



# Audubon

National Audubon Society

**South Coastal Texas  
Snowy and Wilson's Plover  
2003  
Breeding Season Report**



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# South Coastal Texas 2003 Breeding Season Report

## Census and Study Area

In the spring of 2003, I conducted a census of breeding Snowy and Wilson's Plover pairs in South Coastal Texas. Prior to this census, very little was known about Snowy and Wilson's Plover breeding populations and nesting sites in this region. My goal was to identify all plover breeding habitat and census all breeding pairs for this area, specifically the Lower Laguna Madre and Lower Rio Grande Valley regions of Cameron, Willacy and Hidalgo Counties. The study area extended from the Port Mansfield cut on South Padre Island, south to the mouth of the Rio Grande on the Mexican Border, and sixty miles inland to the salt lakes (La Sal Vieja and La Sal Del Ray). The census was conducted on U.S. Fish and Wildlife lands, public parks, Nature Conservancy lands and privately owned lands.

**The Snowy Plover** *Charadrius alexandrinus (nivosus)* US interior population is approximately 13,200 individuals. The US Shorebird Conservation Plan lists this species as category 5 (highly imperiled). The Audubon WatchList and BirdLife International list the Snowy Plover in the red category (globally threatened) and Partners in Flight classify it as national- extremely high priority.

**The Wilson's Plover** *Charadrius wilsonia* world population estimates stand at approximately 6000 individuals, however, low confidence is placed in this estimate. This species is listed in the US Shorebird Conservation Plan as category 4 (species of high concern) based on the relative abundance of threats on its breeding grounds, non breeding grounds, and limited breeding distribution. The Audubon WatchList and Partners in Flight list the Wilson's Plover in the yellow category (moderately high priority species). The Wilson's Plover has not been the focus of comprehensive research in more than 15 years.

From March 8<sup>th</sup> to July 15<sup>th</sup> 2003, data was collected on breeding biology, habitat use, and nesting success for both of these species. All located nests and surrounding habitat were digitally photographed and the locations of nests and breeding areas were recorded by GPS.

## Description of Census Methods

Counting of Snowy and Wilson's Plover pairs began with location of the first nests and continued past hatching for the largest sites (South Padre and Brazos Island/ South Bay).

Surveys were conducted on foot, by truck and on ATV. As each new area was surveyed, paired plovers, pairs with nests and pairs with broods, were counted in the census. Nests were monitored every 4 to 6 days, so nesting areas were constantly re- checked for changes in pair numbers. South Padre Island was the most challenging site because of its sheer size of thirty miles long. As the breeding season progressed, surveying continued north up South Padre Island, so that many of the plover pairs being counted had broods. The entire census for both plover species was completed by two individuals.

## Snowy Plover 2003 Breeding Dates

The first Snowy Plover nests located in South Texas were initiated by the last week of February, as early as February 25th at the inland salt lake, La Sal del Rey, as confirmed by the presence of 3 day old chicks in the first week of April. This is more than one month earlier than previously documented. South Texas Snowy Plover censuses should be timed to coincide with peak nesting and earliest hatchings. A good census window for the South Texas 2004 breeding season for Snowy Plovers would be March 25th to April 5th, with the count to include nests and pairs with broods.

The earliest Snowy Plover clutches found were completed by March 2nd and the first chicks hatched by March 28th. Average incubation was from 26 to 28 days. Peak nesting occurred from March 20th to March 31st and peak hatching from April 14th to the 26th. The latest clutches were completed by July 1st and the latest hatchings occurred by July 26th. Most Snowy Plover pairs left their breeding sites by the end of the first week of July.

