

CALIFORNIA COASTAL COMMISSION

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Th 4a

August 21, 1998

TO: COMMISSIONERS AND INTERESTED PARTIES

FROM: JAMES R. RAIVES
FEDERAL CONSISTENCY COORDINATOR

RE: BRIEFING ON THE STATUS OF EFFORTS BY THE U.S. AIR FORCE
TO MANAGE SNOWY PLOVER HABITAT ON VANDENBERG AIR
FORCE BASE, SANTA BARBARA, CALIFORNIA

At its May meeting, the California Coastal Commission reviewed a proposal by the Air Force for implementation of an Evolved Expendable Launch Vehicle (EELV) at Vandenberg Air Force Base. In discussing impacts from the project to the federally listed snowy plover, the Commission raised concerns about current snowy plover habitat management efforts by the Air Force. The Commission raised two primary concerns. First, since 1995, the Air Force has not submitted a consistency determination for its annual linear closure of Ocean Beach, Vandenberg Air Force Base. Second, the Commission had concerns about the adequacy of the Air Force's plover management efforts to date.

In response to these issues, the Air Force agreed to submit a consistency determination to the Commission for its Snowy Plover Management Program before submitting the consistency determination for the second phase of the EELV program. The Air Force, however, is in the process of developing a Geographic Information System (GIS) to analyze snowy plover nesting habitat on Vandenberg. This GIS is an important tool for evaluating impacts to snowy plover nesting habitat and for developing and revising the management program. The Air Force expects to complete the GIS by October 1, 1998, and revise its snowy plover management program shortly thereafter. The Air Force still intends to submit a consistency determination on this program after it revises its management plan. In the interim, however, the Air Force wished to brief the Commission on the status of its snowy plover management efforts because it does not want this issue to result in delays of Commission review of future Air Force activities. Enclosed with this memo is the Air Force's snowy plover briefing.



DEPARTMENT OF THE AIR FORCE

30TH SPACE WING (AFSPC)

U.S. AIR FORCE




21 JUL 1998

MEMORANDUM FOR CALIFORNIA COASTAL COMMISSION
ATTN: MS. TANIA POLLAK
45 FREMONT STREET
SAN FRANCISCO CA 94105

FROM: 30 CES/CEV
806 13th Street, Suite 116
Vandenberg AFB CA 93437-5242

SUBJECT: Snowy Plover Management at Surf Beach, VAFB CA

1. The listing of the western snowy plover as threatened under the Endangered Species Act in March 1993 prompted the initiation of a study of this species on beaches managed by Vandenberg Air Force Base during the 1993 nesting season. The study indicated that public recreational activities at certain locations did lead to a "take" of snowy plovers (as defined under the Endangered Species Act) and impacts to reproductive success. The resulting action taken by the Air Force was to restrict public beach access to above +7 mean lower low water during the March through September nesting season. Compliance is achieved by the placement of appropriate signage delineating plover nesting areas.
2. Pursuant to the National Environmental Policy Act and EA/FONSI analyzing the abovementioned alternative, among others, was completed in March 1994. That same month the matter was considered before the California Coastal Commission (CCC). While the CCC staff initially had concerns regarding the restriction of public access the CCC found the proposal consistent to the maximum extent practicable by a vote of 7-0. This concurrence, however, was contingent upon the base returning in one year to discuss the continuing need for this restriction.
3. Subsequently, Vandenberg appeared before the Commission in August 1995 to propose a permanent seasonal closure. This was again modified at the hearing to an extension of the closure for one year and was approved by a vote 10-0 on that basis. Vandenberg has not appeared before the Commission on this issue since that time due to an ongoing multi-year snowy plover monitoring study with the US Fish & Wildlife Service. Completion of this study is scheduled for December at which time Vandenberg will reinitiate coordination with the CCC. Available information regarding the ongoing study will be provided at the 5 Aug 98 meeting with Commissioner Wan and Jim Raives in Long Beach. This data will be forwarded under separate cover prior to the meeting.
4. If you have any questions, please contact me at (805)734-8232, extension 5-0633.


