2015

Snowy Plover Adaptive Management

Strategies for snowy plover conservation on public lands along Lido and Siesta Keys

Sarasota County

Snowy Plover Adaptive Management

Prepared for:
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Introduction

Located on the west coast of Florida, Sarasota County has over thirty-five miles of coastline. The majority of beachfront parcels are privately owned and developed; however, the county manages the public land fronting the Gulf of Mexico. As stewards of this recreational and natural resource, Sarasota County is responsible for making management decisions related to public beaches and access points.

The beaches of Sarasota County are a destination for tens of thousands of visitors each year and residents use the shoreline daily. Critical to the success of coastal wildlife, the sand and vegetated dunes are home to many protected species that make their home in Sarasota County for all or part of the year. Listed as a threatened species in Florida, the snowy plover is one of several shorebird species that depend on the local beaches to nest and raise young.

The primary objective of this management plan is to minimize disturbance to the breeding snowy plover population on county-managed lands by: 1) directing human activity away from nesting sites; 2) minimizing opportunities for predators; and 3) collaborating with shorebird conservationists to protect nesting sites and educate beach patrons about the snowy plover and habitat needs.

This adaptive management strategy informs decisions relating to beach-nesting bird habitat on public lands and serves to guide operations and policy regarding a suitable avian environment in a popular recreational area. Adaptive management practices are based on a learning process and are most effective when they meet the resource management objectives and provide information needed to improve future management decisions. Using a science-based approach to inform management decisions, Sarasota County will take special measures to protect the ability of wildlife to feed, breed, and find shelter consistent with the county's Comprehensive Plan, applicable local ordinances, and federal and state rules. The plan can change to reflect the needs of the species as we obtain more information about the snowy plover.

Figure 1. Adult snowy plover tending to nest with three eggs.

Background

Snowy plovers have been observed on Sarasota County beaches for decades; however, routine surveys documenting the number of birds and nesting were not conducted until recently. In 2008, the Sarasota Audubon Society (SAS) and the Suncoast Shorebird Partnership collaborated with Florida Fish and Wildlife Commission (FWC) to establish monitoring protocols of shorebirds and seabirds along beaches within Sarasota County.

Information gathered from the standardized monitoring efforts provides essential knowledge about the extent of snowy plover activity (Table 1). Data collected during the 2008-2010 nesting seasons revealed that the sparsely vegetated dunes along Beach Access 7 of Siesta Key was a desirable and highly utilized nesting area. Also used by beachgoers, the routine human activity near the site disturbed nesting birds and it became apparent that the needs of the snowy plovers should be part of the management actions taken for public beaches. In 2010, the *Sarasota County Snowy Plover Adaptive Management Strategies for Siesta Key, North and South Lido Beach Parks* was developed to address these needs and has guided beach management of snowy plover habitat. This update to the original plan reflects new data and management strategies based on the needs of the snowy plovers.

Table 1: Siesta Key snowy plover nesting data 2008-2014*

	2008	2009	2010	2011	2012	2013	2014
Breeding Pairs	4	5	7	9	9	8	13
Nests	9	17	16	9	13	12	19
Eggs	19	36	27	unk.	unk.	26	43
Chicks	11	3	10	3	4	5	7
Fledged	1	0	4	2	1	4	6

*Courtesy of Sarasota Audubon Society and volunteer bird stewards

Physical Description

The snowy plover (*Charadrius nivosus*) is a small beach-nesting shorebird. Adult plovers are between 5.9 to 6.7 inches tall, have a 13-inch wing span and weigh only 1.2 - 2 ounces. They have a white chest with an upper body that varies in color from light brown to gray. Snowy plovers have dark legs and a short black bill and typically have dark patches around the neck, the top of the head and behind the eyes during the breeding season. Newly hatched plovers are about the size of a human thumb and leave the nest within hours of hatching in search of food along the beach and wrack line.

Figure 2. A snowy plover chick stands three inches tall at a few weeks of age.

Habitat

Snowy plovers prefer barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on beach or dune habitat, levees and flats at salt-evaporation ponds, river bars, and along alkaline or saline lakes, reservoirs and ponds (Cornell 2014).

