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Scott L. Findholt

*Wyoming Game and Fish Department, Lander, Wyoming*

Kenneth L. Diem

*University of Wyoming, Laramie*

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## STATUS AND DISTRIBUTION OF AMERICAN WHITE PELICAN NESTING COLONIES IN WYOMING: AN UPDATE

Scott L. Findholt<sup>1</sup> and Kenneth L. Diem<sup>2</sup>

**ABSTRACT.**—Historically, one American White Pelican nesting area was known in Wyoming. In 1986 White Pelicans nested at four locations consisting of four different colonies and approximately 949 active nests. Nesting success was probably adequate for population stability at Pathfinder Reservoir from 1984 through 1986 and at Yellowstone Lake in 1984 and 1985, but insufficient there in 1986. White Pelican colonies at Bamforth and Cooper lakes most likely failed because of predation. With the exception of the Yellowstone Lake colony, the future of White Pelican nesting colonies in Wyoming is uncertain. Current threats are human disturbance of nesting birds, predation, and loss of habitat, including breeding areas and foraging sites.

Historically, only one nesting colony of American White Pelicans (*Pelecanus erythrorhynchos*) was reported for Wyoming (Knight 1902, McCreary 1939). This colony is located on the Molly Islands, Yellowstone Lake, Yellowstone National Park (Schaller 1964, Diem and Condon 1967, Diem 1979). In 1984 a new White Pelican nesting colony was discovered in the state at Pathfinder Reservoir (Findholt 1986). Our objective is to provide recent information on the status of the Yellowstone Lake and Pathfinder Reservoir colonies and report on two additional but unsuccessful nesting attempts by White Pelicans in Wyoming during 1986.

### METHODS

Since 1981 and more intensively in 1984 and 1986, we have conducted a comprehensive survey in Wyoming for breeding locations of colonially nesting waterbirds, including American White Pelicans. Fifteen aerial surveys in fixed-wing aircraft were made for new nesting sites of all colonial waterbirds for a total of 67.1 hours of flight time in 1984 and 1986. Reservoirs, lakes, marshes, and other potential breeding areas not observed during aerial searches were checked from the ground with binoculars or a 20-45X spotting scope. Other sources of information on potential locations of White Pelican nesting colonies included a literature review, an examination of the files of the Wyoming Game and Fish De-

partment, and correspondence with biologists, naturalists, bird-watchers, and others considered knowledgeable of White Pelican breeding areas in the state. In all colonies an attempt was made to count active nests when the majority of pelicans were in late incubation-early hatching stages. Active nests were counted using aerial photography or ground counts from within colonies except at Yellowstone Lake where censuses were made from a boat 31-61 m from shore.

In 1984 juvenile White Pelicans present on the nesting island at Pathfinder Reservoir were counted before fledging when they were banded with U.S. Fish and Wildlife Service numbered aluminum bands. Numbers of ready-to-fledge young were determined at Pathfinder Reservoir using ground or aerial photography in 1985 and 1986, respectively. Each year a thorough search was made of the nesting island to locate juvenile pelicans that died before fledging. The number of dead young found was then subtracted from previous counts of prefledged young to calculate nesting success.

At Yellowstone Lake juvenile White Pelicans were censused from a boat 31-61 m from the nesting islands. Because no attempt was made to determine prefledgling mortality, nesting success is probably overestimated each year at Yellowstone Lake. Nest and fledgling censuses were made by the authors except as otherwise noted.

As discussed by Buckley and Buckley

<sup>1</sup>Wyoming Game and Fish Department, 260 Buena Vista Drive, Lander, Wyoming 82520. Present address, Wyoming Cooperative Fishery and Wildlife Research Unit, University of Wyoming, Laramie, Wyoming 82071.

<sup>2</sup>Department of Zoology and Physiology, University of Wyoming, Laramie, Wyoming 82071.

