

NESTING SUCCESS OF SNOWY PLOVERS AT  
WILDER, LAGUNA, SCOTT CREEK AND WADDELL BEACHES,  
SANTA CRUZ COUNTY, CALIFORNIA IN 1997

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Report of:

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## INTRODUCTION

Staff and volunteers of Point Reyes Bird Observatory ( PRBO) have monitored the breeding success of the Snowy Plover on Wilder Beach and Laguna Beach since 1988 and on Scott Creek Beach since 1993. Waddell Beach has received limited monitoring since at least 1986 and was closely monitored in 1997. Monitors attempted to find all Snowy Plover nests at each location, identify which adults belonged to each nest, and determine the number of hatching eggs and fledging chicks from each nest. Monitoring of Snowy Plover breeding success in 1997 was carried out by PRBO biologist Carleton Eyster assisted by Kara Brem, Andrea Claassen, Lauren Cunningham, Missy Foran, David Foran, Ellen Hostert, Dan Southworth and Gerry Zegers. Lacy Holtzworth, park planner with the Santa Cruz County Department of Parks, Open Space and Cultural Services, has, since 1992, coordinated that department's involvement in volunteer training and plover protection for Laguna and Scott Creek Beaches. Efforts to protect Snowy Plovers at these two beaches have greatly benefited from the assistance of trained volunteers in erecting exclosures and symbolic fencing. The Big Creek Lumber Company generously donated the material for two exclosures and tops for the protection of nests at Waddell Beach.

### **Managers of Snowy Plover Breeding Sites at Wilder, Laguna, Scott Creek and Waddell Beaches**

The agency responsible for Snowy Plover management at each of the four pocket beaches in northern Santa Cruz County is listed below.

**Wilder Beach:** Owned and managed by the California Department of Parks and Recreation.

**Laguna Beach:** Although privately owned, this beach has been managed to provide protection for breeding Snowy Plovers by the Santa Cruz County Department of Parks, Open Space and Cultural Services since 1992. Initial management of this site was made possible by a grant to the County of Santa Cruz from the California State Coastal Conservancy.

**Scott Creek Beach:** Owned by Santa Cruz County and managed by the Santa Cruz County Department of Parks, Open Space and Cultural Services.

**Waddell Beach:** The northern portion of the beach is owned and managed by the California Department of Parks and Recreation. The southern portion, while in private ownership, is open to unrestricted public use.

## **Methods Used to Protect Snowy Plovers at Wilder, Laguna, Scott Creek and Waddell Beaches**

One or more of the following measures that include informational signs, beach closure, fencing, symbolic fencing, and exclosures have been used to protect nesting Snowy Plovers or improve their habitat.

**Informational signs** at each of the sites serve to inform the public of the vulnerability to disturbance of Snowy Plover breeding sites.

**Beach closure** year-round at Wilder Beach since at least 1988.

**Fencing** along a portion of the boundary of the natural preserve that includes Wilder Beach.

**Symbolic fencing** consisting of a signed roped-off area and used at Laguna and Scott Creek Beaches.

**Triangular nest exclosures** with 25-foot-long sides of 5-foot-high wire fence with 2-inch-wide by 4-inch-high mesh openings used to protect individual nests. Exclosures are provided with tops, consisting of parallel lengths of nylon seine line spaced 6 inches apart, designed to discourage entry by avian predators of Snowy Plover eggs (e.g., Common Raven).

**Wilder Beach.** Included within a natural preserve and closed to public use since at least 1988, this small pocket beach still received levels of disturbance from trespass that posed serious threats to Snowy Plovers. Beginning in 1994 the California Department of Parks and Recreation increased efforts to provide protection for the natural preserve. This included improved signing, fencing, ranger patrols, and volunteer docents to inform park visitors of the protected status of the preserve. These efforts have been successful in reducing human disturbance on Wilder Beach.

In 1995 Snowy Plovers failed to hatch any of the 13 nests with predation by Common Ravens suspected of being responsible for most of the nest losses. Beginning in 1996 exclosures with tops have been used at Wilder Beach to protect nests. The percentage of nests protected by exclosures in 1996 and 1997 was 80.0% and 77.8%, respectively.