They use the beach for shelter, to forage for food, nest and raise young. Snowy plovers require open and dry sand by the dunes for nesting and depend on the inner dunes for brood protection. They are uniquely suited to the beach environment with plumage and speckled eggs that blend in with the sand, providing camouflage from predators. Areas with sparse vegetation are attractive to the plovers as the unique habitat provides shelter without limiting their view of potential threats. The beach wrack line is an essential resource for food, supplying aquatic invertebrates, flies, and beetles.

Figure 3. Sparsely vegetated habitat preferred by snowy plovers.

Abundance and Distribution

There is an estimated 18,000 breeding snowy plovers in North America (Page et al. 2009). Prior to the past few decades, their historical abundance and distribution in Florida has not been consistently documented and breeding and wintering records for the species in Florida are incomplete (FWC 2011); however, monitoring has shown that Florida has two distinct breeding populations. The Northwest population inhabits Escambia County east to Franklin County and the Southwest population from Pasco to Collier counties (Appendix 1). Himes et al. (2006) recorded approximately 222 breeding pairs in Florida, with only 45 nesting pairs in the Southwest region. Further data analysis showed that the majority of the state's breeding population (79.7%) is located in the Northwest region, and that over half (59.9%) of Florida's breeding pairs occurred on just nine sites (FWC 2011).

The preferred snowy plover nesting areas in Sarasota County occur north of the main public beach on Siesta Key and on portions of north and south Lido Key (Appendix 2). Since 2008 the total documented number of breeding pairs in the county has ranged from 5 to 15. Only 1-2 pairs nest on Lido Key each year.

Monitoring Strategies

The nesting season of snowy plovers in Florida is February through August. In Sarasota County, the first plover nests are usually found in March and some chicks may fledge in late September. Since 2010, volunteers from SAS and the Siesta Key Association (SKA) have monitored the beaches for nesting activity on Siesta and Lido Keys. Over two dozen dedicated community members have provided approximately 1,200 hours of daily monitoring to date on Siesta Key. SAS provided a paid beach steward for Lido nest sites in 2012 and 2013, and voluntary monitoring occurred during the 2008-2011 and 2014 seasons. In 2015, Florida Audubon received a grant to fund a Sarasota Bird Steward Coordinator to manage monitoring activities in Sarasota County.

Data collected throughout the nesting season is recorded in the Florida Shorebird Database, which is verified and managed by FWC. Supplemental reports, including nest coordinates, clutch initiation and numbers of eggs, nest success, fledgling details, and site management issues documented by the shorebird monitors are provided to the county on a regular basis.

Threats

Habitat loss and degradation continues to be the leading threat to snowy plovers and all beach-nesting birds. Coastal development has resulted in the conversion of native habitats to manicured landscapes and created a greater human presence on the beaches through recreational and residential usage. The installation of shore-hardening structures that replace back dune vegetation permanently alters coastal features and functions. Coastal squeeze, the reduction of habitat due to the combination of coastal construction and sea level rise, leaves less space for birds to breed, feed, and find shelter, as these areas are reduced from both the seaward and landward direction. Although some nesting areas have been created to mitigate for human impact, snowy plovers are less likely than other beach-nesting bird species to use these artificial nesting habitats (FWC 2011).

Beach cleaning creates areas void of vegetation and changes the elevation of the natural landscape. The operation of large beach-cleaning equipment often causes adult birds to take flight and temporarily leave the nesting site. Chicks not yet able to fly utilize their camouflage and lay down in the sand to hide from potential threats. While this defense mechanism works with natural predators, chicks may be run over by beach-cleaning vehicles.

Environmental factors that impact shorebirds, such as storms, natural vegetation recruitment, and predation by other wildlife are expected; however, human actions that have negative consequences must be delimited. Simple activities such as kite flying and jogging disrupt normal bird behaviors when these actions occur near birds utilizing the beach. The intrusion into snowy

plover habitat leads to decreased feeding rates, hatch success and a reduction in successful chick rearing.