JAMES L. JOHNSTON
Environmental Planner
Environmental Flight

**PRELIMINARY FINDINGS
SNOWY PLOVER REPRODUCTIVE SUCCESS
ON OCEAN BEACH
Vandenberg Air Force Base, California**

**Prepared by
Nancy Read
30 CES/CEVPN
Environmental Flight
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**For the
California Coastal Commission**

INTRODUCTION

This report provides a brief, preliminary overview of findings to date regarding reproductive success of the federally Threatened western snowy plover on Ocean Beach, a 4.8-mile stretch of sandy beach on Vandenberg Air Force Base (Vandenberg) that is open to public access. Analysis of snowy plover data from the base is ongoing, conducted by snowy plover biologist Phil Persons in affiliation with the Point Reyes Bird Observatory under contract to Vandenberg. This report should be considered an interim progress report only. A full report discussing the findings of this analysis and interpretation of results is forthcoming, with a scheduled completion date of 1 October 1998. The purpose of this analysis is to provide biological data from which to evaluate the effectiveness and adequacy of existing protection measures for snowy plovers at Ocean Beach, and to provide a scientifically valid basis for evaluating other management options.

The Pacific Coast population of the western snowy plover was listed by the U.S. Fish and Wildlife Service as Threatened under the Endangered Species Act in 1993. In 1994, Vandenberg initiated measures to protect nesting snowy plovers on all beaches open to recreational access, both public and military. This entailed placing signs to post a "linear restriction" on recreational beaches (Ocean Beach and north Minuteman Beach) during the nesting season (1 March through 30 September). The linear restriction, in effect, creates a symbolic fence at approximately the +7.0-ft tide mark, above which all access is prohibited. Violators are cited by Vandenberg game wardens, with periodic assistance from U.S. Fish and Wildlife Service wardens. The California Coastal Commission and the U.S. Fish and Wildlife Service conditionally approved this action in 1994. A detailed description of the action can be found in an Environmental Assessment prepared by the Air Force (*Modification of Public Beach Access on Ocean Beach, Vandenberg Air Force Base, California, March 1994*).

Ocean Beach is comprised of a 1.1-mile stretch of beach north of the Santa Ynez River mouth (popularly known as "Wall Beach"), plus a 3.7-mile stretch south of the river mouth that is locally known as "Surf Beach". In addition to Ocean Beach, snowy plovers nest on 7.7 miles of beach on north Vandenberg. 1.1 mile of this beach, north of Shuman Creek ("Minuteman Beach"), is open for military recreational access only, with a linear restriction in place as at Ocean Beach. The remainder, except for a narrowly defined area available for public access on a limited permit basis only ("Civilian Fishing Area"), is completely closed during the snowy plover nesting season.

Since 1993, Vandenberg has conducted annual biological monitoring of snowy plovers on all of the above-described beaches. Because 1993 monitoring was not initiated until June, 1993 data is not included in this analysis. In 1995, color-banding of snowy plover chicks by beach sector was initiated, and continues to date, in an attempt to better evaluate fledging success. In 1997, some chicks were uniquely banded by brood to determine fates of chicks hatching in specific locations. Annual monitoring includes multiple censuses of adults, locating nests, and determining, to the extent possible, fates

of nests and chicks and causes of failure. Monitoring in 1993, 1994 and 1995 consisted of a full-time effort by one person; beginning in 1996, this level of effort was increased to 1.5 full-time personnel.

