

THE STATUS AND NONGAME VALUES OF CARSON LAKE, NEVADA

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ABSTRACT.

Carson Lake has the greatest species diversity and highest reproductive capabilities of any place in the State of Nevada. Critical nesting habitat for numerous avian species and the largest population of white-faced ibis (*Plagadis chihi*) in Nevada and one of the three largest breeding colonies in the United States is found here. Wetland habitat of this area had declined from 14,040 acres in 1972 to approximately 900 acres in 1979. Nongame bird use and production has also shown a decrease proportional to this wetland reduction. Ownership is by the Water and Power Resources Service with custodial care being administered by the Truckee-Carson Irrigation District. The primary use and interest of the area is for livestock grazing with little or apathetic concern toward nongame wildlife values.

INTRODUCTION

The original natural marshes of the lower Carson River in Churchill County, Nevada existed at the terminal ends of both branches of the Carson River; one at Carson Lake and the other at the Carson Sink (Alcorn 1971). Carson Lake is located eight miles south of Fallon, Nevada, in township 17N. and ranges 29-30E.

Little is known about the wildlife resources of Carson Lake and Carson Sink in the past. Indian relics and campsite remains found in the vicinity attest to wildlife that must have inhabited these marsh areas. During the late 1800's, Carson Lake and the Carson Sink had been recognized as the finest waterfowl hunting area in Nevada.

In 1882, Israel C. Russel estimated Carson Lake to cover 25,600 acres. A survey conducted by the Bureau of Biological Survey in 1929 reported the wetland acreage of Carson Lake at 19,000 acres. A monitoring program of wildlife habitat and associated use in the Truckee-Carson Irrigation District, Nevada was established in 1972 by the U.S. Fish and Wildlife Service. Wetland habitat of 14,040 acres was reported for Carson Lake during the 1972 calendar year in the first annual progress report, and 1,000 acres during the 1977 calendar year in the sixth annual progress report.

Carson Lake is administered by the Truckee-Carson Irrigation District, near Fallon, Nevada, with ownership by the Water and Power Resources Service. Drainage of the Carson Lake wetlands for irrigation water has resulted in the formation of the Carson Lake pasture. The area is used primarily as a community pasture for the district's cattle industry.

Until the past decade, these wetlands supported one of the three major white-faced ibis nesting colonies in the United States and contained the greatest species diversity of any place in Nevada. The lake is an extremely uniform shallow basin having a uniform water depth of 10 inches to 18 inches, allowing emergent vegetation for nesting structures and cover and submergent plants for food to occur throughout.

METHODS AND MATERIALS

Data presented for 1970-1978 were compiled and summarized from past research (Alcorn 1971, Osugi 1974, Osugi and Barber 1976, Barber 1976, Barber 1977, Barber 1978, Herron and Lucas 1979). Data for 1979 were collected in partial fulfillment of the requirements for the degree of Master of Science in wildlife management.

The study area was traversed on foot and visual observations made for the purpose of compiling data to aid in the documentation of the status and nongame values of Carson Lake.

Ground surveys were conducted every Saturday and Sunday starting April 7th and 8th, 1979, and continued through July 28th and 29th, 1979. The ground surveys consisted of randomly traversing the lake's open waterways and emergent vegetation.

Data collected during the ground surveys consisted of visual observations of the numbers, locations, arrivals, occurrence and activities of each nongame avian species; location, and activities of livestock; general condition of the water elevation; and identification and collection of aquatic vegetation in the study area. Data collected were compiled and used to determine the following:

1. Nongame avian species occurring and their week of arrival at Carson Lake.
2. Nongame avian species which nested at Carson Lake.
3. Areas of Carson Lake each nongame avian species used for nesting, feeding, and roosting.
4. The weeks when nest construction, egg laying and hatching occurred for each nongame avial species.
5. The effect of livestock on nesting populations.
6. The effect of water fluctuations on nesting populations.

Aerial photographs were taken on May 29, 1979, of the entire Carson Lake area and donated to the project by the Nevada Air Guard. These photographs were used to delineate the nesting and feeding areas for each nongame avian species, and the emergent vegetative types of Carson Lake.

Equipment used for observation during the study consisted of a pair of 7x35 binoculars, a camera, and a 15X - 30X spotting scope. Hip boots or tennis shoes were worn when conducting the ground surveys.

RESULTS

Wetland habitat at Carson Lake has declined to approximately 900 acres in 1979. The rapid decline in wetland habitat can be attributed to several factors. The reclamation of desert land for livestock grazing has required more water and some land in Carson Lake itself. The Pyramid Lake Indians water suit in 1972 entitled, "Pyramid Lake Paiute Tribe of Indians, plaintiff, versus Rogers C. Morton, Secretary of the Interior, et al., defendant (Civil Action No. 2506-70)" has limited the Truckee-Carson Irrigation District to no more than 288,000 acre-feet of water. This action has caused the lake to depend on return flow water no longer used for irrigation because of the high concentration of dissolved salts. Droughts are also a factor in that they severely reduce total water supply.

Nongame birds use and production has shown a decrease proportional to this wetland reduction.

Table 1 provides a summary of estimated wetland habitat and breeding populations of white-faced ibis at Carson Lake, 1970-1979. A list of nongame avian species recorded at Carson Lake during 1971 and 1979 is provided in Table 2. Overall nongame avian use has declined by over 80 percent in six years. Livestock grazing on emergent vegetation throughout the lake is also contributing to the reduction in use and production by reducing food and destruction of nesting structures.