Whether leashed or off-leash, walking dogs on the beach is one of the most disruptive influences to shorebird nesting. When startled or disturbed, shorebirds will flush, leaving their eggs and chicks vulnerable to predators or the extreme summer heat. A study of a nesting least tern *(Sternula antillarum)* and black skimmer *(Rynchops niger)* colony in 2006 showed that the birds flushed 100 percent of the time when a leashed dog passed within 100 feet of the nest site. The birds left their nests 19 percent of the time when a person without a dog walked by the colony from the same distance (E. Forys, personal communication, February 12, 2015). Predatory birds, such as crows and gulls, will take full advantage of an unoccupied nest and take the eggs or chicks, especially if the birds are already in the area searching for food in beach-side trash cans.

Figure 4. Dogs instinctively run toward resting birds causing them to take flight. The disturbance leaves flightless chicks vulnerable to predators and stresses the adults.

Listing Status and Regulations

In 2010, FWC formed a Biological Review Group to re-evaluate the listing status of the snowy plover. On March 31, 2011, the state-sponsored Biological Status Review reported that the snowy plover continued to meet Florida's threatened species listing criteria. The Gulf coast population of snowy plovers in Mississippi is state-listed as endangered and the Pacific coast population is listed as threatened by the U.S. Fish and Wildlife Service.

Non-governmental organizations have additional ranking classifications and the Florida Natural Areas Inventory classifies the species as critically imperiled in Florida and the International Union for Conservation of Nature and Natural Resources ranked snowy plovers as near threatened in 2014.

The snowy plover, nest, and eggs, are protected by the Endangered and Threatened Species Rule, Chapters 68A-4, 68A-13 and 68A-27 of the Florida Administrative Code and federally afforded protection through the U.S. Migratory Bird Treaty Act of 1918. It is illegal for anyone to kill or attempt to kill, pursue, hunt or capture any migratory bird, eggs, or nests.

Protection Strategies

Several strategies to address species conservation are available to county staff conducting management activities on public beaches and access points. Sarasota County will utilize any combination of the suggested protection strategies to reduce or eliminate site-specific threats near active snowy plover nesting areas on public lands. Site appropriate protection measures incorporated into management practices will consider the needs of wildlife and beach patrons. Further, county staff will evaluate actions for their appropriateness and feasibility. Protection strategies designed to minimize disturbance to the breeding snowy plover population on county-managed lands include, but are not limited to, the following:

Objective 1: Direct human activity away from nesting sites

Action 1.1. - Create buffers

Delineate nesting areas containing at least one nest with symbolic fencing composed of posts, rope and advisory or educational signage. Where practical, establish buffer areas of active courtship by one or more pairs of snowy plovers to establish a territory free of human disturbance.

Action 1.2 - Modify or close beach access points

Beach access paths that lead people too close to single or multiple nests, causing birds to flush, will be modified or closed and patrons will be re-directed to alternate pathways or access points. Once nesting and brooding activity has ceased, and the buffer is no longer needed, the access point will be fully re-opened.

Action 1.3 - Beach cleaning

Cease regular county beach cleaning within 50-feet of marked nesting areas. Make all efforts to conform to this distance when cleaning after natural events, such as storms and fish kills, that deposit unusual amounts of organic materials onto the beach. Coordinate removing debris inside of active nesting sites with FWC and the shorebird monitors to minimize disturbance of the birds and nests.

Action 1.4 - Motorized beach-cleaning vehicles

Limit the operation of beach-cleaning vehicles and equipment to the locations where the Florida Department of Environmental Protection has permitted such activity.

Action 1.5 - Vandalism of nest sites and buffers

Document and report to FWC (1-888-404-3922) the destruction of buffered areas and any serious intentional violations involving harassment of the birds or loss of eggs or chicks due to human activity.

Objective 2: Minimize opportunities for depredation

Action 2.1 - Dogs

All domestic animals are prohibited on county beaches, with the exception of service animals performing their trained duties (Sec. 90-33, Sarasota County Code of Ordinances). Continued education of the rule by county staff and the presence of law enforcement will decrease the occurrence of dogs outside of designated dog beaches and paw parks.

