

Information requested about the Grayton Beach State Park Snowy Plover nest that Jeff Talbert photographed, the banding and monitoring program and Florida State Parks, and background information on Snowy Plovers in Florida.

The nest we called GBNest-02

**Male** X:X (unbanded)

**Female** S//Y:WY (*left leg*: Service (metal) band on upper leg, yellow band on lower leg, *right leg*: white over yellow on lower leg)

**Chicks**: The blues brothers (as Jeff called them)

S//:W//B (*left leg*: Service (metal) band on upper leg, *right leg*: white upper leg, blue lower leg)

S//:O//B (*left leg*: Service (metal) band on upper leg, *right leg*: orange upper leg, blue lower leg)

S//:G//B (*left leg*: Service (metal) band on upper leg, *right leg*: green upper leg, blue lower leg)

**Background Info** (*see Birds of North America Account for further information or feel free to ask further questions for background info*).

Snowy Plovers, on the gulf coast, are a distinct population of *Charadrius nivosus*, that is State threatened under the Florida Fish and Wildlife Conservation Commission (FWC) because of their small population size (222 breeding pairs in the most recent state-wide census; Himes et al. 2006). The Pacific coast population, or the Western Snowy Plover, has a Federally threatened status since 1973 and have been managed under United State Fish and Wildlife Service (USFWS) Endangered Species Act. Although the gulf coast population is much lower than that found on the Pacific coast, historic data is lacking and a the USFWS has not been able to verify a decline in the gulf coast population despite loss of potential nesting habitat due to coastal alteration and development.

Morphologically, the Snowy Plover gulf coast population has a color trait that appears to be whiter/lighter overall than the darker/browner interior or western Snowy Plovers. The plumage difference is why the gulf coast Snowy Plover population was previously placed in a separate subspecies from *nivosus*. However, based on recent genetic analysis, there is only one subspecies in the US.

The biggest threats to the Snowy Plovers in Florida and throughout its range are human anthropogenic factors (e.g., recreation, beach driving, domestic dogs, loss of habitat through development, and influx of exotic predators like coyote and feral cats. Due to the high level of recreation at Florida State Parks, we protect nesting areas with symbolic fencing (i.e., posts, signs, and rope) to minimize the impacts associated with human disturbance. Without protection, human activity can lead to trampling of nests or chicks, nest abandonment, indirect predation or exposure to the elements (sun, wind, etc.).

Predation is the primary cause of nest failure and chicks loss. Based on tracks at the nest ghost crabs are the primary predator of eggs and chicks along the Florida panhandle. Although ghost crabs are a natural part of the landscape, we believe crab predation is high due to the indirect effects of human disturbance. Unlike many crab species, ghost crabs are not scavengers, but active predators. Because crab burrows are frequently found adjacent to plover nests, the more frequently plovers are flushed from the nest (by people or predators), the probability of predation increases. Additional nest predators observed (based on tracks at the nest and direct observation): coyote, domestic dog, fox, fish crow, laughing gull, gull-billed tern, great blue heron, raccoon, opossum, bobcat, and feral domestic cats. Although nests have been depredated by a variety of species, after ghost crabs, coyotes are the most frequent nest predator at the Florida State Parks in the panhandle.

### **Where do they live?**

In Florida Snowy Plovers breed and winter along the gulf coast. They are highly tied to sandy beaches and barrier islands. They are particularly attracted to beach habitat with high quality foraging habitat available. The outfalls associated with the coastal dune lakes at Grayton Beach are a great example of this. The outfalls provide a low energy, shallow pool where bugs (flies, beetles, worms, etc.) accumulate. Other high quality foraging habitats where plovers are frequently observed: bay flats, ephemeral (or tidal) pools, or lagoons. The wrack line is also an important source of food for adult plovers (much riskier for chicks). If a preferred foraging habitat is not available for brood-rearing (rearing of flightless chicks), plovers will forage at the wrack line for flies, amphipods, and isopods or they will forage at the base of the dunes feeding on flies and ants. However, chicks are much more exposed to disturbance (i.e., vehicles, people, dogs, gulls, etc.) at these latter foraging areas and in general have lower survival.

Snowy Plovers typically nest on the open beach front in areas with shell or other forms of organic debris. Occasionally they will also nest in vegetation. However the vegetation is typically sparse to allow the plovers visibility of approaching predators from all sides of the nest. Nests are typically shallow scrapes lined with shell fragments or other debris, and can be difficult to find since plovers rely on camouflage as a primary defense against predators. Snowy Plover adults, chicks, and eggs are all well camouflaged to blend into their sandy environment. Adult plovers flee from the nest when approached and conduct distractive displays (e.g., broken-wing display) to lead humans or predators away from the nest or chicks. Chicks, on the other hand, will often crouch in place when approached making them difficult to observe.