**Laguna Beach.** Initial efforts to protect plover nests began in 1992 with the use of exclosures. The percentage of nests protected by exclosures at Laguna Creek Beach from 1992 through 1997 was 62.5%, 70.0%, 62.5%, 60.0%, 100% and 100%, respectively. Beginning in 1994 symbolic fencing has been placed around a portion of breeding habitat.

**Scott Creek Beach.** Exclosures have been used since 1993. The percentage of nests protected by exclosures at Scott Creek Beach from 1993 through 1997 was 40.0%, 33.3%, 50.0%, 83.3% and 100%, respectively. Since 1994 symbolic fencing has been in place around a portion of nesting habitat in the dune area. In 1997 symbolic fencing was extended to protect a portion of the lower beach during the breeding season, providing a less-disturbed beach area for broods.

Since 1996 symbolic fencing, with multiple pedestrian access points provided, has been in place along a portion of Scott Creek Beach adjacent to Highway 1 in an effort to discourage the illegal driving of vehicles onto the beach.

**Waddell Beach.** Unlike the above three beaches, there have been no direct measures to protect nests or breeding habitat at Waddell Beach. It was anticipated to protect nests with exclosures during the 1997 season, but plovers did not nest on the beach.

## RESULTS

### **Wilder Beach**

There were nine nests at Wilder Beach in 1997 (Table 1). Seven of the nests were protected by exclosures and all hatched. Common Ravens, which were present throughout the season, predated two nests before exclosures could be erected (Table 2). The .778 clutch hatching rate in 1997 was about equal to the rate in 1996 (.800) when exclosures were first used at Wilder Beach, and 1.5 times the average for the eight years 1988-1995 (mean = .517, Table 1) when nests were unprotected. Most important was the continued favorable clutch hatching rates in 1996 and 1997 compared to 1995, when none of the 13 nests (none in exclosures) hatched with ravens suspected of being responsible for most clutch losses.

Seven of nineteen chicks at Wilder Beach fledged in 1997. The .368 chick fledging rate was about equal to the average of eight previous years within the period 1988-1996<sup>1</sup> (mean = .361, Table 1). Carleton Eyster observed a Loggerhead Shrike inside an exclosure (with top) where moments before an adult Snowy Plover had been brooding two chicks from the recently hatched nest. Both chicks were predated by the shrike.

1. No chicks hatched at Wilder Beach in 1995.

### **Laguna Beach**

Snowy Plovers hatched all of the six nests (all in exclosures) at Laguna Beach in 1997 (Table 3). All six nests were protected by symbolic fencing. Clutch hatching success in 1997 was 4.8 times the average of four previous years 1988-1991 (mean = .208) prior to the use of exclosures and 1.7 times the average of five previous years 1992-1996 (mean = .605) since nest exclosures have been in use (Table 3).

Tracks inside one exclosure indicated a raven entered the exclosure during the hatching period (one chick was known to have hatched prior to the incursion) and was likely responsible for the loss of any eggs or chicks at the nest.

Five of the fourteen chicks known to have been produced at Laguna Beach in 1997 fledged. The .357 chick fledging rate in 1997 was 38.0% lower than the average of the previous nine years (mean = .576, Table 3).

Winter storms and stream flow over the beach have eroded away some of the habitat used by young plovers at Laguna Beach prior to 1995. At the same time the level of human use appears to have increased. Thus for broods, there has been less habitat available and this habitat is subject to increased levels of disturbance by people and unleashed dogs.

### **Scott Creek Beach**

At Scott Creek Beach all three nests were within the area demarcated by a symbolic fence, each nest was protected by an exclosure, and all hatched (Table 5). The three nests in 1997 were at the low end of the number of nests recorded for the previous four years (range = 3-6).

Four of eight chicks fledged. The .500 chick fledging rate at Scott Creek Beach in 1997 was 22.4% lower than the average of the four previous years (mean = .644, Table 5).

