

Status of breeding colonies of White Pelicans in the United States through 1979

The most recent survey indicates that continental populations overall may be declining

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EXTENSIVE SURVEYS OF breeding colonies of the White Pelican, *Pelecanus erythrorhynchos*, have been conducted four times between 1931-1979 inclusive. The first was conducted during 1931-32 by Thompson (1933), the second during 1963-64 by Lies and Behle (1966), the third during 1971-72 by Sloan (1973), and the last survey during 1979 by Sloan. This last survey was conducted by sending out a questionnaire to ornithologists and refuge managers at or near the known colonies. This procedure was used in both the 1963-64 and 1971-72 studies.

Information requested in the survey questionnaires included counts of spring adult populations, estimates of young produced, and numbers of young surviving to flight age. In addition, cooperators were asked whether the count figures were actual or estimated and to indicate what the major mortality factors were at their areas. Persons filling out the questionnaire also indicated whether they felt the colony size was increasing, decreasing, or stable.

In 1972, questionnaires were sent to persons at 35 areas where White Pelicans were known to spend the summer. In 1979, 29 areas were surveyed. The reduction in number of areas surveyed resulted from responses received in 1979 indicating that White Pelicans no longer were found in some areas. This study indicated that at least 17 nesting colonies exist in the United States. This is up from the 14 found in 1972. The four largest colonies are in North Dakota, Utah, Montana and California.

CALIFORNIA

Klamath Basin National Wildlife Refuge

The only current nesting colonies in California are those associated with the Klamath Basin National Wildlife Refuge. The refuge personnel reported that this colony was stable with a slight increase from the 1971-72 survey. Production of young was very good with

an estimated 1633 young surviving to flight stage. Mortality was mostly from human interference, colony interactions, and weather.

COLORADO

Riverside Reservoir

The colony at Riverside appeared to be stable at about 400 adults. Young surviving to flight stage were estimated to be 230-260 birds. The colony is probably at saturation level as all usable nesting space was being occupied. Mortality of young appeared to be owing to starvation and exposure resulting in one chick survival per brood, a characteristic reported by Johnson and Sloan (1978) for Chase Lake National Wildlife Refuge in North Dakota. Adult birds are still being shot in Mexico (based on band recoveries). Information was supplied by Gary C. Miller, Wildlife Researcher, Colorado Division of Wildlife and R.A. Ryder, Colorado State University.

IDAHO

Minidoka National Wildlife Refuge

As in 1963-64 and 1971-72, no nesting colonies were present on this refuge. John D. Hill, Refuge Manager, reported that adults were present throughout much of the year. The only time when birds were not present was between January and March. His counts indicated that 350 birds were present between April and June, 300 for July through September, and 50 from October through December. The population is stable. In 1970, the Idaho State legislature placed the pelican on the protected list. However, some illegal shooting still occurs with additional mortality being caused by power lines.

Deer Flat National Wildlife Refuge

It appeared that use of this refuge by non-breeders might be increasing. In 1963-64, 50-60 non-breeders were reported while in 1971-72, only 30-35