Based on state-wide surveys conducted in 2006 by FWC, it appears that Snowy Plovers are primarily restricted to non-developed public lands (e.g., Florida State Parks, Tyndall and Eglin Air Force Bases, Gulf Island National Seashore, etc.). In addition, approximately 80% of the state-wide Snowy Plover population was observed nesting on the panhandle beaches, likely due to the difference in population and development between the panhandle and peninsular Florida. St. Joseph State Park had the highest Snowy Plover population in Florida during the 2006 study (28 nesting pair) and continues to maintain a high population with 30-35 nesting pair documented each year during the last 6 years.

Out of all the plover species we observe on the gulf coast, the Snowy Plovers are the only year round resident. The majority of Snowy Plovers in the panhandle are residents. This means that they winter at the same sites where they breed. Based on band resights, ~70% of Snowy Plovers remain all winter at the parks where we banded them. The remaining 30% disperse during the winter (non-breeding months) throughout Florida and other gulf coast states. Based on band resights of individually marked birds, Snowy Plovers banded at various State Parks have been observed at Gulf Islands National Seashore at the western end of the panhandle, along the peninsula at Sanibel Island, Fort DeSoto, or Marco Island, and in other gulf state such as Dauphin Island, AL or Horn Island, MS.

### **History of monitoring at Grayton Beach SP**

Grayton Beach State Park staff has monitored nesting for years (although we don't have all of the data from these years) and FWC monitored Grayton Beach as part of a state-wide survey in 1989, 2002, and 2006. However more rigorous nest monitoring didn't start until 2007. In 2009 the shorebird program improved even more when the FPS District 1 hired a full-time shorebird biologist. This biologist job was to actively search for nests at all state parks in District 1 and protect nests with symbolic fencing (i.e. stakes, signs, and rope).

**Table 1. The number of nesting Snowy Plover individuals at Grayton Beach from 1989-2012.**

| 1989 | 2002 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|
| 8    | 0    | 0    | 0    | 0    | 2    | 2    | 6    | 10   |

1989 FWC

2002 FWC

2006 FWC

2007 FPS District 1, Harold Mitchell

2008 FPS District 1, Harold Mitchell

2009 FPS District 1, Jared Zimmerman

2010 FPS District 1, Jared Zimmerman, Raya Pruner

2011 FPS District 1, Raya Pruner, Marvin Friel

2012 FPS District 1, Raya Pruner, Marvin Friel, Tyler Brown (ABC Intern)

The 2012 nesting season was a ‘good’ year for shorebirds (Snowy Plover and least tern) at Grayton Beach State Park. We had a 2 to 3 Snowy Plover pair initiate nests at Grayton early in the season and later when coyotes depredated all of the active nests at Deer Lake, many of the nesting pair from that park dispersed to Grayton. In addition, at least 44 least tern adults were attracted to Grayton this season and set up colonies adjacent to both outfalls. We had a total of 7 Snowy Plover nests this season of which 1 was washed out by Tropical Storm Debby, 1 abandonment, 1 nest depredated by a ghost crab, and 4 nests that hatched chicks. Of those four hatched nests, 7 total chicks fledged. The last chick that fledged was the latest documented fledging of a chick in Florida!

**What is entailed in the banding?**

Currently we color band Snowy Plovers, Wilson’s Plovers, and American Oystercatchers. All banding is done through a banding permit in coordination with FWC avian researcher, Janell Brush based out of Gainesville, FL. In the short-term (within season) we band these shorebird species to aid us in determining nest productivity (i.e., hatch or fail), fledge rates, and the number of individuals in the breeding population at FPS parks. In the long-term, we will use the band resights over time to determine survival, natal dispersal, and adult dispersal distance between breeding events, between breeding seasons, and during the winter months.

Over the past five years, a total of 201 Snowy Plover adults and 632 chicks have been banded with individual color combinations at FPS coastal parks and adjacent properties (Table 2). We began banding Snowy Plovers in 2008 as part of a Master’s Project with the University of Florida (UF) (see Pruner 2010). Several of the coastal state parks in District 1 were included in the UF Snowy Plover project. Additional adjacent sites were also included in this study, including St. Vincent NWR, Tyndall AFB, and properties owned by the St. Joe Company (e.g., Windmark and Bonfire Beach). This UF study was focused on Snowy Plover habitat selection and the consequent reproductive performance during the nesting and brood rearing stages of breeding. With a funding through the National Fish and Wildlife- Power of Flight (NFWF) program we were able to continue this effort during the 2010 and 2011 nesting seasons (see Pruner et al. 2011). These efforts continued into 2012 (with funding through 2014) with USWFS funding granted to the FPS through FWC’s State Wildlife Grant program.