## **Snowy Plover Breeding Data 2003, Lower Laguna Madre, Texas**

**Table 1.**

| <b>Location</b>              | <b>Number<br/>of<br/>Pairs Located*</b> | <b>Number of<br/>Nests<br/>Monitored*</b> | <b>Hatching Success of<br/>Nests Monitored</b> |
|------------------------------|-----------------------------------------|-------------------------------------------|------------------------------------------------|
| South Padre Island           | 55                                      | 31                                        | 62%                                            |
| Brazos Island/South Bay      | 5                                       | 2                                         | 50%                                            |
| Boca Chica/Rio Grande        | 0                                       | 0                                         | N/A                                            |
| Laguna Atascosa NWR          | 6                                       | 5                                         | 0%                                             |
| Bahia Grande/Laguna<br>Larga | 1                                       | 0                                         | N/A                                            |
| Buena Vista Ranch            | 1                                       | 0                                         | N/A                                            |
| East Lake                    | 12                                      | 14                                        | 50%                                            |
| Sal del Rey                  | 15                                      | 7                                         | 57%                                            |
| La Sal Vieja                 | 10                                      | 0                                         | N/A                                            |
| <b>Total</b>                 | <b>105</b>                              | <b>59</b>                                 | <b>54%</b>                                     |

\* Number of pairs located represents paired plovers, pairs found with nests and pairs found with young

\* Number of nests monitored includes renests

### **Wilson's Plover 2003 Breeding Dates**

The first Wilson's plover nests located in South Texas were initiated by April 3<sup>rd</sup>, with the first complete clutches by April 7<sup>th</sup>. The average incubation period for nests was 25 to 27 days. The first chicks hatched on May 1<sup>st</sup>. Peak nesting occurred from April 18<sup>th</sup> to April 30<sup>th</sup>. A smaller secondary peak in nesting occurred in mid-May and is probably due to renesting after nest or brood loss. Peak hatching occurred from May 15<sup>th</sup> to May 30<sup>th</sup>. The latest clutches were completed by June 22<sup>nd</sup> and the latest hatch date was July 16<sup>th</sup>. Most Wilson's Plover pairs left their breeding sites by the end of the 1<sup>st</sup> week of July.

A good census window for the South Texas 2004 season for Wilson's Plovers would be from April 24<sup>th</sup> to May 5<sup>th</sup> with the count to include nests and pairs with broods.

## Wilson's Plover Breeding Data 2003, Lower Laguna Madre, Texas

**Table 2.**

| Location                  | Number<br>of<br>Pairs located* | Number of<br>nests<br>monitored* | Hatching Success<br>of nests<br>monitored |
|---------------------------|--------------------------------|----------------------------------|-------------------------------------------|
| South Padre Island        | 63                             | 28                               | 79%                                       |
| Brazos Island/South Bay   | 33                             | 15                               | 57%                                       |
| Boca Chica/Rio Grande     | 10                             | 0                                | N/A                                       |
| Laguna Atascosa NWR       | 12                             | 3                                | N/A                                       |
| Bahia Grande/Laguna Larga | 6                              | 0                                | N/A                                       |
| East Lake                 | 0                              | 0                                | N/A                                       |
| Sal del Rey               | 0                              | 0                                | N/A                                       |
| La Sal Vieja *            | 4                              | 4                                | 75%                                       |
| <b>Total</b>              | <b>128</b>                     | <b>50</b>                        | <b>66%</b>                                |

\* Number of pairs located represents paired plovers, pairs found with nests and pairs found with young.

\* Number of nests monitored includes renests.

\*La Sal Vieja – (salt lake sixty miles inland) inland most record of nesting Wilson's Plovers

## **Classification and Description of Plover Breeding Habitats in South Texas**

### **South Padre Island and Brazos Island/South Bay**

- **Barrier Island** and associated habitats - (bay or Laguna side) Wilson's and Snowy Plovers did not nest on the front beach (gulf side) of South Padre Island, Brazos Island or Boca Chica Beach. Nests were located exclusively on the bay or Laguna Madre side of these barrier islands. However, both species used the front beach areas prior to nesting and post fledging. Wilson's Plover pairs were found on the gulfside in early spring, before nesting began. Snowy and Wilson's Plovers and Least Terns, all with fledged young, were found on the gulf side by late June.
- **Algal mud flat** – firm mud and algal surface providing Wilson's Plover nesting habitat
- **Hurricane washover fan** – sandy, shelly expanses providing Snowy and Wilson's Plover nesting habitat
- **Coastal mangrove bay** – mud flats and mangrove edges providing nesting habitat for Wilson's Plovers