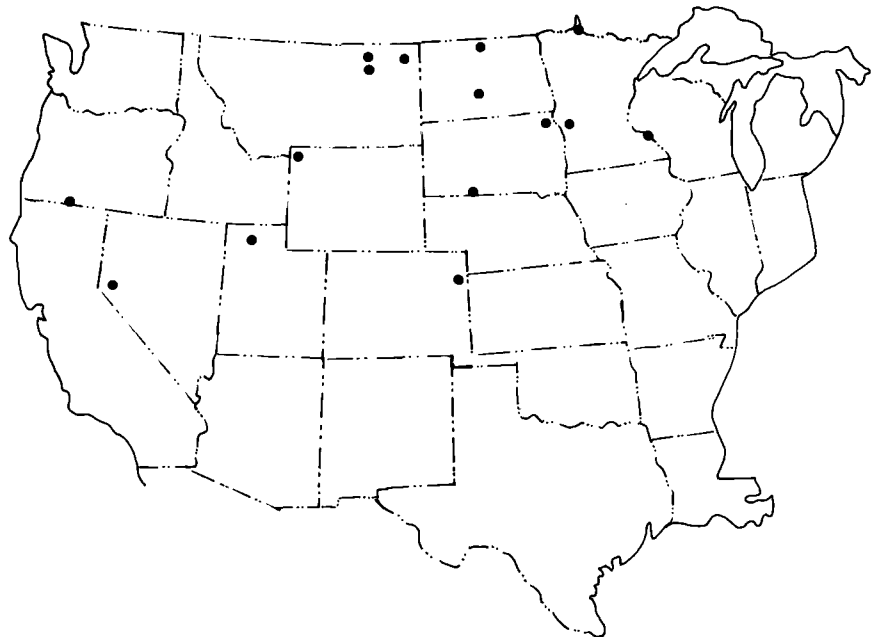


Figure 1: Each dot represents a known nesting colony of White Pelicans in the United States (1979).



Figure 2: Adult White Pelican with the horn on the bill. The horn is present on both sexes during the mating season.

were seen. Eugene Barney, Assistant Refuge Manager, reported that 120 adults were counted in September. Use of the refuge was considered unchanged, with no breeding birds present.

IOWA

There was some evidence that White Pelicans might have nested in Iowa on a slough near Spirit Lake. Mrs. LaVerne Foote, of Spirit Lake, reported seeing a flock of White Pelicans July 14, 1978 which included a number of immature birds barely able to fly. Mrs. Foote was not allowed access to the land to determine if nesting had actually occurred on the slough.

MINNESOTA

Lac Qui Parle Game Refuge

No breeding colonies were reported by Thompson (1933) or Lies and Behle (1966) for Minnesota. The first breeding colony appears to be from Lac Qui Parle Game Refuge in 1968 when 25 breeding birds were found and reported by W.J. Breckenridge (1968). In 1972, Alfred Grewe, Jr. found 150 pelicans nesting at Lac Qui Parle and banded 190 young.

Lake of the Woods

A second colony was reported by James A. Baumhofer (1972) at North Heron Lake. At that time he reported 90 adults and 40 young. Also in 1972, Robert G. Hinckley found an additional colony at Lake-of-the-Woods (Sloan 1973b). The colony was composed of

200 adults and 80-100 flightless young. For 1979, Grewe reported that 100 birds were seen nesting at Lake-of-the-Woods and that 500 birds were present at Lac Qui Parle. He banded 612 young. It appeared that this colony must be at its peak owing to the small (one-acre) size of the island. Color-banded birds from Chase Lake National Wildlife Refuge, North Dakota, have been seen in these Minnesota colonies. Grewe reported that non-nesting birds were found scattered over much of the southwestern part of Minnesota. He was expecting to find newly formed colonies as a result of the crowding.

Marsh Lake

An additional colony was found at Marsh Lake, Minnesota. This colony was located in 1966 by Carrol Henderson, Non-game Supervisor for the Minnesota Department of Natural Resources. The small nesting island of 1.5 acres, supported an adult nesting population of 400-500 birds. Production was estimated at 700-1000 young yearly. Henderson reported that the colony was now (1979) at maximum capacity.

MONTANA

Montana populations of White Pelicans have continued to decrease since the 1963-64 surveys when over 10,000 breeding birds were present.

Bowdoin National Wildlife Refuge

The 1963-64 counts indicated populations of up to 5750 pelicans which de-

creased to 1390 by 1972. Tyson W. Planz, Assistant Refuge Manager, reported that the 1979 population of 2250 adults, was a definite increase. He felt that the population was stable but that production was low, with an estimated 500 young surviving to flight stage.

Charles M. Russell National Wildlife Refuge

Breeding colonies of birds were present in 1963. However, in 1964, returning adults were disturbed by floods and the nests destroyed. For 1971-72, no nesting birds were reported. In 1979, Bill Haglon reported that \approx 50 adults bred on the refuge with \approx 10 young produced. He considered the population stable.