Action 2.2 - Trash and recycling bins

Locate all receptacles landward of the beach entrances and regularly empty bins to keep crows and other predators away from nesting areas. Continue to explore the installation of wildlife-proof trash containers suited for the coastal environment and replace traditional trash cans with better options as they become available.

Action 2.3 - Exotic vegetation removal

By removing non-native trees, like Australian pine trees (*Casuarina* spp.), from the dune landscape, we reduce high vantage points used by predatory birds. Australian pines also displace native plant communities that provide habitat for threatened and endangered plant and animal species.

Action 2.4 - Pest management

Use bait to remove red imported fire ant (*Solenopsis invicta* Buren) colonies that threaten nest sites, eggs, or chicks, following the Sarasota County Integrated Pest Management guidelines.

Objective 3: Pursue conservation partnerships and educate the public

Action 3.1 - Partnerships

Maintain and foster open dialogue with conservation partners and citizens and keep current on laws and regulations that affect snowy plovers and all shorebirds. Provide support, supplies, and solicit input regarding the effectiveness of protection strategies.

Action 3.2 - Outreach and education

Develop and distribute informational brochures and species identification materials to visitors and residents in areas near nesting sites. Utilize beach kiosks, public service announcement formats, press releases, and social media to promote conservation messages.

Management Success

Since 2010, Sarasota County has collaborated with SAS and other volunteers to protect snowy plovers and their habitat. The number of fledged chicks has improved since implementation of the management strategies (Table 1).

The county closed Beach Access 7 during the 2010 nesting season in order to protect an active nesting area. The simple action of re-directing patrons to the next closest footpath helped make the season a success that included four fledged snowy plover chicks. The partnership with SAS was also strengthened during this time as both organizations worked together to implement management strategies, on-site education, and public outreach.

Fish crow (*Corvus ossifragus*) depredation decreased after the county removed trash cans from the open beach. The removal of non-native and invasive Australian pine trees (*Casuarina* spp.) from beach landscapes has further reduced their presence by eliminating the high vantage points for the predatory birds.

The county installed new informational kiosks along public beach access points on Lido and Siesta Keys in 2012 that focus on sharing the shore with coastal wildlife. Illustrations of commonly found shorebird species and information about habitat needs are highlighted on the display. The *Share the Shore* marketing campaign continued in 2014 and included a direct mail postcard to coastal properties, a public service announcement, and press and social media releases. In 2015, door hangers designed and distributed to coastal rental properties by a local first grade class and county staff furthered the message of shorebird conservation and the *Share the Shore* concept.

Figure 5. Share the Shore kiosks at public beach access points.

One of the most valuable forms of education is one-on-one interaction during the nesting season. Each morning SAS volunteers interact with beachgoers, educating them on species biology, identification and the importance of protecting the nest sites. During the 2014 nesting season, SKA volunteers distributed 2600 *Share the Beach with Beach-Nesting Birds* pamphlets to the Siesta Key Chamber of Commerce and members of the Siesta Key Condo Association. The group also hosted several beach walks and recruited “Chick Checkers”. This popular local activity

provides updates on the status and location of chicks from the time they are born until they fledge.

It is critical to keep the lines of communication open, and to work with our partners and volunteers that monitor the snowy plovers on a daily basis during nesting season. Knowing the success and failure of adaptive management strategies will improve our conservation measures and help us better manage county beaches for all wildlife.

Future Considerations

Snowy plovers generally nest in areas with sparse vegetation that provide a direct line-of-sight of the Gulf of Mexico (FWC 2013). Throughout the nesting season, vegetation naturally recruits and grows inside of the buffered sites due to the reduced human usage. Native dune vegetation plays a vital role in coastal dynamics by stabilizing shorelines and is protected by the Comprehensive Plan and Coastal Setback Code (Chapter 54, Article XXII of the Code of Ordinances). The county may explore options that would allow for the removal of native dune vegetation within historical snowy plover nesting sites to provide suitable habitat if scientific studies determine this is a prudent management action.