### **Boca Chica/Rio Grande**

- **River mouth opening directly to gulf w/no significant delta**– mud flats and mangrove edges providing nesting habitat for Wilson's Plovers

### **Laguna Atascosa NWR**

- **Subtropical hypersaline lagoon w/mangroves (Laguna Madre)**– mud flats and mangrove edges providing nesting habitat for Wilson's Plovers
- **High sand/mud flats**– providing nesting habitat for Snowy Plovers

### **Bahia Grande/Laguna Larga**

- **Coastal salt lake**– salty, clay shorelines providing nesting habitat for Snowy and Wilson's Plovers

### **La Sal Vieja, East Lake and La Sal del Ray**

- **Inland hypersaline lakes** – salty, clay shorelines and man-made limestone gravel causeways providing nesting habitat for Snowy Plovers

## Description of Snowy and Wilson's Plover Breeding Habitats

Snowy and Wilson's Plover nests in South Coastal Texas are located in the same macro habitats; baysides of barrier islands, coastal bays, hyper-saline lagoons and coastal lakes as well as inland salt lakes. However each of these species usually selects different microhabitats for nesting.

Snowy Plovers nesting on South Padre Island prefer flat, open habitat with sandy, shelly substrates often but not exclusively found in hurricane washover fans or "passes". These open, shelly expanses have little or no vegetation, and are generally associated with large, low, vegetated dunes, dune ridges and small, vegetated dune mounds or "islands".

Wilson's Plovers nesting on South Padre Island will choose from a variety of habitats with vegetation ranging from none to dense. Nests were located at the edge vegetation behind primary dunes and at the edges of low vegetated back dunes and small vegetated dune islands associated with the algal mud flats of Laguna Madre. Wilson's Plovers also nested in sandy washovers, but preferred the edges of low vegetated dune mounds to the shelly open areas favored by Snowy Plovers.

On South Padre Island, it is not uncommon to find both Snowy and Wilson's Plover microhabitat within the larger macrohabitat, so that both species will nest in close proximity to each other.

Wilson's Plovers also nested in the mangrove edges of Brazos Island/South Bay, Boca Chica/ Rio Grande mouth and Laguna Atascosa NWR

## **Vegetation at Nest Sites**

**Table 3.**

| <b>Number of Nests<br/>Located</b>  | <b>No<br/>Vegetation</b> | <b>Sparse<br/>Vegetation</b> | <b>Moderate<br/>Vegetation</b> | <b>Dense<br/>Vegetation</b> |
|-------------------------------------|--------------------------|------------------------------|--------------------------------|-----------------------------|
| <b>59 Snowy<br/>Plover Nests</b>    | 91%                      | 9%                           | 0%                             | 0%                          |
| <b>46 Wilson's<br/>Plover Nests</b> | 22%                      | 41%                          | 27%                            | 10%                         |

Vegetation categories refer to nest microhabitat and are based on the number of plant stems/clusters counted within a one- meter hoop centered on each nest.

No Vegetation = 0 plants

Sparse Vegetation = 1 to 20 plant clusters/nest visible

Moderate Vegetation = 21 to 40 plant clusters/nest partially obscured

Dense Vegetation = over 40 plant clusters/nest fully obscured

The most common types of vegetation associated with nests were cenicilla, glasswort and shoregrass.

## **Brood Use of Vegetation**

Within the first day of hatching, both Wilson's and Snowy plover chicks moved from the nest to the closest area of moderate or dense vegetation. The chicks remained in or close to the vegetation, using this area for feeding and protective cover, until fledging. Chicks were usually observed being tended by both adults until fledging.

