

AMERICAN WHITE PELICAN

Pelecanus erythrorhynchos

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Management Status: Federal: None
California: Species of Special Concern (CDFG, 1998)

General Distribution:

The American White Pelican breeds from south-central British Columbia (Stum Lake), northeastern Alberta, northwestern Saskatchewan, central Manitoba and southwestern Ontario south locally to extreme northern California, western Nevada, northern Utah, northern Colorado, northeastern South Dakota and southwestern Minnesota, with sporadic breeding on the central Texas coast, from central to southern California (formerly Salton Sea), and in Durango and Tamaulipas, Mexico. The winter range includes central and southern California, southern Arizona, and south through the western lowlands of Mexico (including Baja California), to Guatemala, El Salvador, Nicaragua, and (very rarely) Costa Rica, and from Florida and the Gulf states south along the Gulf coast of Mexico to the Yucatan Peninsula (AOU, 1998). Some wander widely in the fall, and stragglers may occur outside the normal range, especially during the warmer months. Non-breeders may summer in the winter range (Evans and Knopf, 1993).

In California, the two largest and most persistent colonies are at Lower Klamath National Wildlife Refuge in Siskiyou County and Clear Lake National Wildlife Refuge in Modoc County. The largest numbers of non-breeding pelicans occur at Salton Sea, where thousands spend the summer and up to 30,000 have been counted in late winter (Small, 1994). Away from Salton Sea, the species is primarily a transient through southern California (Garrett and Dunn, 1981), and occurs locally in winter, with 1450 at Mystic Lake in western Riverside County in December 1994 being a significant number (S.J. Myers, pers. comm.).

Distribution in West Mojave Planning Area:

American White Pelicans occur throughout the year in the WMPA, but few are found in mid-winter and in the late spring/early summer periods.

Spring migration through the WMPA may begin as early as late January (K.L. Garrett, pers. comm.), but the peak period is mid-March through mid-May. Flocks of up to 400 birds have been seen in spring flying over various parts of Joshua Tree National Park, presumably en route from Salton Sea to breeding colonies further north (National Park Service files). Other noteworthy spring flocks are one of 200 birds on Pelican Lake at Mojave Narrows Regional Park near Victorville on 27 April 1991, one of 350 over Morongo Valley on 31 March 1985 (S.J. Myers, pers. comm.), and one of 300 over Lake Palmdale on 12 April 1980 (K.L. Garrett pers. comm.).

Immatures may be seen in mid-July, indicating that the fall migration is underway. The largest fall flock observed in the WMPA in recent years is one of 400 over Harper Lake on 16 August 1988 (C. McGaugh unpubl. data). Large migrant flocks may occur through October; 325 were seen at Piute Ponds on Edwards Air Force Base on 27 October 1989 (K.L. Garrett, pers.

comm.). Piute Ponds is the WMPA locality where pelicans are most frequently seen, both in spring and fall.

R.L. McKernan (pers. comm.) reports small flocks of 3-10 American White Pelicans in both the spring and fall of 1994 and 1995 at the sewage works on the Marine Corps Air Ground Combat Center at Twentynine Palms.

Other areas of occurrence in the WMPA include Little Lake, South Haiwee Reservoir (T. and J. Heindel, pers. comm.), Dale Lake (R.L. McKernan, pers. comm.), and the Lancaster sewage ponds (K.L. Garrett, pers. comm.; Los Angeles County Museum of Natural History files). A flock of 600 seen flying south from the vicinity of Oro Grande toward Silverwood Lake in the San Bernardino Mountains on 19 January 1987 demonstrates that there is still much to be learned about the seasonal movements of American White Pelicans (S.J. Myers, pers. comm.).

Natural History:

The American White Pelican is a huge white bird (length: 50-65 in., 127-165 cm; wingspan to 9.5 ft, 244-290 cm; weight 10-20 lbs, 4.54-9.0 kg; males larger) with black primaries and outer secondaries, an enormous orange bill with a distensible gular pouch, and webbed feet. In pre-breeding plumage the bill and legs are bright orange, the head acquires white plumes, and a laterally flattened epidermal plate ("horn") appears on the distal portion of the upper mandible. Adults during the chick-feeding phase develop dark gray crowns and napes (Johnsgard, 1993).