Scott Creek Beach receives heavy public use, posing serious threats to plover habitat, nests and broods. Since 1994 symbolic fencing has provided a measure of protection for a small dune area where the majority of nests have been located. However, once hatched, chicks are typically led onto the lower beach where previously no habitat was protected and broods were threatened by human disturbance and unleashed dogs. In 1996 the chick fledging rate decreased by over 50% from the average of the previous three years. In 1997 a portion of the lower beach was enclosed by symbolic fencing and broods were

periodically seen in this area of reduced human disturbance. The chick fledging rate in 1997 increased by 40% from the previous year 1996.

### **Waddell Beach**

In 1997, for the first time in 12 years, Snowy Plovers failed to nest at Waddell Beach. During the past several years plovers at Waddell Beach have experienced poor clutch hatching rates with nests vulnerable to ravens as well as disturbance by people. Unlike Wilder, Laguna and Scott Creek Beaches, nests have not received any protection at Waddell Beach during this time. In 1997 exclosures were to be used to protect nests and the beach was closely monitored, but there were no breeding attempts.

## **RECOMMENDATIONS FOR PROTECTIVE MEASURES FOR BREEDING SNOWY PLOVERS AT WILDER, LAGUNA, SCOTT CREEK AND WADDELL BEACHES IN 1998**

Continue all of the protective measures that are currently in use. It is particularly important that Laguna and Scott Creek Beaches, both small beaches receiving heavy public use, have protected areas of adequate size for nesting and brood-rearing. Also, at Laguna and Scott Creek Beaches the presence of volunteers during especially vulnerable periods, to provide information to the public about Snowy Plover protection measures and encourage cooperation, should be considered. The increasing number and presence of Common Ravens on all four beaches and their impact on nests and chicks needs to be closely monitored. The following additional measures would be of benefit in improving the habitat and protecting breeding Snowy Plovers.

### **Wilder Beach**

Restore the missing or damaged signs, located around the natural preserve boundary, that identify the preserve and beach as sensitive wildlife habitat and closed to public use.

An adequate level of enforcement by state park personnel is required to respond to trespass at Wilder Beach, in particular to the same groups of people who ignore the "Closed Area" signs and fencing and repeatedly trespass onto the beach.

### **Laguna Beach**

Dogs brought by people onto this small beach and allowed to run loose are a serious disturbance and threat to breeding plovers and flightless chicks. Efforts are needed to encourage the cooperation of pet owners to lessen this disturbance.

### **Scott Creek Beach**

As in 1996, extend the symbolic fencing to enclose a portion of the lower beach to protect habitat and provide a less-disturbed beach area for broods.

Enlarge and increase protective measures around the dune area at Scott Creek Beach as needed to protect nesting birds from undue disturbance. Snowy Plover nesting habitat in the dune area needs to be preserved and protected. During the five-year period 1993-1997, over 90% of the nests (21 of 23) at Scott Creek Beach have been located in the dune area.

Unleashed dogs brought onto Scott Creek Beach pose a serious disturbance and threat to Snowy Plovers and their flightless young. Provide clearer signing and enforcement of the existing Santa Cruz County regulation requiring dogs on Scott Creek Beach to be on a leash.

### **Waddell Beach**

Protect vulnerable nests with exclosures (with tops).

Provide improved signing to inform the public about Snowy Plovers nesting at Waddell Beach, their threatened status, and breeding requirements.

Continue enforcement of the "No Dogs" closure on California Department of Parks and Recreation property on Waddell Beach.

**Table 1. Breeding Success of Snowy Plovers at Wilder Beach 1988-1997**

Of the total number of nests, the number of nests in exclosures is in parentheses.