Road and canal dikes throughout Carson Lake provide some of the most attractive high grounds in the area for nongame avian species. The livestock use of these high areas disturbs and destroys nests, and is also responsible for reducing the cover needed for concealment by nesting birds.

TABLE 1. Summary of estimated wetland habitat and breeding populations of white-faced ibis at Carson Lake, 1970-1979.

Year	Wetland Acreage	Estimate	Source
1970	--	600 nests*	U.S. Fish and Wildlife Service
1971	--	250 nests*	U.S. Fish and Wildlife Service
1972	14,040	1300 nests*	U.S. Fish and Wildlife Service
1973	13,840	3312 nests	U.S. Fish and Wildlife Service
1974	10,740	no nesting (50 birds)	Nevada Dept. of Fish and Game
1975	13,000	1700 nests	Nevada Dept. of Fish and Game
1976	7,000	500 nests	Nevada Dept. of Fish and Game
1977	1,900	no nesting (300-400 birds)	Nevada Dept. of Fish and Game
1978	1,200	400 nests (low reproductive success)	Nevada Dept. of Fish and Game
1979	900	1200 nests (approximately 2,500 young fledged)	

* Counts obtained from road surveys and may have significantly underestimated the total population.

There is little if any nonconsumptive use of Carson Lake by the general public, because of the restricted access. Livestock grazing is responsible for having the entire lake area fenced and entrance gates locked.

Recent efforts by various agencies, organizational groups and individuals to prevent further loss of habitat and wildlife has caused an increased interest in Carson Lake for wildlife values and nonconsumptive uses. Nevada Department of Fish and Game petitioned the U.S. Fish and Wildlife Service in 1978, requesting that the white-faced ibis be considered for entry on Appendix II of the Federal Register. The Nevada Chapter of the Wildlife Society is preparing a position statement requesting Carson Lake be maintained at a minimum of 7,500 acres and receive an annual water allocation of 26,500 acre feet. Carson Lake has also been nominated as a unique ecosystem under the Presidential National Heritage Trust Program.

DISCUSSION

Carson Lake appears to be one of the outstanding nesting and feeding areas in the Pacific Flyway for nongame shore and marsh dwelling birds. The greatest value of Carson Lake to the wildlife resource is that it compliments all other marsh areas in the Carson Sink, both in waterfowl and nongame avian species, particularly those species that are now at critically low population levels in North America.

This area should be managed for species diversity for both plants and animals. Under proper management wildlife production could be greatly increased with little loss of grazing pasture by maintaining constant water levels throughout the nesting areas during the reproductive seasons. All canal and road dikes and high spots should be fenced during the nesting season to protect them from livestock use. The responsibility for proper wildlife and habitat management along with the need for an increase in research studies on the area should be turned over to and administered by a proper wildlife management agency.

Public access to the Carson Lake area should be provided due to the increased public interest in nonconsumptive use of the wildlife resource. Carson Lake's proximity to Fallon, Reno and Carson Cities in Nevada and the potential values of bird watching, photography, nature study and esthetic use indicate that it would receive much more use if it was made accessible to the public. This increased use would help educate the general public as to the needs of the wildlife and the importance of preserving and managing critical wildlife habitats.

TABLE 2. A list of nongame marsh dwelling avian species recorded at Carson Lake in 1971 and 1979

Species 1971	Species 1979
Common Loon	Eared Grebe
Eared Grebe	Western Grebe
Western Grebe	Pied-billed Grebe
Pied-billed Grebe	White Pelican
White Pelican	Double-Crested Cormorant
Double-Crested Cormorant	Great Blue Heron
Great Blue Heron	Common Egret (Great)
Common Egret	Snowy Egret
Snowy Egret	Black-crowned Night Heron
Black-crowned Night Heron	American Bittern
Least Bittern	White-faced Ibis
White-faced Ibis	Snowy Plover
Hooded Merganser	Killdeer
Common Merganser	Common Snipe
Red-breasted Merganser	Long-billed Curlew
Virginia Rail	Spotted Sandpiper
Sora	Willet
American Coot	Greater Yellowlegs
Semipalmated Plover	Lesser Yellowlegs
Snowy Plover	Long-billed Dowitcher
Killdeer	American Avocet
Black-bellied Plover	Black-necked Stilt
Common Snipe	Wilson's Phalarope
Long-billed Curlew	Northern Phalarope
Spotted Sandpiper	California Gull
Solitary Sandpiper	Franklin's Gull
Willet	Forster's Tern
Greater Yellowlegs	Black Tern
Lesser Yellowlegs	Common Gallinule
Least Sandpiper	Marsh Hawk
Dunlin	Red-winged Blackbird
Long-billed Dowitcher	Yellow-headed Blackbird
Western Sandpiper	Long-billed Marsh Wren
Marbled Godwit	Ruddy Turnstone
Sanderling	Barn Swallow
American Avocet	Cattle Egret
Black-necked Stilt	
Wilson's Phalarope	
Northern Phalarope	
Herring Gull	
California Gull	
Ring-billed Gull	
Bonaparte's Gull	
Franklin's Gull	
Forster's Tern	
Caspian Tern	
Black Tern	

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