

1996 HERON AND EGRET MONITORING RESULTS AT WEST MARIN ISLAND

A Report to the San Francisco Bay National Wildlife Refuge

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INTRODUCTION

In 1993, as part of a regional study of heron and egret colonies in the northern San Francisco Bay area (Kelly *et al.* 1993, *Colonial Waterbirds* 16(1):18-27), Audubon Canyon Ranch (ACR) began to monitor reproductive success of Great Egrets on West Marin Island from observation points on East Marin Island (Kelly *et al.* 1994, 1995, 1996 reports to the San Francisco Bay National Wildlife Refuge). In this report, we present results of the fourth year of monitoring reproductive success of Great Egrets and Great Blue Herons on West Marin Island. We also present estimates of colony sizes on West Marin Island based on counts conducted from East Marin Island since 1994 and by boat since 1979.

METHODS

Methods are described in detail in Kelly *et al.* 1996). Sixty-three Great Egret nests were mapped and numbered on nesting panoramas (made from photographs) and monitored with telescopes during three visits to East Marin Island and 13 observation days from the mainland. Binny Fischer and Anne Spencer monitored reproductive success of focal Great Egret and Great Blue Heron nests on 11 April, 10 May, and 10 June, 1996. On each monitoring day, the total number of active Snowy Egret, Great Egret, and Great Blue Heron nests on West Marin Island were also counted. Counts of active nests were conducted from the boat dock on East Marin Island and by kayak. We used a double kayak for transportation to East Marin Island because it provided access during all tides. Two of us (Pratt and Fischer), assisted by Anne Spencer

and Jean Starkweather, conducted an additional census by canoe for the Marin Audubon Society of all active nests on West Marin Island on 10 June (Pratt 1996).

RESULTS AND DISCUSSION

Great Egret

Counts of active Great Egret nests conducted on 10 June 1996 by boat and with telescopes from East Marin Island produced identical results: a seasonal peak of 148 active nests, a slight reduction from 172 active nests observed in 1995. The mean prefledging brood size of successful Great Egret nests was 1.83 young per nest (SE = 0.13, n = 24). This was significantly less than we observed in 1995 (mean of 2.46 young per successful nest, SE = 0.11, n = 39; $t = 3.63$, $df = 61$, $P < 0.001$), but very similar to the mean prefledging brood size estimated in 1994 (1.81 young per successful nest, SE = 0.086, n = 31; $t = 0.13$, $P = 0.89$).

The reduced productivity in 1996 compared to 1995, as suggested above by the smaller brood sizes of successful nests, was further enhanced by a relatively greater rate of nest failure in 1996: 23% of 63 focal nests failed in 1996 compared to only 11% of 73 focal nests in 1995. Although the productivity of successful nests in 1996 was similar to that observed in 1994, overall reproductive success was apparently better in 1996 because of an even higher rate of nest failure in 1994 (32% of 62 focal nests).

Table 1. Marin Audubon Society counts of active heron and egret nests on West Marin Island. All counts were conducted by boat.

Year	Great Egret	Snowy Egret	Black-crowned Night-Heron	Great Blue Heron
1979	58	262	98	
1981	75	325	109	
1982	187	500	80	
1983	190	345	89	
1984	139	347	54	
1985	84	161	79	
1986	160	126	40	
1987	89	239	41	
1988	77	212	35	
1989	79	245	61	
1990	119	300	37	1
1991	90	277	45	2
1992	189	220	30	1
1993	120	98	41	
1994	89 / 163 ^a	6 / 8 ^a	32	1 / 2 ^a
1995	172 / 172 ^a	16 / 15 ^a	18 ^b	2 / 2 ^a
1996	148 / 148 ^a	36 / 36 ^a	22 ^b	3 / 3 ^a

^aAdditional counts conducted by Audubon Canyon Ranch from East Marin Island.

^b115 Black-crowned Night-Herons were present on adjacent mudflats on 17 April 1995 (B. Fischer, per. obs.)

Snowy Egret

During the breeding seasons of 1993 and 1994, we observed repeated harassment of the Snowy Egret nesting colony by a Red-tailed Hawk (Kelly et al. 1995, Report to the San Francisco Bay National Wildlife Refuge). In 1994, apparently in response to this disturbance, Snowy Egrets virtually abandoned

the colony site on West Marin Island (Table 1). Coincidental increases in the numbers of Snowy Egrets nesting at other colony sites in the northern San Francisco Bay area suggested movements of nesting Snowies from West Marin Island to other colony sites in the region (Kelly et al. 1995). The shift in breeding distribution of Snowy Egrets persisted in 1995, with relatively large colonies

occurring on nearby Red Rock and Brooks Islands (Table 2).

In 1996, colonies at Red Rock and Brooks Islands were substantially reduced and numbers of Snowies at West Marin Island increased slightly (Table 2). Small increases since 1994 provide some hope for a greater return of Snowy Egrets to West Marin Island, but compared to colony sizes of 200-500 before 1993, a significant return has not yet occurred (Table 1). We observed approximately 80 adult Snowy Egrets on West Marin Island on 10 May (Table 2); 36 nests were active on 10 June (Table 1).

Great Blue Heron

Three pairs of Great Blue Herons nested on

West Marin Island in 1996, compared to two pairs in 1994 and 1995. This was the greatest number of Great Blue Heron nests observed on the Island since the species began breeding there in 1990, and is suggestive of a slowly increasing trend (Table 1). All three nests were successful in 1996, with two nests producing two young each and one producing three.

Black-crowned Night-Heron

The Black-crowned Night-Heron nest count of 22 in 1996 was similar to the count of 18 in 1995. However, because night-herons generally conceal their nests in the vegetation, these estimates (obtained from counts conducted by boat) provide a very rough index of trends in colony size.

Table 2. Sizes of Snowy Egret colonies (peak numbers of active nests) in the northern San Francisco Bay area from 1991 to 1996.

Colony Site	1991	1992	1993	1994	1995	1996
Brooks Island	7	5	26	95	89	0
Napa State Hospital	0	6	15	114	92	40
Picher Canyon, ACR	5	3	11	10	4	4
Penngrove	2	7	13	2	0	0
Peterson Lane, Santa Rosa	0	1	9	0	0	0
Gold Hill	0	0	0	2	0	0
Red Rock	0	5	20	65	80	30
West Marin Island	277	220	98	8	16	36
West Seventh, Santa Rosa	0	0	0	6	37	0
Brockhurst area, Santa Rosa	0	0	0	0	0	18
Total	291	247	192	302	318	128

Other Species

On 10 May, Binny Fischer and Anne Spencer observed one breeding pair of Black Oystercatchers with two chicks, nesting about 2 m above the high tide line on the east end of West Marin Island. As in previous years, several Canada Geese were observed in the vicinity of the Marin Islands, and one nest was found at the west end of East Marin Island. We made no attempts to count total numbers of nesting Western Gulls. However, during the Marin Audubon Society census of West Marin Island, Helen Pratt counted 40 Western Gull nests. This was the same number observed in 1995.

REFERENCES CITED

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