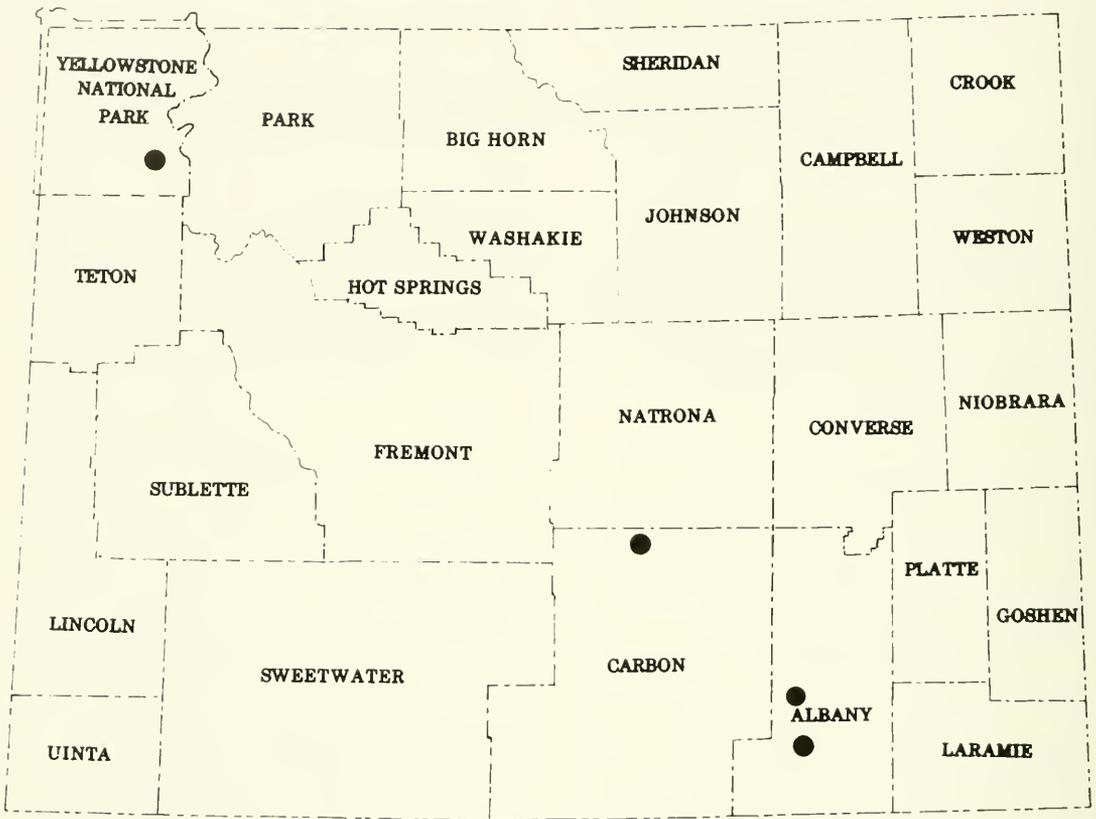


Fig. 1. Distribution of American White Pelican nesting areas in Wyoming, 1986.

(1979), a waterbird colony is difficult to define. For the purposes of this report we defined a colony as an assemblage of nesting birds (Kushlan 1986). One exception was at Yellowstone Lake where the two adjacent Molly Islands White Pelican colonies were treated as one colony.

### RESULTS

American White Pelicans nested at four known locations in Wyoming during the 1984–1986 period (Fig. 1). Based on the 1986 colony censuses, we estimated the number of active nests in the state to be 949 (Table 1). Breeding colonies ranged in size from 41 to 624 active nests. At Pathfinder Reservoir, compared to the counts of the previous year, the number of active White Pelican nests increased by 57% and 63% in 1985 and 1986, respectively. In contrast, the number of active pelican nests at Yellowstone Lake remained relatively stable in 1984 and 1985 but

declined by approximately 86% in 1986. Population trends are unknown for the Bamforth and Cooper lake colonies.

Nesting success at each colony is presented in Table 2. Between 1984 and 1986, from 0.78 to 0.93 juvenile White Pelicans fledged per nesting attempt at Pathfinder Reservoir. At Yellowstone Lake maximum estimated production varied from 0.32 to 2.25 young per nest during this period. No young were produced at the Bamforth and Cooper lake colonies in 1986.

### DISCUSSION

In the most recent survey of American White Pelican nesting colonies, Sidle et al. (1985) concluded that breeding populations were currently stable or increasing in most areas of North America. Information gathered on White Pelican nesting colonies from 1984 through 1986 suggests that White Pelicans are increasing in Wyoming. However, population

TABLE 1. Location, number of active nests, and habitat of American White Pelican colonies in Wyoming, 1984–1986.

