

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 fledgling counts for the Molly Islands White Pelican colony for the period 1977 through 1984 are summarized in Table 1. Despite a cold, wet spring, early summer weather apparently aided in the very intensive nesting effort for both the pelicans and cormorants. California Gull chicks and Caspian Tern nesting were fewer in numbers and later than usual. The cold, wet weather in the late spring may have been a factor in their poor nesting. Highly variable sizes of pelican and cormorant chicks attest to a sporadic and poorly synchronized nesting effort in 1984.

Table 1. Numbers of water birds nests and young fledged in the Molly Islands breeding colony, 1977-1984.

Year	Species	Date	Nesting Census				Fledgling Census			
			Rocky Island		Sandy Island		No. of Fledglings	Date	No. of Fledged	Per Nest
			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 ^a		
	Caspian Tern	7/19	0				8/15	0		
1979	White Pelican	6/27	78	2	172 ^b	2 ^b	89	418 ^b	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 ^c	?	
	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 ^d	2+	8/20	29	d
		7/13	27	1	0	0			
	Double-crested Cormorant	7/3	12 ^a	2	1 ^a	1	8/20	14	d
	Caspian Tern	7/3	17	1			7/13	0	
1983	White Pelican	7/13	102	1	208	5	8/24	268	0.86
	Double-crested Cormorant	7/13	4	2	11	1			
		8/24	9	2	15	1	8/24	d	
	Caspian Tern	7/13	12	1			7/13	5+	
							8/24	0	
1984	White Pelican	7/6	49	2	268	9	8/15	482	1.52
	Double-crested Cormorant	7/6	3	1	17	1	8/15	d	
		7/6	3	1	0	0	8/15	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.

The production of fledged young reached an all-time recorded high of 482 in 1984, surpassing the 418 of 1979. The variable hatching times were reflected in 10-15% of the young pelicans being able to fly on August 15 when 75-85% of the young pelicans were only 85% developed and with 5-10% of the young pelicans still in the downy feather stage. Realistically, a number of these young pelicans probably did not develop enough to leave Yellowstone before the severe weather set in. Considering that possibility, somewhere around 410-435 young pelicans represent fledged young capable of migrating from the Park. Minimum prefledging mortality of young pelicans on the two Molly Islands was 4%.

The young Double-crested Cormorants were flying or swimming with the adults making a fledging count impossible. However, a total count of 76+ cormorants was recorded on or immediately adjacent to the two islands.

Acknowledgements

I wish to thank John B. Adams for his 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.