Year	Total Number of Nests	Clutch Hatching Rate	Number Nests Hatching	Number of Chicks	Chick Fledging Rate	Number of Juveniles	Juveniles Fledged per Nest
1988	10	.400	4	11	.455	5	.500
1989	14	.714	10	27	.667	18	1.286
1990	17	.471	8	18	.278	5	.294
1991	9	.556	5	10	.400	4	.444
1992	17	.706	12	33	.121	4	.235
1993	8	.750	6	17	.000	0	.000
1994	13	.538	7	18	.667	12	.923
1995	13	.000	0	0	—	0	.000
1996	5 (4)	.800	4	10	.300	3	.600
1997	9 (7)	.778	7	19	.368	7	.778

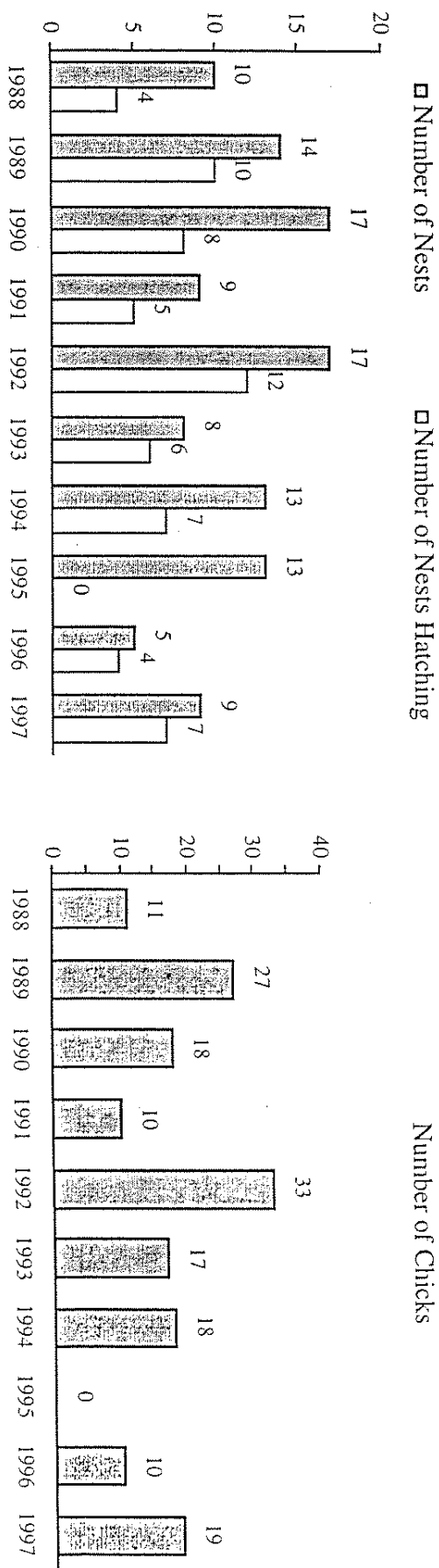
**Table 2. Causes of Snowy Plover Nest Lost at Wilder Beach 1988-1997**

Un=unknown, Ab=abandoned, Ne=non-viable eggs, Ti=tide, Wi=wind, Hu=human, Ca=canine, Sk=skunk, Ra=raven, Cr=crow, Gu=gull, Pr= unknown predator

Numbers in parentheses are nests in exclosures.

Year	Un	Ab	Ne	Ti	Wi	Hu	Ca	Sk	Ra	Cr	Gu	Pr
1988	2	1		3								
1989			1						2	1		
1990	3			1		2		1	2			
1991	1	1				1	1					
1992	2				1		1				1	
1993		1										1
1994	3			1	1							1
1995	2				1				2			8
1996				1								
1997									2			
Total	13	3	1	6	3	3	2	1	8	1	1	10