| Colony site                           | Location          | Number of active nests |      |                 | Habitat   |
|---------------------------------------|-------------------|------------------------|------|-----------------|-----------|
|                                       |                   | 1984                   | 1985 | 1986            |           |
| Albany County                         |                   |                        |      |                 |           |
| Bamforth Lake<br>(Peninsula Island)   | 41°24'N, 105°44'W | 0                      | 0    | 63 <sup>1</sup> | Lake      |
| Cooper Lake <sup>2</sup>              | 41°38'N, 105°51'W | —                      | —    | 221             | Lake      |
| Carbon County                         |                   |                        |      |                 |           |
| Pathfinder Reservoir<br>(Bird Island) | 42°23'N, 106°56'W | 245                    | 384  | 624             | Reservoir |
| Yellowstone National Park             |                   |                        |      |                 |           |
| Yellowstone Lake<br>(Molly Islands)   | 44°19'N, 110°16'W | 317                    | 284  | 41              | Lake      |

<sup>1</sup>Data from B. H. Pugsek (personal communication).<sup>2</sup>Not surveyed for nesting pelicans in 1984 and 1985.

TABLE 2. Nesting success of American White Pelican breeding colonies in Wyoming, 1984–1986.

| Colony site                            | Number of young fledged |            |            |
|--|-------------------------|------------|------------|
|  | 1984                    | 1985       | 1986       |
| Albany County                          |                         |            |            |
| Bamforth Lake<br>(Peninsula Island)    | 0                       | 0          | 0          |
| Cooper Lake                            | —                       | —          | 0          |
| Carbon County                          |                         |            |            |
| Pathfinder Reservoir<br>(Bird Island)  | 203 (0.83) <sup>1</sup> | 300 (0.78) | 583 (0.93) |
| Yellowstone National Park <sup>2</sup> |                         |            |            |
| Yellowstone Lake<br>(Molly Islands)    | 482 (1.52)              | 650 (2.25) | 13 (0.32)  |

<sup>1</sup>Number of juvenile White Pelicans fledged per nesting attempt.<sup>2</sup>Reproductive success is probably overestimated each year.

growth may be partially attributed to more extensive surveys in recent years. Before 1981 only limited effort was made in Wyoming to locate White Pelican or other colonially nesting waterbird breeding sites.

Strait and Sloan (1974) determined from band-recovery data and reproductive success studies that a fledging rate of slightly less than one young per nest was probably required for population stability in White Pelicans. Although White Pelican reproductive success at Pathfinder Reservoir from 1984 through 1986 appeared to be sufficient for population maintenance, long-term population stability needs to be determined over a period of several years.

At Yellowstone Lake the number of juvenile White Pelicans fledged in 1984 and 1985 exceeded the number required for population maintenance but was inadequate in 1986. Poor nesting success in 1986 was attributed to

an extremely high snowmelt runoff in northwestern Wyoming, which caused high water levels in Yellowstone Lake. As a result, the Molly Islands nesting area was almost completely inundated during much of the nesting season.

All White Pelican nests at Cooper Lake were destroyed by coyotes (*Canis latrans*) and possibly other predators in 1986. White Pelicans were nesting on the mainland, which made their nests extremely vulnerable to mammalian predators, including coyotes (Bunnell et al. 1981). Although it is not known when the Cooper Lake colony was initiated, White Pelicans may have started nesting there a few years before the colony's discovery in 1986. In the early 1980s high water levels existed at Cooper Lake, and the nesting site used in 1986 was probably an island.

Golden Eagles (*Aquila chrysaetos*), observed harassing White Pelicans nesting at

Bamforth Lake, were thought to be responsible for the nesting failure in 1986 (B. H. Pugeseck, personal communication). On three occasions one Golden Eagle was observed in the colony, causing pelicans to flush from their nests. Eggs in unguarded nests were then robbed by California Gulls (*Larus californicus*) nesting among the pelicans; eventually all nests were destroyed or abandoned. Other than the pelican nesting attempt reported at Bamforth Lake in 1986, we have found no evidence of White Pelicans breeding there during surveys conducted since the 1950s.

Although White Pelicans have nested at four locations in Wyoming since 1984, only the Yellowstone Lake colony is reasonably secure and effectively protected. The Yellowstone Lake nesting area has existed since at least 1890 (Linton 1891, Diem and Condon 1967). In Yellowstone National Park, the National Park Service has closed a portion of the Southeast Arm of Yellowstone Lake to all motorboat traffic, thus reducing human disturbance of nesting White Pelicans. Other measures implemented by the Park Service to protect pelicans have included restrictions on scientific investigations and the establishment of a 400-m buffer zone around the nesting islands. Currently one possible threat to the White Pelican breeding population on the Molly Islands may be loss of nesting habitat. Periodic substrate uplifts occurring along the north shore of Yellowstone Lake have significantly raised and lowered the stable water level of the Southeast Arm of the lake where the Molly Islands are located.