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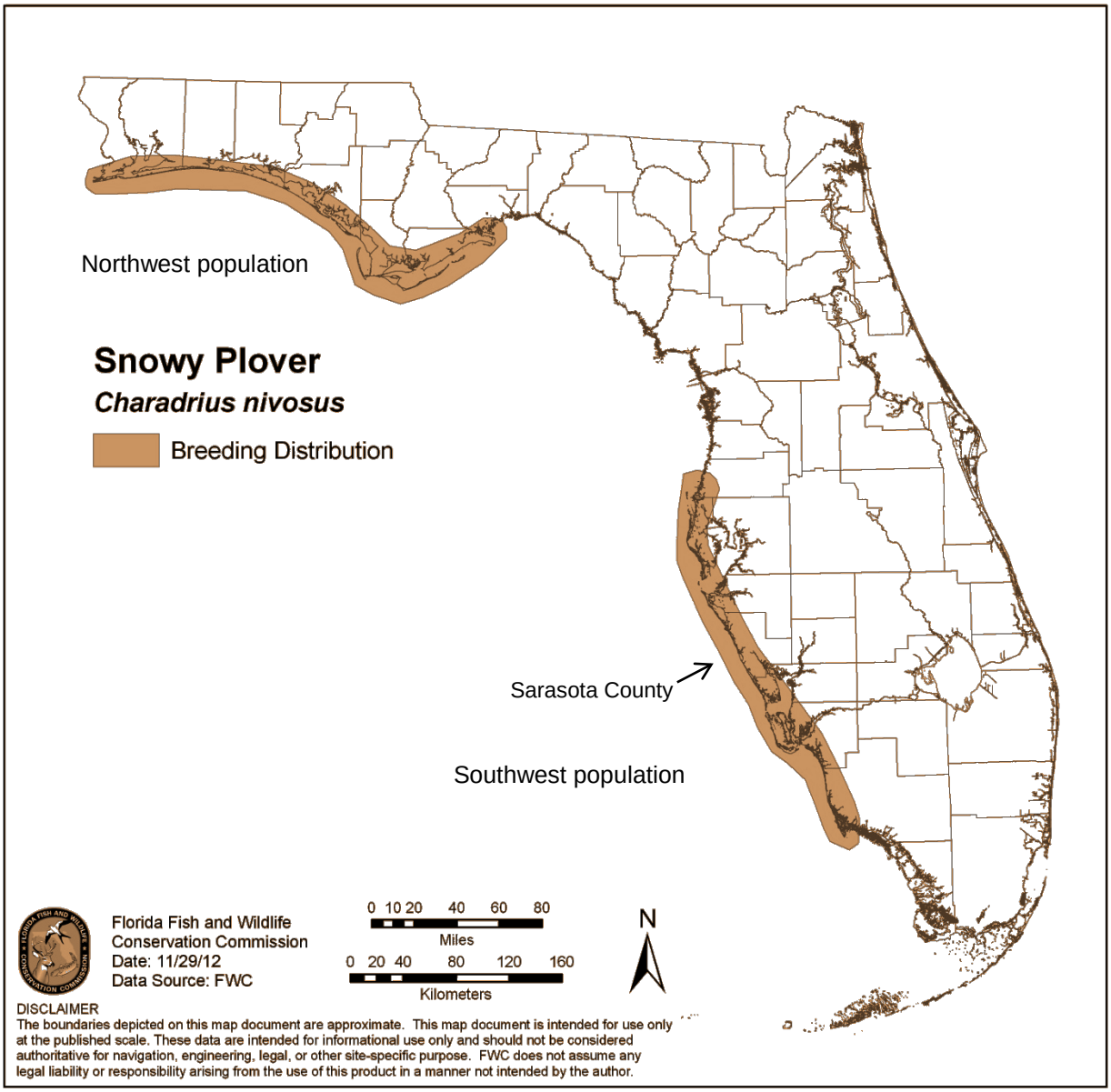
Appendix 1 – Snowy plover distribution in Florida



Appendix 2 – Snowy plover nesting areas in Sarasota County

Siesta Key

Areas on Siesta Key used by snowy plovers to nest and raise young.

Lido Key

Areas on north Lido Key used by snowy plovers to nest and raise young.

Lido Key

Areas on south Lido Key used by snowy plovers to nest and raise young.