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**Scope of Work for Western Snowy Plover Monitoring at Guadalupe-Nipomo Dunes National Wildlife Refuge, San Luis Obispo County, CA**
**2016 Breeding Season**

**Submitted to the U. S. Fish and Wildlife Service**

**Ventura, CA Office**

## Study Plan

Western snowy plovers (Charadrius alexandrinus nivosus) nest at the Guadalupe-Nipomo Dunes National Wildlife Refuge (Refuge) in San Luis Obispo County California. The Refuge was established in 2000 and encompasses 2,553 acres with 1.8 miles of shoreline, and is part of an 18 mile long Guadalupe-Nipomo Dunes Complex.

Management objectives set by the U.S. Fish and Wildlife Service (Service) include monitoring snowy plover populations and recommending management activities that will enhance and protect the productivity of this listed species. This proposal addresses the Service's monitoring goals for the 2016 breeding season.

## Monitoring Goals for Western Snowy Plovers

1) Gather data to estimate the number of snowy plovers that breed on the Refuge in 2016.
2) Gather nesting data: attempt to locate all nests.
3) Determine nest fates and causes for nest failures.
4) Evaluate fledging.
5) Evaluate human impacts on breeding plovers.
6) Determine predator species present and those likely to take nests. Make recommendations throughout the season on methods to address significant predators.
7) Submit midseason and final reports to the Service. A mid-season report will be provided by July 15, 2016. A draft final report will be submitted by October 31, 2016. Service comments must be received 10 days after draft submittal. The final report will be completed 10 days after comments are received.
8) Conduct a mid-season plover population survey in coordination with the Service for the annual range wide survey.

**Deliverables**

Deliverables will include mid season and final reports in hard and electronic copies.

**Methods**

Monitoring will be conducted on foot to collect the best possible and most thorough data, while minimizing disturbance to the species. Our goal is to locate all plover nests, and to document successes or the cause for failure of each nest. Monitoring surveys include nest searches, occasional egg flotation when required to forecast hatch dates, determining nest fates, and evaluation of chick survival and fledging success as possible. Nests are consecutively numbered and their locations are mapped. Onsite management strategies are evaluated, and recommendations on their effectiveness are made throughout the season. Recommendations on beach closure sign locations and their effectiveness are provided throughout the season. Reports are written in the format used on past Wildwing reports for the Refuge. Tom Applegate is the primary contact and monitor, and may be assisted by Wildwing co-owner Sandra Schultz on occasion.

**Western Snowy Plover Biology and Monitoring Recommendations**

The snowy plover breeding season extends from March 1 through September 30. Typically, courtship and nest scraping begin in February, but few if any nests are initiated prior to the end of March. Nest initiation primarily occurs from April through the middle of August, and most nests are typically initiated in May and June. The latest snowy plover nests are initiated by mid July and hatch by mid August, resulting in the latest fledging date in mid September.

Normal plover breeding chronology requires fewer field days in March, late August and September, and more intensive monitoring during mid season. To address the Service's objectives, field monitoring should be more intensive between April 1 and mid July, as evidence of nest and chick fates and other occurrences is lost quickly due to blowing sand and other factors.

The Service is requesting monitoring schedule of an average of one day per week between March 15 and September 30, 2016 (29 days). We recommend a monitoring schedule that is more intensive between April 1 and July 31, and less intensive during early and late season. Chick banding and subsequent monitoring of banded chicks will not be conducted in 2016 on the Refuge, so theoretically, field monitoring may end by August 31.

2016 field survey dates and hours are scheduled to maximize data collection, minimize data loss to wind and weather, and to minimize disturbance to birds in adverse conditions. Survey dates and hours are determined by Wildwing.

## Relevant Experience and Qualifications

The following is an overview of our related major projects from 1990 to the present. All Projects were conducted and managed by Tom Applegate and Sandra Schultz, Wildwing partners.

**County of Santa Barbara, Guadalupe, CA**
Current: Conduct western snowy plover and California least tern breeding season monitoring programs on Rancho Guadalupe Dunes Preserve during the 2016 breeding season.

**Beim Property Vegetation Surveys, Carlsbad, CA**
2014: Performed vegetation surveys as part of a mitigation project with the California Coastal Commission.

**Head Land Trust, Lakeside, CA**
2014: Performed a Biological Evaluation of the 200 acre Head property in southeast San Diego County. Included identifying habitat types and plant and wildlife species known to occur or believed to occur there.

**County of Santa Barbara, Guadalupe, CA**
2003, 2004 and 2007 thru 2013: Conducted western snowy plover and California least tern breeding season monitoring programs on Rancho Guadalupe Dunes Preserve.

