilson's Plover pair numbers increased in 2007, from 27 pairs to 55 pairs. Wilson's Plover pair numbers have steadily increased in Mississippi since Hurricane Katrina, which is likely due to an increase in available nesting habitat in close proximity to their preferred food source of fiddler crabs. Least Tern pair numbers decreased from 986 pairs to 781 pairs. Black Skimmer breeding pair numbers decreased from 296 pairs in 2006 to 221 pairs in 2007.

CBCP 2009 plans for coastal Mississippi and continued field assistance to our Mississippi partners includes;

- Regular surveying and monitoring of beach-nesting birds to determine impacts upon breeding success.
- Documenting coastal bird populations and habitat changes since Hurricane Katrina
- Posting and roping of all beach-nesting bird breeding areas to ensure protection and reduce from impacts of beach-goers, pets, and boats upon breeding success.
- Posting of important wintering sites, with the goal of reducing disturbance-related impacts on critical high-tide resting areas and low-tide foraging areas.
- Developing various means of public outreach using bird monitoring staff, educational brochures, and local presentations.

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**Coastal Mississippi Breeding Snowy Plover, Wilson's Plover and American Oystercatcher
2005, 2006 and 2007 Census Data Appendix 1.**

Site Name and County	General Habitat Description	SNPL pairs located	WIPL pairs located	AMOY pairs located	Kilometers Surveyed
Cat Island, Gulf Islands National Seashore and privately owned, Harrison	barrier island, gulfside- veg/sand/shell/marsh	0/0/0	0/2/11	1/0/2	29
West Ship Island, Gulf Islands National Seashore, Harrison	barrier island, gulf and bayside- veg/sand/marsh	0/0/2	4/5/7	0/3/1	13
East Ship Island, Gulf Islands National Seashore, Harrison	barrier island gulf and bayside- veg/marsh/sand	2/0/0	1/0/1	2/0/0	11.5
Front beach (44 km) from Pass Christian to Biloxi, Harrison	Dredge spoil enhanced mainland gulf beach-veg/sand	0/0/0	0/0/0	0/0/0	44
Deer Island, Harrison	barrier island/artificial site/spoil- veg/marsh/sand/clay	0/0/0	0/13/17	0/1/4	15
Horn Island, Gulf Islands National Seashore, Harrison	barrier island, gulfside- veg/sand/shell	11/4/12	2/0/3	12/10/16	45
Sand Island, Gulf Islands National Seashore, Jackson	artificial site/spoil island, gulf/ bayside-sand/shell	1/0/2	0/0/0	2/3/1	3.5

Note: 1st number represents 2005 count, 2nd number represents 2006 count, 3rd number represents 2007 count

**Coastal Mississippi Breeding Snowy Plover, Wilson's Plover and American Oystercatcher
2005, 2006 and 2007 Census Data Appendix 1.**

Site Name and County	General Habitat Description	SNPL pairs located	WIPL pairs located	AMOY pairs located	Kilometers Surveyed
Petite Bois Island, Gulf Islands National Seashore, Jackson	barrier island, gulfside veg/sand/shell	1/2/7	0/0/7	5/0/7	22
Grand Bay National Estuarine Reserve, Jackson	mainland coastal bay beach, (newly formed sand beach) tidal marsh/veg/sand/shell	0/0/0	10/6/7	0/0/0	5.5
Grand Bay National Estuarine Reserve, Grand Batture Islands, Jackson	oyster reef island at mouth of Pt. Aux Chenes Bay shell/sand/veg	0/0/0	0/1/2	0/1/0	2.5
Bangs Island	oyster reef island at mouth of Pt. Aux Chenes Bay shell/sand/veg	0/0/0	0/0/1	0/0/0	>1
Point Aux Chenes	Salt pannes/ mainland coastal bay	0/0/0	0/0/3	0/0/0	>1
<i>Total pair numbers for all sites surveyed</i>		15/6/23	17/27/59	22/18/35	191

Note: 1st number represents 2005 count, 2nd number represents 2006 count, 3rd number represents 2007 count