## **Predation of Plover nests**

Of the 59 Snowy Plover nests that were monitored, 45% were lost to predation. Of the 46 Wilson's plover nests that were monitored, 23% were lost to predation. The primary predator was coyote. Other predators included snakes and Chiuauan Ravens. In the future, predator exclosures such as those used to protect Piping Plover nests, could be used to increase the hatching success of Wilson's and Snowy Plovers.

## ORV Use in Plover Breeding Habitat

South Padre Island and Brazos I/ South Bay are the largest breeding areas for both Snowy and Wilson's Plovers in the Lower Laguna Madre region. Both of these areas support the highest numbers of pairs and nests. Unfortunately, both of these areas have relatively unrestricted use of ORVs.

One hundred percent of the plover breeding habitat of South Padre and Brazos Island/ South Bay is accessible and used by ORVs. This includes algal mud flats, vast shelly washover passes, vegetated primary and secondary dunes, and mangrove lagoon shorelines. Digital photos of every nest record habitat degradation due to ORVs.

I observed vehicles regularly driving over vegetated habitat that Snowy and Wilson's plover chicks used for foraging and protection. The passing of vehicles disturbed young plover chicks from their protective vegetation cover, causing them to run out into the path of the oncoming vehicle. Throughout the breeding season, adult birds and young were found crushed by ORVs. These included Wilson's Plover and Least Tern chicks (bayside) and Least Tern adults and fledglings (gulf and bayside).

It would be very beneficial to all beach nesting birds, if ORV use could be restricted from plover nesting habitat during the breeding season.

## Summary

Overall the 2003 field season was very successful. In total, 233 breeding pairs of Snowy and Wilson's Plovers were located in the South Texas region. This is the first comprehensive census of breeding plovers for this area. Valuable data was collected on distribution, habitat selection, hatching success, breeding biology and behavior for both species. A map locating Snowy and Wilson's Plover nesting and breeding habitat was created using GPS coordinates at each nest. Data was collected on nest predation, disturbance and habitat degradation. Much of the data collected this past season had not been previously documented, particularly information collected on Wilson's plovers.

The location of plover nesting and breeding habitat on South Padre Island has already led USFWS to plan implementation of protective fencing in critical nesting areas on refuge property for 2004.

## Goals for the 2004 Breeding Season

The first step in preserving coastal bird populations begins with identifying nesting habitats and accurately censusing breeding pairs. Although a statewide Snowy Plover census was attempted in Texas in 2003, many sites were missed because of the vast area to be covered, uncertainty and inaccessibility of habitat, and lack of trained individuals to locate breeding habitat, plovers, and nests. Locating Snowy and Wilson's Plover nests can be difficult and time consuming, requiring specific knowledge of plover behavior and their habitat preferences. The resource manual that I am currently drafting, combined with training sessions for coordinators, interns and volunteers will greatly improve the consistency and accuracy of the 2004 census. Once statewide breeding areas have been located, measures can be taken to insure their protection.

As Coastal Bird Conservation Program Field Coordinator for National Audubon, my primary objectives for the 2004 field season are as follows.

1. Compile 2003 season data and produce a field resource manual for plovers and other beach-nesting birds. The manual will start with basic information and will be augmented annually as more data is gathered each season. The manual will cover habitat and nest location, plover breeding behavior and biology, census methodology and monitoring and protection techniques. It will be used as a resource in conjunction with onsite field training for coordinators, interns and volunteers to improve the quality of local shorebird conservation.
2. Develop and implement a plan for the 2004 breeding season to enlist, train and supervise field interns and volunteers for the Texas coast to better assess the breeding populations of Snowy and Wilson's Plovers for the 2004 Texas census. This plan would promote increased monitoring and conservation of all beach-nesting birds as well and acquire much needed additional data on Snowy and Wilson's Plovers.