Number of Juveniles

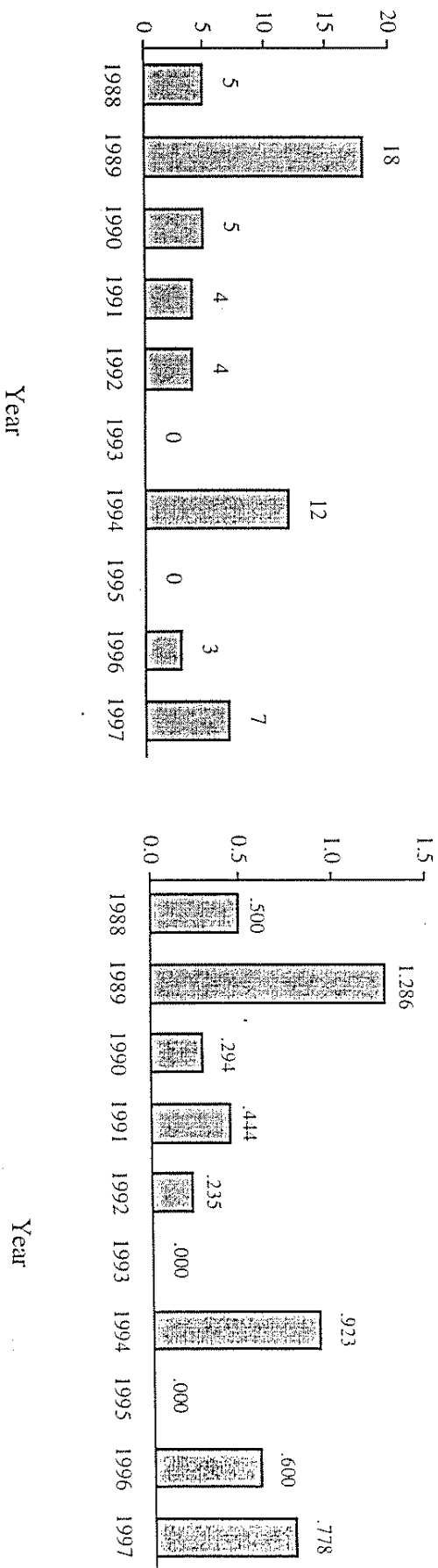


Figure 1. Selected measures of Snowy Plover reproduction at Wilder Beach 1988-1997

**Table 3. Breeding Success of Snowy Plovers at Laguna Beach 1988-1997**

Of the total number of nests, the number of nests in exclosures is in parentheses.

Year	Total Number of Nests	Clutch Hatching Rate	Number Nests Hatching	Number of Chicks	Chick Fledging Rate	Number of Juveniles	Juveniles Fledged per Nest
1988	5	.200	1	3	1.000	3	.600
1989	11	.182	2	6	.500	3	.273
1990	5	.200	1	2	1.000	2	.400
1991	4	.250	1	2	.000	0	.000
1992	8 (5)	.500	4	12	.833	10	1.250
1993	10 (7)	.500	5	13	.538	7	.700
1994	8 (5)	.625	5	12	1.000	12	1.500
1995	5 (3)	.400	2	6	.000	0	.000
1996	6 (6)	1.000	6	16	.313	5	.833
1997	6 (6)	1.000	6	14	.357	5	.833

**Table 4. Causes of Snowy Plover Nest Lost at Laguna Beach 1988-1997**

Un=unknown, Ab=abandoned, Ti=tide, La=rising water of lagoon, Hu=human, Ca=canine, Sk=skunk, Ra=raven, Pr= unknown predator

Numbers in parentheses are nests in exclosures.

Year	Un	Ab	Ti	La	Hu	Ca	Sk	Ra	Pr
1988	4								
1989	5				3		1		
1990	1				2	1			
1991	1							1	1
1992				2			1 (1)		
1993		2 (1)		1 (1)					
1994	1				1				1
1995	2		(1)						
1996									
1997									
Total	14	3	1	4	6	1	3	1	2