A gregarious species, American White Pelicans nest, roost, forage, loaf, and migrate in groups. Flocks fly in lines, "V" and "J" formations, and may cover 300 mi. (500 km) in 24 hrs (del Hoyo et al., 1992). They often soar on thermals.

Typical of most pelicans, food is obtained by dipping the bill into the water and scooping up fish. They often forage cooperatively; groups encircle fish or drive them into shallows where they can be easily caught. Although the species has been persecuted for being piscivorous, most fish taken are smaller than half the length of the bill and of little commercial value (Evans and Knopf, 1993). Regurgitated fish hooks and lures have been found at nesting colonies, indicating that some game fish are taken (Evans and Knopf, 1993). Nocturnal foraging, involving an increased rate of bill-dipping, may be common during the breeding season. Daytime foraging is more visually-cued and bill-dipping is less frequent (McMahon and Evans, 1992). American White Pelicans do not dive from the surface of the water in pursuit of fish, or from the air, as do Brown Pelicans (*Pelecanus occidentalis*). Non-breeding pelicans spend most of the time loafing, often in flocks of 100+, either in shallows or on the shore.

Nesting colonies are on low, bare islands in large lakes. The nest is typically a mound of earth approximately two-three feet across and three-six inches high with a central, unlined hollow (Evans and Knopf, 1993; Baicich and Harrison, 1997). Both parents incubate one brood of two whitish eggs for 29-36 days. During incubation the adult bird places a foot on each egg. The parents attend the altricial young for two-three weeks, then the young leave the nest and join creches ("pods") of other young pelicans. At this time the adults may return from foraging areas only once a day or once every two days, and may forage 150 mi. (240 km) or more from the colony (184 mi., 306 km, in a study in North Dakota; Lingle and Sloan 1980). Food is not carried in the bill, but swallowed and regurgitated at the colony. Usually only one of the two chicks survives; typically the younger one is the victim of harassment and, ultimately, siblicide. Young pelicans fly at 9-10 weeks of age, and begin to leave the colony for foraging areas where flocks stage prior to migration (O'Malley and Evans, 1982; Behle, 1958). Strait and Sloan (1975)

calculated a 41% mortality rate from fledging through the first year. Clapp et al. (1982) reported a maximum lifespan of 26.4 years, based on 4,344 band returns.

The breeding season extends from early April to late August. Northern colonies may not be occupied until May (Baicich and Harrison, 1997). The freezing of lakes and rivers (< biblio >) necessitates migration from many areas in the northern portion of the breeding range.

Habitat Requirements:

American White Pelican colonies are typically situated on islands in inland lakes. The stability of the habitat (i.e., water level), adequate food supplies, and minimal disturbance characterize the largest and most persistent colonies. Lakes with suitable nesting islands are most numerous in central Canada, especially in Manitoba and Saskatchewan (Sidle et al., 1985). Nests may be built on muddy, sandy, or rocky shores.

American White Pelicans forage on the edge of lakes, and in marshes, rivers, and estuaries. Foraging sites are typically shallow (1-8 ft., 0.3-2.5 m; Anderson 1991) and may be muddy or clear, oligotrophic or eutrophic. Loafing sites, important components of both breeding and wintering habitat, are typically banks or sandbars adjacent to foraging areas (O'Malley and Evans, 1984; McMahan and Evans, 1992). Foraging sites may be many miles from the colony. The species is virtually never seen on the open ocean.

Both breeding and foraging habitats may be unstable and ephemeral; water levels rise and fall and fish populations fluctuate. American White Pelicans are highly mobile and adaptable. In the WMPA, the species is found on shallow ponds and marshes.

Population Status:

Although no subspecies are recognized, the American White Pelicans of North America are divided into two populations, roughly separated by the Continental Divide. The historic range contracted until the 1970s but has recently recovered; Breeding Bird Survey data indicate an increase of 5.3% per year from 1966-1991. Still, it is likely that the current population is less than that of pre-settlement times (Terres, 1980). The species remains vulnerable to habitat degradation and human disturbance (Evans and Knopf, 1993).

Sidle et al. (1985) reported 48 breeding colonies in North America, including 29 in Canada (64,512 breeding birds) and 19 in the United States (44,598 breeding birds). Koonz (1987) reported 53,345 nests in Canada during 1985-86, up from 32,256 in 1979-80 (Sidle et al., 1985), and 14,103 in 1967-69 (Vermeer, 1970).