In addition to annual monitoring reports, from which the data contained herein was compiled, two other Vandenberg-sponsored studies on snowy plovers were conducted, both in 1995. One was a study of snowy plover responses to human disturbance on Ocean Beach, prepared by the Santa Barbara Museum of Natural History (*1995 Linear Restriction Monitoring Project, Vandenberg Air Force Base*); the other was an analysis of the snowy plover population at Vandenberg in relation to the rest of the California population (*The Snowy Plover at Vandenberg Air Force Base: Population Size, Reproductive Success, and Management*). The latter report was prepared Phil Persons and Dr. Gary Page, a Point Reyes Bird Observatory biologist over 20 years of experience studying snowy plovers throughout California. All reports are available to the Commission upon request.

METHODS OF ANALYSIS

The data analysis presented here is twofold. First, hatching and fledging success is compared between public and non-public beaches on Vandenberg. The approximately 6.6 miles of nesting beaches that are closed to all recreational access provide a basis from which to compare snowy plover reproductive success on public vs. closed beaches. In addition, the analysis divides Ocean Beach into 4000-ft segments, to evaluate how snowy plovers fare in areas with different levels of recreational use.

Data on the causes of nest loss by beach segment are also under analysis, and will be included in the final report.

INTERIM FINDINGS

Tables 1, 2 and 3 attached to this report provide the data evaluated in this report. The attached map identifies the different segments of Ocean Beach delineated for intensive analysis (see footnote to Table 3b for a description of these segments).

Within any given year, it is difficult to draw far-reaching conclusions regarding reproductive success, as the factors influencing success can vary widely from year to year. For example, weather and high tides are more of a factor in some years than in others. Predation is also variable; e.g. crows are a major predator in some years but not others. Late-season nesting also tends to be more successful than early-season nesting, another variable that will be further analyzed in the final report. For the purposes of discussion here, it may therefore be most useful to look at cumulative data for all years of full-season monitoring (1994-1997), to average out annual variability. It may take

several more years of monitoring before conclusions can be reached regarding long-term population trends, and this study does not attempt to address that question.

Table 1 indicates that during 3 out of 4 years, both hatching and fledging success (the latter indicated by re-sightings of chicks banded by beach sector) were higher for north (closed) vs. south (public) beaches, the lone exception being 1995. Cumulatively for all years, rates of both hatching and fledging were higher on closed beaches.

Table 2 gives specific information for 4000-ft beach segments on Ocean Beach. While hatching *rates* are similar for all segments when 1994-98 data are combined, substantially more nests were established, and more eggs hatched, on the southernmost segments (4S and 5S) compared to other segments. This is despite the fact that Segments 4S and 5s are located on bluff-backed beach, which is considered less optimal habitat than dune-backed beach (Dr. Gary Page, Point Reyes Bird Observatory, personal communication). These segments also receive relatively less use by people than the more northerly segments, which are closer to access points. These results provide preliminary indications that snowy plovers are able to establish more nests, and produce more chicks, the further they are from public access points around which recreational activity tends to focus.

Table 1 and Tables 3a and 3b show that while observed fledging rates are low base-wide, they are still much higher on closed beach areas than on Ocean Beach. Since fledgling production, not chick production, is the true measure of reproductive success (because chicks need to survive to fledging, at least, to have potential for future recruitment into the breeding population), the dismal fledging success on Ocean Beach is cause for concern. It is possible that actual fledging rates may be higher than observed rates on all beaches, due to tiny chicks going undetected. However, the fact remains that far more snowy plovers hatched on north (closed) beaches are re-sighted than are Ocean Beach-born birds.

A compilation of re-sightings of snowy plover chicks banded on Vandenberg in 1997 shows that, at a minimum, 20 chicks banded on north beaches have been re-sighted, either on Vandenberg or elsewhere in California, between 26 Aug 97 and 16 Jun 98. In sharp contrast, a minimum of 4 chicks banded on Ocean Beach have been detected. These numbers are considered minimums because multiple chicks are banded with the same color band combination (banded by brood or by beach sector), so it is impossible to know if re-sightings of the same combination are of the same bird or of different birds. If numbers of individual *sightings* of Vandenberg's color-banded birds is used to compare north and south beach fledglings, the same pattern emerges. During the time period identified above, reports have been compiled of 58 sightings of birds hatched on north Vandenberg beaches, compared to only 9 sightings of snowy plovers hatched on Ocean Beach.