**County of Santa Barbara , Guadalupe, CA**
2011: Environmental monitoring for an archeological dig on the "Ten Commandments‟ movie set from October 1 through October 17. Sensitive wildlife and plant species were monitored and protected.

**Mesa Verde National Park, Mesa Verde, CO**
2011 -2012: Artists and designers for interpretive displays.

**County of Santa Barbara , Guadalupe, CA**
2010: Environmental monitoring for new road construction through sensitive dune habitat. Identified all plants within the project area and relocated CNPS sensitive plants. Monitored wildlife and plants throughout project.

**US Fish and Wildlife Service, Guadalupe-Nipomo Dunes National Wildlife Refuge, Guadalupe CA**
2002 thru 2010: Conducted western snowy plover and California least tern breeding season monitoring programs on the Guadalupe-Nipomo Dunes National Wildlife Refuge.

**Oceano Dunes Recreational Vehicle Area, San Luis Obispo County, CA**
2003: Trained a group of state employees in the methods of monitoring western snowy plovers and California least terns.

**UC Santa Cruz. Santa Cruz, CA**
2002 – 2003: Contributed expertise on a team of natural resource professionals developing management plans for four California Department of Fish and Wildlife Wildlife Units. Assessed wildlife habitat and potential during site visits and with aerial photographs. Evaluated existing wildlife use and identified management techniques that could improve and increase wildlife use of the areas. Provided

CEQA documentation, compiled data from the group and inserted it into the final CDFW Management Plan. Edited the plan, and provided final layout.

**US Geological Survey, Snake River Field Station, Boise, ID**

2001: Contract Photography/Shorebird Specialists on a team developing a standardized methodology for aerially census of shorebirds using photography. Evaluated census techniques on San Francisco Bay during area test flights in our company aircraft.

**Vandenberg Air Force Base, Lompoc, CA.**

1994 thru 2001: Conducted California least tern and western snowy plover population and productivity monitoring, and California brown pelican seasonal roost identification and utilization ground surveys and aerial surveys in our company aircraft. Conducted rocket launch monitoring to determine the effects on snowy plovers and least terns.

**Western Foundation of Vertebrate Zoology, Camarillo, CA, Hagler Bailly Consulting, Inc. Boulder, CO, Point Reyes Bird Observatory, Stinson Beach, CA**

1993 thru 1995: Natural Resource Damage Assessment for the California Trustees - Unocal Diluent Spill. Western snowy plover, California least tern, California brown pelican, shorebird and near-shore seabird, beach carcass retention, oiling and contamination and habitat loss issues on two oil spills. Snowy plover breeding and winter monitoring. Shore and seabird surveys.

**California Department of Fish and Wildlife, Sacramento, CA**

1991 – 1992: Black bear bait- station survey, central coast.

**Inland Empire Public Lands Council, Spokane, WA**

1990: National Forest document review and commentary addressing validity and quality of old growth forest mapping, proposed treatment of old growth forests and biodiversity issues on the Colville National Forest. Reports included in litigation.

**Wildwing Charges**

For projects that extend over multiple months, we typically work with our customers to achieve a reasonable project rate that is lower than our regular short-term project rate. The prices quoted in this document reflect that price reduction. Wildwing charges only full day rates. We do not break project work into partial days for billing purposes. A full day can consist of field work, office work, project management, and travel to and from the Refuge. Costs submitted in this proposal include all monitoring, data collection, and report writing conducted by Wildwing. Also included are supplies, equipment and overhead. They do not include training of non-Wildwing employees, special project monitoring, or escorting of non-essential personnel into breeding habitat.

Wildwing will remain available for additional monitoring or other project requests by the Service. Additional field days are not included in this budget, but in the event that other tasks or emergency escorting can be conducted on scheduled field days without affecting our monitoring, it will be done at no additional charge.

Insurance: Wildwing holds professional general liability insurance (policy number 0124866561) The policy is in force currently and runs from March 3, 2016 to March 3 2017.

The Refuge project entails the following tasks:

- Field monitoring and data compilation between March 15 and September 30, 2016
- Data collection, analysis, and storage
- Preparation of mid-season and final reports

Following are the charges for your project:

- Survey rate per day/person: $496.00
- Field surveys – 29 days
- Data collection, analysis, storage and report writing – 6 days

**Costs for the 2016 Breeding Season**

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| 35 days @ 496.00/day | $17,360 |
| **Total project cost for 2016** | **$17,360** |
| <u>Funding Breakdown</u> | |
| FWS Refuge Funding | $5,000 |
| Torch Trustee Council | $12,360 |

Thomas E. Applegate
Wildwing Partner