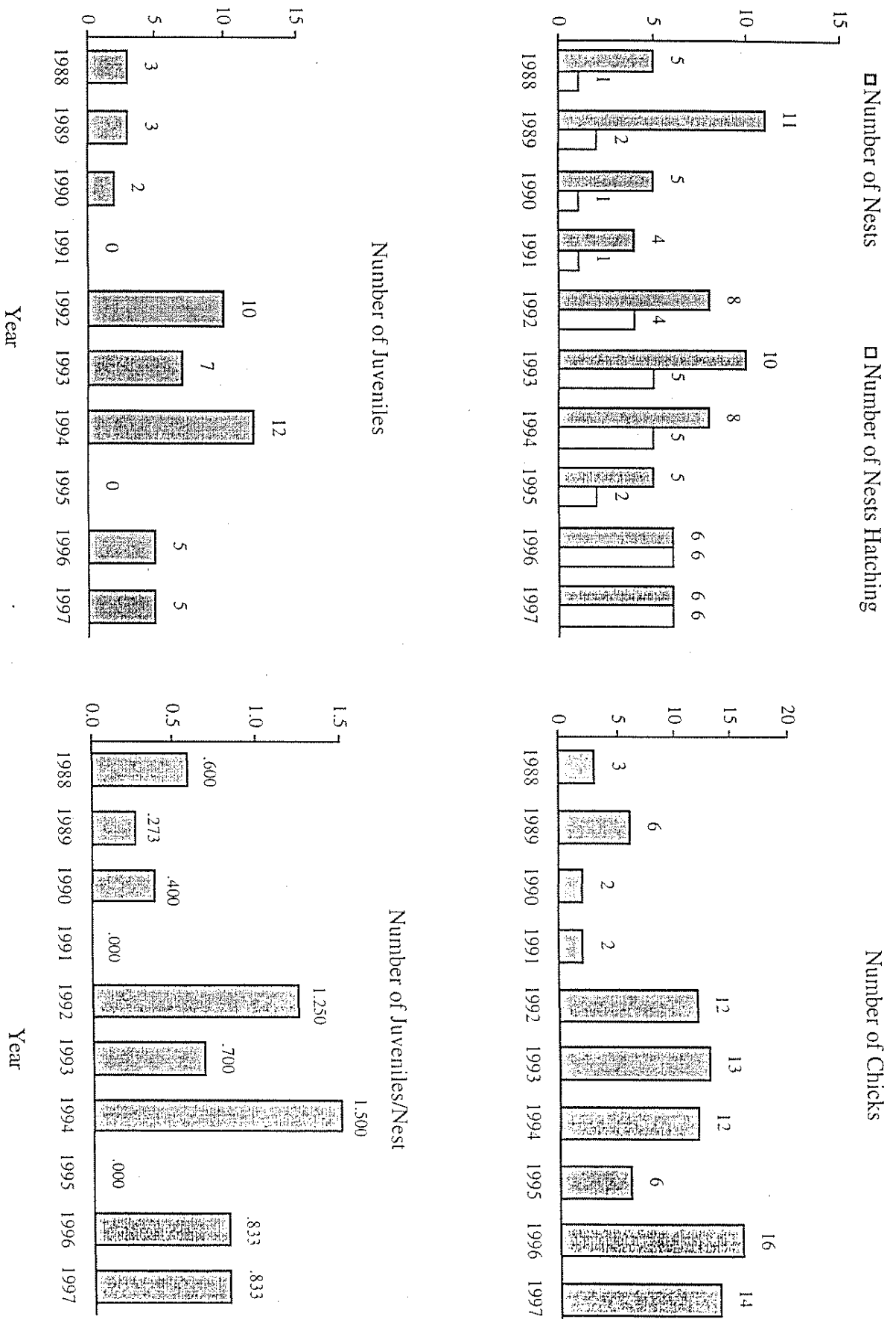


Figure 2. Selected measures of Snowy Plover reproduction at Laguna Beach 1988-1997

**Table 5. Breeding Success of Snowy Plovers at Scott Creek Beach 1993-1997**  
Of the total number of nests, the number of nests in exclosures is in parentheses.