On a more positive note, access restrictions on Ocean Beach have reduced the level of nests lost to human disturbance significantly, despite a high rate of non-compliance by beach users. In 1993, before the linear restriction, 9 nests were

documented destroyed by humans. This total is likely low, since monitoring did not begin until late in the season. From 1994-1997, with the linear restriction in place 1 March through 30 September and monitoring conducted throughout this period, no more than two nest losses were attributed to humans on Ocean Beach in any one year.

This analysis shows that snowy plover nesting success is reduced on public vs. closed beaches on Vandenberg with regards to two key parameters: hatching success and fledging success.

Hatching Success. Although, as noted above, direct losses of nests to humans have been greatly reduced by the linear restriction, many nests nonetheless are in very close proximity to people and are subject to disturbance, even when there is compliance with the linear restriction (see Linear Restriction Monitoring Report). Repeated disturbance can cause nest abandonment, exposure to wind or inclement weather can kill embryos, and trash left behind by beach users can attract predators into nesting areas. Thus, human disturbance can adversely affect hatching rates, even in the absence of direct mortality, and the evidence to date indicates that this could be a factor at Ocean Beach (Table 1). At this time there do not appear to be significant differences in hatch rates on the different segments of Surf Beach, despite the fact that the intensity of human activity is less on the more southerly beach segments. This will be analyzed further. It can be stated, however, that the number of nests and chicks produced on these southerly segments indicates greater importance of these areas to snowy plovers than was previously realized (Table 2).

Fledging Success. Although the linear restriction affords protection to nests, it does not protect chicks once they leave the nesting area. When they are just a few days old, snowy plover chicks leave their nests and forage in low beach and intertidal areas along with the adults, outside of protected areas. Here, human activity can result in separation from adults or direct mortality to chicks. While the data presented here are not conclusive with regards to causes of chick mortality (which is extremely difficult if not impossible to determine), the evidence is compelling that Ocean Beach is not producing fledglings at any significant level, and certainly not at a level that can sustain a population of a threatened species.

The implications of these findings to snowy plover management on Vandenberg will be evaluated after the final report is complete.

**TABLE 1. SUMMARY OF SNOWY PLOVER NESTING SUCCESS
VANDENBERG AIR FORCE BASE**

1994-1997

Year	Total Number Of Nests		Number of Nests Hatched		Percent Nests Hatched		Number of Chicks Fledged Per Nest		Percent Chicks Fledged		Estimated Number of Breeding Adults ¹	
	North ²	South	North	South	North	South	North	South	North	South	North	South
1994	89	110	27	31	30	28	No data	No data	No data	No data	131-142	68-75
1995	79	81	29	37	37	46	0.14	0.39	19	35	132-139	61-75
1996	125	123	74	59	59	46	0.61-0.76	0.35-0.45	42-53	28-36	127-143	91-114
1997	166	205	40	23	24	11	0.18	0.03	33-34	12	148-160	96-97
Total	459	519	170	150	37	29	0.31-0.35	0.18	35-40	24-25	127-160	61-114

¹ Estimated breeding population: a precise number is not possible because migrants can be present at any time. Estimate is based upon censuses conducted from mid-May to mid-June to minimize effects of migrants.

² North beaches: Shuman Creek south to Purisima point (excluding Purisima colony, which is under special management to protect California least terns). Minuteman Beach south to Shuman Creek, which is open to military only for recreational access under management similar to Ocean Beach, is excluded from nest and hatch success figures for comparing public beaches vs. beach sectors that are closed to all recreational access.

South beaches: Wall Beach + Surf Beach (=Ocean Beach, north and south of the Santa Ynez River mouth).