The species formerly nested on large lakes throughout California but declines in both the number of breeding localities and population size within colonies were evident by the 1920s (Remsen, 1978; Grinnell and Miller, 1944). Currently, Lower Klamath Wildlife Refuge and Clear Lake National Wildlife Refuge, support the only persistent colonies in the state. Sidle et al. (1985) reported a total of 4642 breeding birds at the two refuges. American White Pelicans nested at Salton Sea until 1957, when the inundation of nesting islands destroyed colonies that were sometimes occupied by several hundred pairs (Remsen, 1978). Currently, the species is found on Salton Sea throughout the year, including thousands of summering non-breeders, with late winter numbers reaching as high as 30,000 (Small, 1994), and representing a significant percentage of the world population of the species.

Threats Analysis:

An estimated 10-20% of the western North American population, approximately 8000 American White Pelicans, died at Salton Sea in the summer of 1996. The cause of death was botulism, spread by a bacterial infection in fish (Salton Sea NWR files). This disastrous event demonstrates the susceptibility of this highly gregarious species to relatively local phenomena.

Evans and Knopf (1993) considered the species vulnerable in spite of recent evidence of population stability and recovery from pre-1970 declines, which have been attributed to habitat degradation and human disturbance. Thompson (1933) reported the permanent destruction of historically critical foraging and nesting habitat.

The species was placed on the National Audubon Society Blue List in 1972 (Tate, 1981), and was suggested for protection under the Federal Endangered Species Act by Sloan (1982).

Lowered water levels in lakes that support nesting colonies allow access to predators such as Coyote (*Canis latrans*) and Red Fox (*Vulpes vulpes*); at the other extreme, islands may be inundated. American White Pelicans are prone to desert nests when disturbed by predators or humans. Panicked pelicans may accidentally destroy eggs; unguarded eggs and chicks are subject to predation by mammals and gulls, and to the effects of high temperatures (Evans and Knopf, 1993). Boats and airplanes in the vicinity of a colony may cause pelicans to temporarily leave the colony or abandon it altogether.

Shooting is the greatest source of mortality reported from band returns (Strait and Sloan, 1975; USFWS, 1984; Stepney, 1987).

Sloan (1982) reported that refuge personnel in the Klamath Basin listed human interference, colony interaction, and weather as the major factors influencing mortality. He also noted that the reproductive success is higher at smaller colonies, suggesting that overcrowding increases mortality.

The large, year round population at Salton Sea is threatened by agricultural run-off, industrial pollution, sewage, rising selenium levels, botulism, and increasing salinity (Small, 1994).

Eggshell samples from 1965 and 1972 were thinner than pre-1940 samples, and inversely related to levels of DDE and DDE+TDE (Evans and Knopf, 1993), but pesticides and mercury are not considered significant causes of reproductive failure or population declines of American White Pelicans (Anderson et al., 1969).

Biological Standards:

Standard practices/recommendations for management throughout the breeding range include protecting breeding colonies from drastic changes in water level, creating nesting islands (Stepney, 1987), maintaining habitat integrity through the monitoring and reducing of contamination by pollutants and pesticides (including the monitoring of reproductive success and population trends), and fencing colonies to minimize predation and disturbance. All nesting colonies in Saskatchewan have been designated as wildlife refuges (Sidle et al., 1985). Attempts to start new colonies by releasing independent young in their first fall at appropriate sites have not been effective. Captive rearing of the second egg has been successful in providing zoo stock.

Within the WMPA, protection and management of the species can be accomplished through the maintenance, monitoring, and (possibly) enhancement of sites known to be used for loafing and/or foraging. Two of the most frequently used areas, Piute Ponds on Edwards Air Force Base and Mojave Narrows Regional Park, are likely to remain suitable for migratory stopovers. Measures to sustain the marsh at Harper Lake, a BLM Area of Critical Environmental Concern, would be beneficial to American White Pelicans as well as other migratory and resident

species. The marsh was dry in 1997, the result of weather conditions and the cessation of alfalfa farming in the valley (E.A. Cardiff, pers. comm.).

It is possible that American White Pelicans migrating through the WMPA will benefit from an increasing number of sites with open water (e.g. parks, planned communities, sewage plants); however, foraging and loafing sites must be free from human disturbance.

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