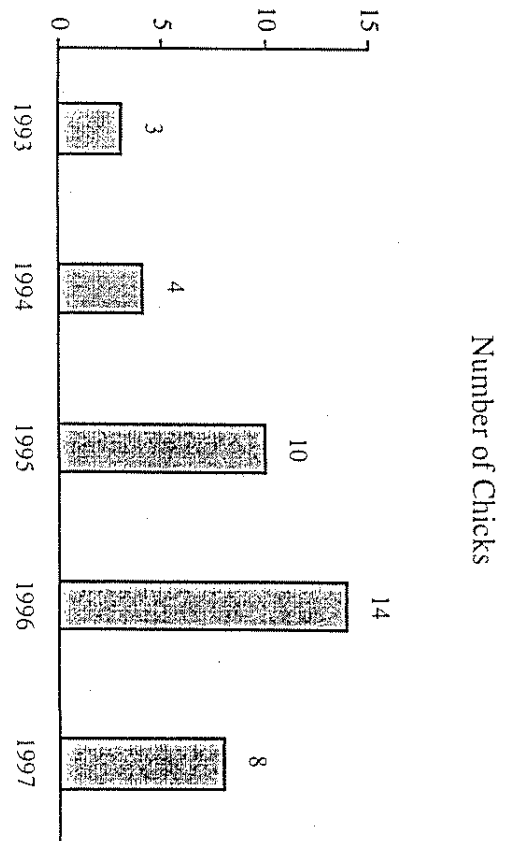
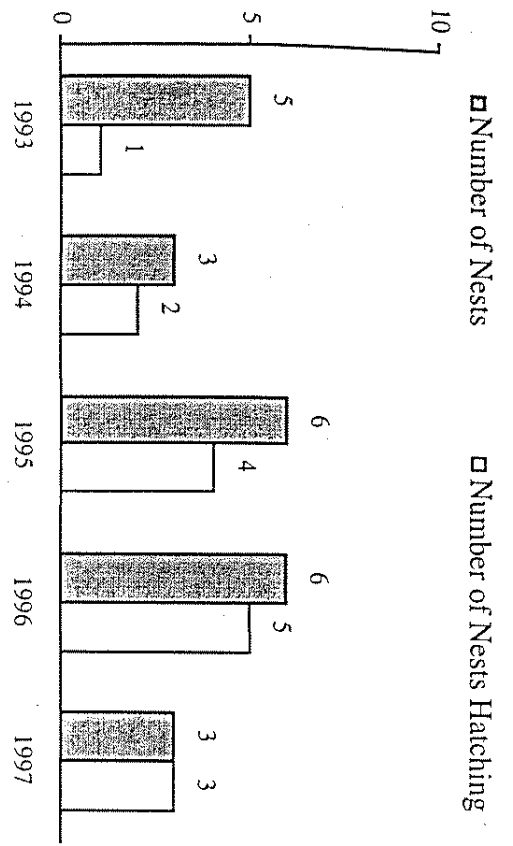
Year	Total Number of Nests	Clutch Hatching Rate	Number Nests Hatching	Number of Chicks	Chick Fledging Rate	Number of Juveniles	Juveniles Fledged per Nest
1993	5 (2)	.200	1	3	.667	2	.400
1994	3 (1)	.667	2	4	.750	3	1.000
1995	6 (3)	.667	4	10	.800	8	1.333
1996	6 (5)	.833	5	14	.357	5	.833
1997	3 (3)	1.000	3	8	.500	4	1.333

**Table 6. Causes of Snowy Plover Nest Lost at Scott Creek Beach 1993-1996**

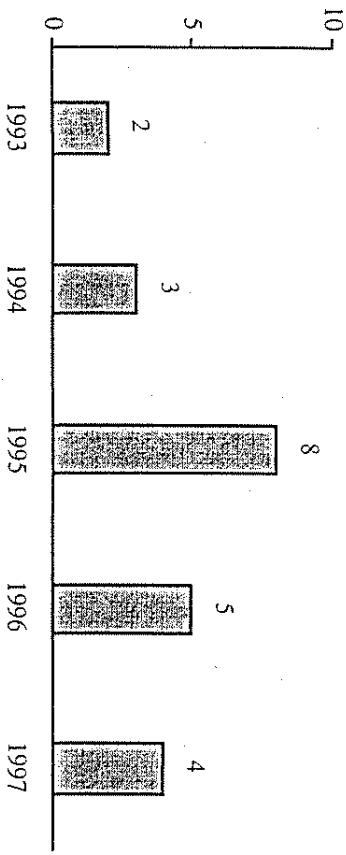
Un=unknown, Ab=abandoned

Numbers in parentheses are nests in exclosures.