Medicine Lake National Wildlife Refuge

This colony continued to decrease from a high of 3500 birds in 1964 to 1700 in 1972. Steve Breeser reported that in 1979, 660 young were produced by the colony. Unfortunately, no adult counts were made. Estimating adults from young produced indicated that probably 700-1200 birds were present. Breeser indicated that the colony was decreasing so that 1200 would be the upper limit of birds in the area. He also reports that predation by coyotes and human harassment have contributed to the increasing mortality in this flock.

Red Rock Lakes National Wildlife Refuge

No breeding birds were found on this refuge. Use of the area by non-breeding



Figure 3. Adult White Pelicans sitting on nest. The dark head crest is typical of breeding adults. Double-crested Cormorants nest with the pelicans.

adults was limited to about 380 birds. A peak of 395 birds was reported June 5, 1979. An additional 130 pelicans were reported as using Lima Reservoir, 25 miles west of the refuge headquarters, by Richard Sjostrom, Biological Technician at the refuge.

NEVADA

Anaho Island National Wildlife Refuge

Populations of White Pelicans have declined in Nevada since the 1963-64 surveys. At that time, 6-7000 birds were using the refuge for nesting. By 1972, the number of pelicans using the area had decreased to 5800. Refuge personnel believed that the population might stabilize at that level but predicted that it could decline if water levels were affected by diversion of water for irrigation and human use, and if recreation continued to increase. M. LeFever, Refuge Manager, reported that in 1979 the population fell to 3500 adults with a production of 1375 young to flight. He believed that the major cause of mortality was human disturbance from boats and aircraft.

NORTH DAKOTA

Arrowwood and Chase Lake National Wildlife Refuges

No breeding occurs at the Arrowwood Refuge, however, much feeding takes place here by birds from the Chase Lake flock. The Chase Lake population continued to be the largest single flock in the United States. In 1972, the population had grown to

10,000 adults. In 1979, Gary Lingle surveyed and found a population of 7896 birds using the refuge. It appeared that the population might have been declining as a result of excessive vegetative growth and the increased numbers of Ring-billed Gulls using the islands. The gulls are very aggressive and cause significant mortality of unattended White Pelican chicks.

Des Lacs National Wildlife Refuge

No nesting has occurred on this refuge. Rolland J. Krieger reported that 50-150 summer and fall transients use the refuge.

Long Lake National Wildlife Refuge

Thompson (1933) reported about 100 nests at Long Lake in 1932. It appeared that no nesting has occurred since. The 1979 data supplied by Peter Smith, Refuge Manager, indicated that no nesting occurred on the refuge.

Devils Lake and Sully's Hill Game Preserve

Pelicans nested at Devils Lake. However, drought conditions in the 1960s left the island a peninsula. By the 1970s, water levels had increased and the island was reformed, however, no nesting occurred in 1972. Nesting apparently occurred the next year. However, Lyle A. Stemmerman reported that continued rising lake levels inundated this island in 1979 and no nesting now occurs.

J. Clark Salyer National Wildlife Refuge

Large numbers of summer birds were reported using this refuge in 1972 but no breeding occurred. In 1979, Allan Aufforth, North Dakota State University-Bottineau, indicated that 40 adult nesting birds were present with 5 young being produced to flight stage. Thus, North Dakota had two breeding colonies.

Audubon National Wildlife Refuge

No breeding birds were found in either 1972 or 1979. B.L. Gastineau, Acting Refuge Manager, reported that although no breeding occurred in 1979, feeding flocks were present on the refuge throughout the summer.

Tewaukon National Wildlife Refuge

No nesting occurred on the refuge but heavy use of the refuge by non-breeding birds was reported in 1972. No indication of such use was made for 1979 but it was believed that it continued to be an important summer feeding area.

Upper Souris National Wildlife Refuge

Use of this refuge by White Pelicans declined in the 1960s. At that time 1500 adults used the area in the summer. By 1972, this use declined to 500 and in 1979, Irven O. Rostad, Assistant Manager, reported that use declined to 400.