We are encouraged by the establishment of the Pathfinder colony and population growth of White Pelicans documented there, but we view these findings with guarded optimism. The White Pelican breeding population at Pathfinder Reservoir is currently threatened by human disturbance, intentional and accidental, of nesting birds. Other serious threats include erosion of the nesting island, formation of a land bridge between the nesting island and mainland during low reservoir water levels, and loss of foraging habitat (Findholt 1987).

Breeding populations of American White Pelicans have declined dramatically in North America. Historically, at least 24 pelican colonies existed west of the Rocky Mountains;

now there are only 8 (Anonymous 1983). Current surveys indicate that fewer than 20 breeding locations may be present in the entire United States (Sidle et al. 1985). Due to the limited number of breeding localities, the White Pelican (western population) has been identified as a "sensitive species" by the U.S. Fish and Wildlife Service (Anonymous 1985). Sensitive species are defined as

vulnerable or declining species, subspecies, or distinct populations that could become Federally listed as endangered or threatened in the foreseeable future, throughout all or in a significant portion of their ranges, without active management or removal of threats.

In Wyoming there is no official state list of threatened and endangered species. The Wyoming Game and Fish Department currently classifies the American White Pelican as a "Priority I" species, which means that it needs immediate attention and active management to insure that extirpation or a significant decline in the breeding population in Wyoming does not occur (Anonymous 1987). We hope that natural resource management agencies in Wyoming will take the appropriate measures necessary to ensure the protection and long-term maintenance of White Pelican nesting colonies in the state.

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#### LITERATURE CITED

- ANONYMOUS. 1983. Guidelines for the management of the White Pelican, western population. U.S. Fish and Wildlife Service, Portland, Oregon.
- . 1985. Sensitive bird species. U.S. Fish and Wildlife Service, Portland, Oregon.
- . 1987. Nongame bird and mammal strategic plan. Wyoming Game and Fish Dept., Cheyenne.
- BUCKLEY, P. A. AND F. G. BUCKLEY. 1979. What constitutes a waterbird colony? Reflections from the northeastern U.S. Colonial Waterbirds 3: 1-15.
- BUNNELL, F. L., D. DUNBAR, L. KOZA, AND G. RYDER. 1981. Effects of disturbance on the productivity and numbers of White Pelicans in British Columbia—observations and models. Colonial Waterbirds 4: 2-11.

- DIEM, K. L. 1979. White Pelican reproductive failures in the Molly Islands breeding colony in Yellowstone National Park. Proc. Research in National Parks Symposium. U.S. National Park Service Transactions and Proceedings. Sec. No. 5: 489-496.
- DIEM, K. L., AND D. D. CONDON. 1967. Banding studies of waterbirds on the Molly Islands, Yellowstone Lake, Wyoming. Yellowstone Library and Museum Assoc., Yellowstone National Park, Wyoming.
- FINDHOLT, S. L. 1986. New American White Pelican nesting colony in Wyoming. *Western Birds* 17: 136-138.
- . 1987. Population status, reproductive success, food habits, foraging areas, prey availability, movements, and some management considerations of American White Pelicans nesting at Pathfinder Reservoir, Wyoming. Nongame Special Report. Wyoming Game and Fish Dept., Cheyenne.
- KNIGHT, W. C. 1902. The birds of Wyoming. Univ. Wyoming Agric. Expt. Sta. Bull. No. 55.
- KUSHLAN, J. A. 1986. Colonies, sites, and surveys: the terminology of colonial waterbird studies. *Colonial Waterbirds* 9: 119-120.
- LINTON, E. 1891. A contribution to the life history of *Dibothrium cordiceps* Leidy, a parasite infesting the trout of Yellowstone Lake. Bull. U.S. Fish Comm. 9(1889): 337-358.
- MCCREARY, O. 1939. Wyoming bird life. Burgess Publ. Co., Minneapolis.
- SCHALLER, G. B. 1964. Breeding behavior of the White Pelican at Yellowstone Lake, Wyoming. *Condor* 66: 3-23.
- SIDLE, J. C., W. H. KOONZ, AND K. RONEY. 1985. Status of the American White Pelican: an update. *Amer. Birds* 39: 859-864.
- STRAIT, L. E., AND N. F. SLOAN. 1974. Life table analysis for the White Pelican. *Inland Bird Banding News* 46: 20-28.