Year	Un	Ab
1993		3 (1)
1994		1
1995	1	1
1996		1
1997		
Total	1	7



Number of Juveniles



Number of Juveniles/Nest

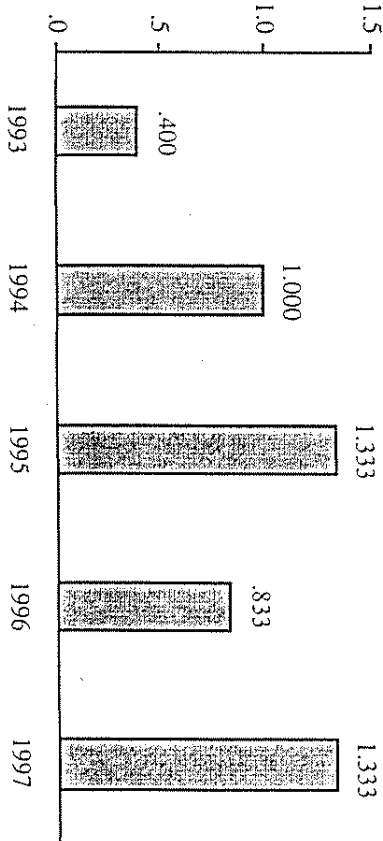


Figure 3. Selected measures of Snowy Plover reproduction at Scott Creek Beach 1993-1997



**COUNTY OF SANTA CRUZ**  
**DEPARTMENT OF PARKS, OPEN SPACE & CULTURAL SERVICES**

DATE: - September 25, 1997

TO: Parks and Recreation Commission

FROM: Gretchen Iliff - Maintenance and Facilities Superintendent

SUBJECT: MAINTENANCE AND FACILITY DIVISION UPDATE

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The Maintenance and Facility Management Division is responsible for the following program sections of the Parks Department:

*Class and Program Registration, Facility Reservations, Tenant Management, Parking Enforcement, Parks Recycling Program, Summer Parking Program, Open Space Maintenance, Contract Patrol Services, Parks, Building and Grounds Maintenance*

1. **Class and Program Registration:**  
Staff are currently up-to-date in processing recreation and program registrations. A new registration form was initiated which is more user friendly and will streamline the registration process.
2. **Facility Reservations:**  
The 5th Annual Fall Fat Fry will return to Aptos Village Park on September 27 & 28. The 2nd Annual Highlands Games are scheduled for October 4 & 5 at Highlands Park. Due to the popularity of the event last year, the Highlands Games will become a two-day event this year. Many people attended the event and there were no major problems.
3. **Tenant Management:**  
Three vacant horse stalls have been filled at Quail Hollow Ranch; the horse boarding facility is at capacity.
4. **Summer Parking Program:**  
Our summer parking program ended Labor Day weekend. Staff will be reviewing the program this fall and will be making any recommended changes in the spring.
5. **Contract Patrol Services:**  
The Parks Department has contracted with First Alarm Security and Patrol in order for them to provide a security guard at Pinto Lake County Park on Sundays through September to enforce the sound policy. In addition, POSCS is not permitting any amplified music after October 1, 1997. POSCS facilities division will be reviewing the current policies this fall and will make a recommendation to the Parks and Recreation

Commission early next year, for changes which will bolster compliance of our departmental sound policies.

6. **Parks, Building and Grounds Maintenance:**

Due to the unfortunate passing of Pete Nelson, our Maintenance Supervisor, the Maintenance Division has reassigned the supervisorial duties to the three lead staff members.

Due to concerns for a member of the public, an arborist report was completed on one of the large Sycamore trees at Ben Lomond Park.

A brief report on the use of Moran Lake by the monarch butterflies is being conducted by a contract biologist. This report was required by the County Planning department in response to a permit request to remove six trees on the site.

New flooring and carpeting was installed at the rental home at Aptos Park.

Our busy season is winding down and staff are receiving their required annual training and are preparing the facilities for winter weather.

In addition to routine maintenance, Park Maintenance Staff have:

- \* Installed the base for the public art piece at Aptos Park.
- \* Installed a new roof on the rental house at Quail Hollow Ranch.
- \* Installed a new play element at Maplethorpe Park.
- \* Installed a new play element at Aptos Park.