OREGON

Malheur National Wildlife Refuge

Use of this refuge by non-breeders appeared to be increasing. Joseph P. Mazzoni, Refuge Manager, reported that in 1979, 200 White Pelicans were present in May and June. The numbers increased through July to 1000 and peaked at 2400 in September. No nesting was noted, however, a pelican egg was found floating in Malheur Lake in July and males with bill plates were observed in the spring. A detailed history of nesting at Malheur has been compiled by Thompson, Littlefield, and Ryder (1979). Nesting was reported from 1912-1922. During 1934, Malheur Lake was totally dry and no use occurred. By 1938, with water levels restored, pelicans were again nesting. Fifty pairs nested in 1938 and the population increased to 400 by 1940. Nesting ended when Common Ravens, gulls and coyotes destroyed all the eggs. Nesting birds were again found in 1953 at Harney Lake. This



Figure 4. White Pelicans on nests.

colony lasted one year, when the lake dried and the island disappeared.

Carp became established at Malheur Lake and by 1955 an estimated 18,000 pelicans were feeding on the refuge. No nesting occurred. As carp populations were reduced, populations of pelicans declined to 2000 by 1956. In 1958, two nesting colonies were found on islands in Harney Lake. Nesting on Malheur Lake occurred again in 1959, however, the nests were destroyed by coyote predation. The last nesting occurred on an island in Harney Lake in 1960 when 176 young and 43 nests were counted. Since the 1960s, low water levels in Harney Lake have destroyed any nesting islands and no nesting occurred at either lake. Several thousand non-breeding pelicans summer annually on the refuge, feeding on carp.

Modoc National Wildlife Refuge

Conditions apparently are not suitable for breeding on this refuge although Lies and Behle (1966) predicted that nesting might occur. Refuge Manager, Marvin R. Kaschke, reported that no nesting occurred in 1979 and that 25-30 birds were present on the refuge during May through September using it as a place to feed and rest.

Crump-Pelican Lake

In 1972, a population of 500 birds was reported for this colony. However, no survey was taken in 1979 and counts were not available.

SOUTH DAKOTA

LaCreek National Wildlife Refuge

The colony at LaCreek has shown constant growth since its establishment. In 1964, 800 adults nested on the refuge. The population increased to 1750 by 1972 and Robert E. Lamay indicated that the 1979 nesting population was 3650. The colony was considered as stable but production of young has taken a drastic decrease from earlier populations. In 1972, the 1750 adults produced 850 young. In 1979, the 3650 adults only produced 850 young. Mortality was attributed to older birds killing the sibling in the nest and a necrosis of the gular pouch which may possibly be caused by selenium toxicity.

Sand Lake National Wildlife Refuge

Breeding birds were present at Sand Lake in both the 1963-64 and 1971-72



Figure 5: A young White Pelican and unhatched egg. The dark spots on the bird show where it has been pecked by other young. The large dark area on the head are pouch-lice which are feeding on the wound area. All Photos/Norman F. Sloan.

surveys with 300 breeding birds in the latter survey. William Schultze, Biological Technician, reported that in 1979 no White Pelicans bred on the refuge. Cause of the reduction was attributed to the lack of nesting islands and competition with cormorants for the remaining nesting areas. About 400 non-breeding birds used the refuge.

Waubay National Wildlife Refuge

Nesting pelicans for 1964 were 300, a decrease from 500 in 1963. Nesting success for 1971 and 1972 was considered poor. Linda L. Walters, Wildlife Biologist, reported that in 1979, 360 adults bred on the refuge and produced 180 young to flight. Mortality was attributed to exposure, sibling rivalry and being crushed by the parent.

TEXAS

South Bird Island, Laguna Madre

The population on this National Audubon Society sanctuary near Corpus Christi has shown a decline since the

1963-64 survey. In 1964, 1750 adults used the area while in 1972, only 400 nested with only 90 young produced. This colony of White Pelicans was the only non-migratory colony in North America. John Smith, Texas Fish and Game Department, stated that 200 adults were counted as nesting in 1979. Production was good with at least 250 young produced.

UTAH

Gunnison Island, Great Salt Lake

The colony on Gunnison Island appeared to be slowly increasing. The 1964 estimate was placed at 3000 while in 1972 there were 5000 nesting birds. Edwin V. Rawley, Utah Division of Wildlife Resources, reported that in 1979 there were 5600 adults with a production of 2000 young. Mortality was attributed to sibling harassment and starvation, nest abandonment, and egg loss to gulls. The population was considered stable.

