

WHITE PELICAN REPRODUCTION IN THE MOLLY ISLANDS  
BREEDING COLONY, YELLOWSTONE NATIONAL PARK

Kenneth L. Diem  
Department of Zoology and Physiology  
University of Wyoming  
Laramie

Objectives

Compared to other North American White Pelican, Pelecanus erythrorhynchos, breeding colonies, the Molly Islands Colony is a minor colony consisting of 400-600 adults (Lier and Behle, 1966; Diem and Condon, 1967; Sloan, 1973; Diem, 1976). Despite its small size, the colony is unique for these reasons: 1) it is the only White Pelican breeding colony in a national park; 2) the location of the colony at an elevation of 7,733 ft (2,357 m) is the highest recorded for any breeding colony of the species; 3) discovered in 1890, the colony has had variable surveillance since 1917, with relatively intense monitoring since 1965; 4) the breeding population is composed of birds from both coasts of North America; and 5) the colony's nesting sites on the two Molly Islands change frequently with no predictable pattern. In addition, a cumulative substrate uplift along the north shore of Yellowstone Lake appears to have significantly raised the stable water level of the southern arms of the lake. Consequently, the major objective of this project is to continue monitoring changes in the reproductive success of the Molly Islands White Pelican colony and to continue studies of the factors influencing those changes.

Procedures

Nesting and fledgling censuses continue to be taken from a boat 100-200 ft from shore. Because landing in the colony would be too much of a destructive disturbance, clutch data cannot be collected. Some errors in nest counting probably occur, however, the fledgling censuses are very accurate.

Results

Nesting and fledging counts for the Molly Islands White Pelican colony for the period 1977 through 1986 are summarized in Table 1. In 1986 a heavy snowmelt runoff raised the level of Yellowstone Lake to 6.54-6.6 ft. This high water flooded much larger areas than normal on both islands. All but 8-10 inches of the rocks on Sandy Island were underwater. Pelican scrape nests on this small area were likely washed over during any heavy wave action while the elevated stick nests of the cormorants fared better under those conditions. These flooding conditions produced severe adverse nesting conditions for all of the islands nesting water birds.

Table 1. Numbers of water birds nests and young fledged in the Molly Islands breeding colony, 1977-1986.

Year	Species	Date	Nesting Census				Fledgling Census			
			Rocky Island		Sandy Island		No. of Fledgling Per Nest	No. of Fledgling	Date	No. of Fledgling
			No. of Nests	No. of Nesting Aggregations	No. of Nests	No. of Nesting Aggregations				
1977	White Pelican	7/7	22	3	195+	5	8/11	302	1.39	
1978	White Pelican	7/9	24	1	167+	6	8/15	230	1.20	
	Double-crested Cormorant	7/9	11	2			8/15	0 <sup>a</sup>		
	Caspian Tern	7/19	0				8/15	0		
1979	White Pelican	6/27	78	2	172 <sup>b</sup>	2 <sup>b</sup>	89	418 <sup>b</sup>	1.67	
	Double-crested Cormorant	6/27	6	1			8/9	15	1.88	
	Caspian Tern	6/27	21	1			8/9	11	0.52	
1980	White Pelican	6/23	201	6	84	5	8/12	340	1.19	
	Double-crested Cormorant	6/23	1	1			8/12	17 <sup>c</sup>	?	
	Caspian Tern	6/23	18	1			8/12	12	0.67	
1981	White Pelican	6/28	91	4	199	6	8/19	232	0.80	
	Double-crested Cormorant	6/28	17	3	1	1	8/19	19	1.12	
	Caspian Tern	6/28	14	1			8/19	18	1.29	

1982	White Pelican	7/3	27	1	47+ <sup>d</sup>	2+	8/20	29	d
		7/13	27	1	0	0			
	Double-crested Cormorant	7/3	12 <sup>a</sup>	2	1 <sup>a</sup>	1	8/20	14	d
1983	Caspian Tern	7/3	17	1			7/13	0	
	White Pelican	7/13	102	1	208	5	8/24	268	0.86
	Double-crested Cormorant	7/13	4	2	11	1	8/24	d	
1984	Caspian Tern	8/24	9	2	15	1	7/13	5+	
		7/13	12	1			8/24	0	
	White Pelican	7/6	49	2	268	9	8/15	482	1.52
1985	Double-crested Cormorant	7/6	3	1	17	1	8/15	d	
	Caspian Tern	7/6	3	1	0	0	8/15	0	
	White Pelican	7/3	92	1	197	6	8/10	650	
1986	Double-crested Cormorant	7/3	10	3	18	1	8/10	d	
	Caspian Tern	7/3	0		0	0	8/10	0	
	White Pelican	6/24	25		16		8/5	13 chicks (25-65% developed)	
1986	Double-crested Cormorant	6/24	8		17		8/5	50 chicks (25-65% developed)	
	Caspian Tern	6/24	0		0				

a Extensive flooding inundated much of the early nesting, thereby making an accurate nesting effort count impossible.

b Two additional nests were established on the Sandy Island after the 6/27 census.

c Three plus additional nests were established after the 6/23 census in 3 plus aggregations.

d Young and adults were indistinguishable in the fledging census.

Considering the stages of chick development on August 5, the water birds fledging from the Molly Islands in 1986 likely did not exceed 6-8 White Pelicans and 40 Double-crested Cormorants. The relative success of the cormorants is likely related to their later nesting effort and a 75-80% nesting reduction among the California Gulls.

#### Acknowledgements

I wish to thank David Wallace, Mark Marshall and Douglas Huddleston for their assistance with these censuses.

#### Literature Cited

- Diem, K. L. and D. D. Condon. 1967. Banding studies of water birds on the Molly Islands, Yellowstone Lake, Wyoming. Yellowstone Lib. and Mus. Assoc., Yellowstone Park, WY. 41 pp.
- Diem, K. L. 1979. White Pelican reproductive failures in the Molly Islands Breeding Colony in Yellowstone National Park. Proc. First Conf. on Sci. Res. in the Nat'l Parks. U.S.N.P. Trans. and Proc. Series. 5:489-496.
- Lier, M. F. and W. H. Behle. 1966. Status of the White Pelican in the United States and Canada through 1964. Condor 68:279-292.
- Schaller, G. B. 1964. Breeding behavior of the White Pelican at Yellowstone Lake, WY. Condor, 66(1):3-23.
- Sloan, N. F. 1973. Status of breeding colonies of White Pelicans in the United States through 1972. Inland Bird Band. News. 45(3):83-96.