**Table 2. The number of Snowy Plover chicks and adults banded 2008-2012.**

| Year | Chicks | Adults |
|------|--------|--------|
|------|--------|--------|

|                   |            |            |
|-------------------|------------|------------|
| 2012              | 94         | 32         |
| 2011 <sup>b</sup> | 101        | 32         |
| 2010 <sup>b</sup> | 71         | 0          |
| 2009 <sup>a</sup> | 170        | 22         |
| 2008 <sup>a</sup> | 196        | 115        |
| <b>Total</b>      | <b>632</b> | <b>201</b> |

<sup>a</sup> UF Masters Project: Pruner 2010

<sup>b</sup> National Fish and Wildlife Project: Pruner et al. 2011

### **How often do they come and monitor**

During the nesting season we monitor nests and broods every 7 to 10 days. At many of the western parks, where it is feasible, we encourage park staff to help monitor nests. This additional monitoring allows for more frequent nest updates and provides better accuracy on when nests disappear or hatch. The nesting seasons typically runs from February to the end of August. However, this 2012 season was an odd season where we observed a lot of late nesting and we confirmed our last fledgling at Grayton Beach during the 3rd week of September. In the off season we conduct a non-breeding survey every two weeks. The non-breeding surveys focus on federally or state listed shorebirds.

### **What each color band signifies**

Each Snowy Plover receives a unique combination of color bands. We use the unique color combination to identify each individual over time. The use of these unique combinations is the only way to positively tell each Snowy Plover apart. We place a unique set of three color bands on each adult Snowy Plover in addition to one USFWS aluminum 'service' band. Because we try to band chicks shortly after hatching when they weigh only 5-7 grams, we place only two color bands and one service band on each chick. If we capture chicks when they are larger or recapture them as adults during later years, we will replace the 'chick combos' a place a three color-band adult combination.

We use the USFWS metal band because it is the only permanent marker that is placed on birds. The color bands, although sealed, can be pulled off by the birds, they can crack and break from exposure to UV light, or they can fade from UV exposure to where observers can no longer distinguish the color. A good example of the importance of a permanent metal band is the story of an adult male Snowy Plover that we captured in 2008. During nest monitoring, we observed a Snowy Plover male with only a metal band on Shell Island (St. Andrews State Park). When we captured him we identified the unique number engraved on the metal band and sent it in to the Bird Banding Lab because it didn't match any of the records we had for Florida. They reported back that the snowy was originally banded by a professor, Susan Haag, from Oregon State University who had placed a service band on a chick she located at **Grayton Beach State Park** in 1998 while doing a study on Snowy Plover distribution in the southeastern US. We added color bands to make him identifiable and banded him as Black Black: Service Blue (KK:SB). Since 2008 we have observed KK:SB each year at Shell Island, normally on the Tyndall portion of Shell Island. He is now 14 years old and is the oldest known Snowy Plover in the state of Florida!

### **Grayton Beach Nest Specifics**

This 3 egg nest was discovered on April 13, 2012 inside the posted area at Grayton along the toe of the dune about a foot away from a sea oat clump. The nest was lined with sparse coquina shells. This was the 2<sup>nd</sup> nest of the season at Grayton. This nest remained active for 26 days (typically incubation length in Florida) till it hatched 3 chicks. We banded the chicks on May 16,

2012 a week after hatching. The chicks were monitored by us once a week and by Jeff whenever he could find the time to get out to the beach (sometimes daily)! It typically takes 30 days for Snowy Plover chicks to become flight capable or fledged. These three chicks were observed fully fledged and independent of their parents on June 9, 2012. As with most Snowy Plovers, the female plover did not stay with the brood until fledging. She was observed for the first two weeks with the brood. She then left, re-paired, and re-nested with a male at the Pine Street area of Grayton. The male was not banded, so we have no knowledge of what happened to him after his chicks fledged. Since June, these fledglings have been observed at several other state parks, including: Camp Helen, Deer Lake, Topsail and St. Joseph State Parks.

The female, S//Y:WY, was actually banded on a nest at Deer Lake State Park in 2011. Her nest was located under a Gulf Coast lupine and was captured with a noose carpet. We can send you an awesome picture of her without bands prior to capture.