Table I. Comparison of breeding population figures of White Pelicans for the United States colonies.

State	1963-64 Average	1971-72 Average	1979	16-year Change
California	2,035	5,115	5,740	+ 3,705
Colorado	155	375*	400	+ 25
Idaho	—	—	—	—
Minnesota	—	440	1,000	+ 560
Montana	10,107	5,500	3,500	- 6,607
Nevada	6,500	5,900	3,500	- 3,000
North Dakota	8,000	9,000	7,936	- 64
Oregon	—	500	—	—
South Dakota	1,825	2,075	3,650	+ 1,825
Texas	1,750	475	200	- 1,500
Utah	3,750	4,750	5,600	+ 1,850
Wyoming	600	325	500	- 100
U S. Totals	34,722	33,690	31,626	- 4,846

WYOMING

Molly Island, Yellowstone National Park

The population of pelicans using Molly Island has had difficulty since its beginning. In 1963-64, about 600 adults used the island for nesting. However, adverse effects of high water limited production of young, often destroying the entire hatch for a single year. The same conditions were found in 1971. Kenneth L. Diem, University of Wyoming, indicated that the 1979 population consisted of about 500 adults with a production of young at 418 birds. This was probably the highest ratio of any colony in the United States. The colony is limited through the combined action of shooting during migration and on the wintering grounds, pesticides picked up during the non-nesting periods and the harsh weather conditions at the breeding site. The colony of pelican nests is at a higher elevation than probably any other colony in North America and is subject to extreme weather changes throughout the breeding season.

SUMMARY

THE 1979 SURVEY of White Pelicans in the United States indicated that the overall population was down slightly. However, when an examination is made of population on a state-by-state basis some definite changes in population levels can be seen (Table 1).

California appeared to have a large increase in population, but it may not be a real increase—some birds may have been counted twice. The 1963-64 population figures represent a different nesting population from the 1971-72 and 1979 surveys. But between these last two surveys, a group of refuges in Cali-

fornia and Oregon were united under a single management unit, the Klamath Basin National Wildlife Refuge. Therefore birds counted in Oregon in 1963 were now included in the California figure. No work is currently being conducted on the colony of Pelican-Crump Lake in Oregon, so no data are available on the population there.

Montana is having serious problems with its pelicans. These numbers have dropped from a high of 10,107 in 1963-64 to only 3500 in 1979. Much of this loss was from water level fluctuation. Nevada also experienced a similar population decline going from 6500 to 3600. Other colonies showed either a constant level or increased, as did those in Utah, Wyoming, Colorado, and South Dakota.

The Chase Lake colony, the largest in the United States, appeared to be dispersing. Its population declined from a high of 10,000 to about 8000. Some of the Chase Lake birds moved to Minnesota and established new colonies there. Minnesota had no breeding birds in 1963-64 and now in 1979 had about 1000. Color-banded birds from Chase Lake have been seen nesting in the Minnesota colonies. In fact, several 3 year-old pelicans were seen incubating. In addition to the sightings in Minnesota, nine color-marked pelicans were reported at Pelican Island, Lake Newell in Alberta, Canada during the summer of 1978 and 1979. Thus, it appeared that breeding-age birds left the Chase Lake area and established new colonies in other locations.

The population of non-migratory pelicans in Texas has decreased significantly from a high of 1750 in the 1960s to only 200 in 1979.

Overall figures indicated the White Pelican population in the United States

may be down from previous surveys I would like to suggest that the White Pelican be considered threatened under the Federal Endangered Species program so that funds would be available to have a nationwide study to examine each colony and determine what is limiting the colony or what factors are allowing others to increase. Reproductive success is definitely better at the smaller nesting locations than at the large colonies. Perhaps we need to attempt to colonize from some of the larger colonies and establish colonies at new locations. The White Pelican currently is on the Blue List of *American Birds* as a species of special concern (Tate & Tate 1982), and should continue on that listing of potential problem species.

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