To accomplish these goals I will work with Program Director, Scott Hecker as well as national and local partners to implement coastal bird conservation priorities at the field level. To insure a successful 2004 field season, it will be very important to acquire donated housing and the use of vehicles/ATVs for a small number of seasonal interns. Ideally, trained interns will be strategically located on the Texas coast in areas with the highest concentrations of beach-nesting birds and where the most assistance is needed for the 2004 plover census.

I look forward to the next field season in Texas. The essential data gathered in 2003 will be utilized to assure a highly productive field season for 2004. Much new information will be collected and further nesting habitat and breeding plover pairs will be located on a statewide level.

## Acknowledgements:

I would like to thank all of the staff at Laguna Atascosa and Santa Ana National Wildlife Refuges for their invaluable logistical support, interest and assistance. Special thanks goes to Santa Ana NWR manager, Jeff Rupert for his input and promotion of the project. Thanks also to David Blankinship and Mitchell Sternberg. I thank Laguna Atascosa NWR manager, John Wallace for his time, assistance and for providing us with area maps. Thanks also go to assistant manager Sonny Perez for keeping everything running smoothly. I also thank Steve Labuda and Dorie Stolley for their time and assistance in the field.

I thank Scott Hecker, Coastal Bird Conservation Program Director, National Audubon Society, for his continual faith and encouragement and for making the vision a reality.

Lastly I would like to thank my partner in the field, Sharyn L. Hood, whose teamwork, dedication and support made our accomplishments during the 2003 field season possible.

\*For use of data and /or photos contained in this report please contact Margo Zdravkovic at [mzdravkovic@audubon.org](mailto:mzdravkovic@audubon.org)

## Snowy and Wilson's Plover Nesting Site Map - 2003



Note: because of overlap at this map zoom level, visible dots do not reflect total number of nests

## South Texas 2003 Plover Breeding Season - Photos



Male Snowy Plover on Nest



Snowy Plover Nest

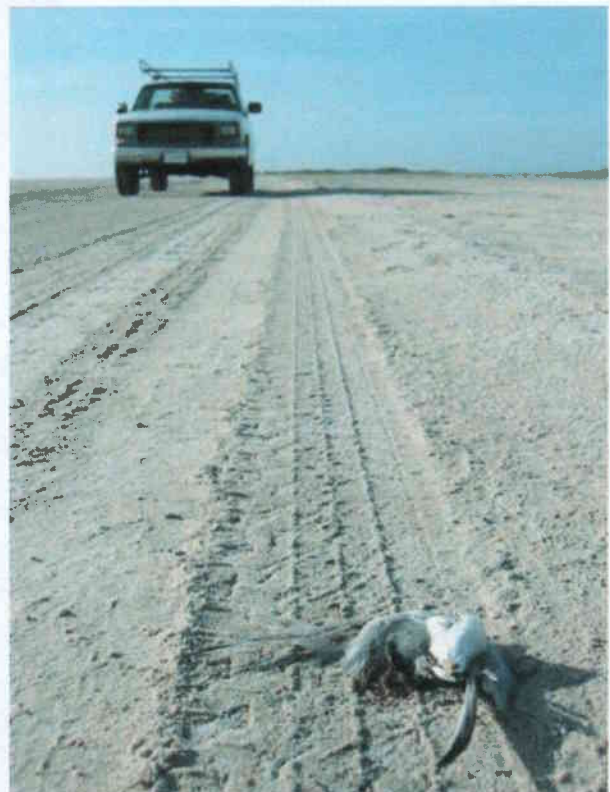


1 Day Old Snowy Plover Chicks



1 Day Old Wilson's Plover Chick

Least Tern Adult Crushed by ORVs



Photos by M.Zdravkovic

## South Texas 2003 Plover Breeding Season - Photos



**Wilson's Plover Nest**



**Male Wilson's Plover on Nest**



**Nesting Habitat Scarred by ORV Tracks**



**16 Day Old Wilson's Plover Chick**



**1 Day Old Wilson's Plover Chick**



**Lesser Nighthawk on Nest**