• Note: Observer effort increased 1996-97 (1.5 full-time monitors vs. 1.0 in 1994-95). This may have increased the number of nests located, but likely had minimal effect on other parameters.

• Nests of unknown outcome are excluded from this analysis.

Table compiled by N. Read, 30 CBS/CEVFN, from Phil Persons/Point Reyes Bird Observatory Annual Reports 1994-1997.

TABLE 2.

Annual Numbers of Nests Found (N), Nests Hatched (H), and Success Rates (H/N) on 4000-foot Segments North and South of SYRM. EH = total eggs hatched all years.

	1994			1995			1996			1997			All Years			
	N	H	H/N	N	H	H/N	N	H	H/N	N	H	H/N	N	H	H/N	EH
Wall																
2N	4	0	0	4	1	.25	7	5	.71	8	2	.25	23	8	.35	24
1N	15	5	.33	20	13	.65	25	17	.68	27	5	.19	87	40	.46	99
Total	29	5	.17	24	14	.58	32	22	.69	35	7	.20	110	48	.44	123
Surf																
1S	8	3	.38	12	5	.42	13	3	.23	21	4	.19	54	15	.28	36
2S	21	6	.29	7	2	.29	12	7	.58	23	0	0	63	15	.24	47
3S	16	3	.19	13	5	.38	21	10	.48	34	3	.09	84	21	.25	53
4S	19	6	.32	16	5	.31	22	11	.50	47	5	.11	104	27	.26	69
5S	27	8	.30	11	6	.55	24	6	.25	47	4	.09	109	24	.22	62
Total	91	26	.29	59	23	.39	92	37	.40	172	16	.09	414	102	.25	267

Data Provided by Phil Parsons / Point
Reyes Bird Observatory

N = No. nests

H = No. nests hatched

H/N = Hatch rate

EH = No. eggs hatched

(Note: Segment 1S is Surf Station to the
Santa Ynez River Mouth)

Table 3a. 1997 NESTS: CHICKS HATCHED, BANDED UNIQUELY TO BROOD, AND FLEDGED ON 4000-FT SEGMENTS OF OCEAN BEACH

Beach Segment*	Number of Chicks			Fledged/ Banded
	Hatched	Banded	Fledged	
Wall Beach				
2N	6	3	2	0.67
1N	10	10	0	0.00
Total	16	13	2	0.15
Surf Beach				
1S	7	6	0	0.00
2S	0	0	0	0.00
3S	8	5	0	0.00
4S	12	8	0	0.00
5S	12	10	2	0.20
Total	39	29	2	0.07
Total, Wall + Surf	55	42	4	0.10

* Beach segments are approximately as follows (Wall Beach segments are numbered in progression from the Santa Ynez River mouth north; Surf Beach segments are numbered in progression from the river mouth south):

2N: North Wall Beach (less than 4000 feet in length).

1N: 4000-ft north of the Santa Ynez River mouth.

1S: Santa Ynez River mouth south to Surf Station.

2S: Surf Station south into area where RR tracks curve inland, widening the dune area.

3S: Southern limit of 2S south to start of bluff-backed (vs. dune-backed) beach.

4S: Southern limit of 3S south to beach west of Bear Valley.

5S: Bear Valley south to end of Surf Beach.

Table 3b. 1997 NESTS: CHICKS HATCHED, BANDED AND FLEDGED ON NORTH BEACH SECTORS* OF VANDENBERG AIR FORCE BASE

Beach Segment	Total No. Nests	Number of Chicks			Fledged/ Banded
		Hatched	Banded	Fledged	
Shuman	92	30	18	8	0.44
San Antonio	69	36	23	7	0.30
Total	173	66	41	15	0.37

* Excluding Minuteman Beach (military-only recreational access).

Tables compiled by N. Read, 30 CES/CEVPN, from data provided by Phil Persons/Point Reyes Bird Observatory.

Ocean Beach
Segments Analyzed for
Snowy Plover Reproductive
Success

