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California Department of Fish and Game
Job Final Report

Project Number: W-65-R-4 Project Title: Nongame Wildlife Investigations

Job Number: II-19 Job Title: Osprey Status Review

Period Covered: July 1, 1986 - June 30, 1987

SUMMARY:

An effort was made to determine the current distribution of Ospreys in California and compare it to the 1975 status of the species. Distribution was similar in the northern, western and central portions of the range in California. The range in the Sierra Nevada expanded to more completely cover the area from Lake Almanor south to Lake Isabella; in 1975, two areas with two pairs were known. In 1986-87, ten areas were found to maintain at least 20 pairs of Ospreys. The Lake Almanor area has shown a doubling of its Osprey population since 1969. Reproductive rates of Ospreys in three of the four main population centers in northern California have generally been above theoretical maintenance levels and have stable or increasing local populations. The one population with slightly lower reproduction than the theoretical level also has remained stable.

BACKGROUND:

During the late 1950's and 1960's declines in Osprey populations were noted and correlated with pesticide contamination of the food chain and resultant eggshell thinning. Most of the declines were noted in the eastern United States. There was little historical data prior to the late 1960's on sizes or reproductive rates of western populations.

In 1970 and 1971, the Department funded an Osprey nesting ecology study in Lassen and Plumas Counties to determine reproductive rates of Ospreys in California (Garber 1972). At the same time, the Department began to solicit information on the location and annual history of Osprey territories from its own and other agency biologists. This data has become the basis for an extensive data base on Osprey nesting territories.

Guided by Department information, Dr. Charles Henny, USFWS, directed a baseline survey of Osprey breeding populations in California as well as elsewhere in the nation in 1975. His survey, mainly by aircraft, yielded an estimate of 355 nesting paris in California (Henny et al. 1978). The Department assisted in that effort but has not made a complete survey since 1975. We continue to maintain records for all areas where data is available. We usually rely on local agencies which have maintained their own regular or sporadic surveys of territory occupancy and reproductive status. In 1982 the Department made an effort to gather current information and to survey previously known nesting areas along the north coast of California (Bickett 1982).

In early 1987, Dr. Henny requested that the Department provide him with current information on the statewide status of Osprey. He is preparing a status report on the Osprey in the western United States, which was presented at the October, 1987 annual meeting of the Raptor Research Foundation and will be published by that organization. The Department did not have the status information but offered to assist him in gathering the current and historical data during the 1987 breeding season.

OBJECTIVES:

1. Determine the current distribution and abundance of Osprey nesting populations and monitor changes in population distribution and abundance and reproductive rates.

2. Determine conditions which may be inhibiting or benefiting Osprey populations.

PROCEDURES:

Dr. Henny contacted appropriate federal agencies in California for Osprey breeding status on or near National Forest and Bureau of Land Management lands in the major breeding areas. Department staff concentrated efforts at the southern limits of the breeding range, contacting the Marin Municipal Utility District for information on the breeding at Kent Lake, near San Francisco Bay, as well as state biologists in California and Nevada, Federal biologists, and other individuals knowledgeable about Ospreys nesting in the Sacramento Valley and Sierra Nevada.

Department files were reviewed, restructured and updated to facilitate this effort. Current (1986 and 1987) and recent (1975 to current) information about breeding areas and nesting pairs south of the main breeding range identified in 1975 was requested mainly by telephone. Staff called local area agency biologists and other knowledgeable individuals to determine where Ospreys are or have been nesting and to obtain information on nesting histories and population size. Productivity data was not specifically requested. No systematic survey by mail or with forms was attempted because the time frame was too short.

Dr. Henny was provided with a summary of these findings, which were incorporated into his regional status report. Drafts of the section on California were reviewed and edited by Department staff, and follow-up phone calls to field contacts were made as needed.

FINDINGS:

For most of the major Osprey breeding areas in northern California, numbers of breeding pairs have increased since 1975, and productivity is good (Henny, 1987, in prep.).

The southernmost nesting areas in 1987 were Kent Lake (Marin County) in the coastal counties, Stony Gorge Reservoir (Glenn County) and Sacramento River (southern Tehama County) in the Sacramento Valley, and Lake Isabella (Kern County) in the Sierra Nevada (Figure 1). Although Henny et al. (1978) quoted reports of Osprey nesting attempts in the Santa Barbara County area in the mid-1970's, staff was unable to find any supporting documentation or other confirmation that Ospreys have nested in that area, nor anywhere else in coastal California south of San Francisco Bay, in the 1970's or 1980's.

In the Sierra Nevada in 1975, the southernmost portion of the main breeding range was northwestern Plumas County, where Lake Almanor is the major nesting area. In that year at least two breeding pairs occupied disjunct areas farther south in the Sierra Nevada, at Lake Tinemaha (Inyo County) and Lake Isabella. A third nesting pair, discovered in 1976 on the Nevada side of Lake Tahoe, might have occupied that site in 1975. From 1976 to 1987 Osprey breeding pairs were discovered at at least 10 lakes or reservoirs in the Sierra Nevada east or south of northwestern Plumas County, and the number of breeding pairs documented from Lake Tahoe to Lake Isabella has increased from two in 1975 to 14 in 1986 or 1987 (Table 1, Figure 1).

Table 1. Osprey breeding population in the central and southern Sierra Nevada, 1975 and 1986-87.

Area and County	Number of Breeding Pairs		Year of discovery of first pair
	1975	Either 1986 or 1987	
California			
Lake Tahoe (El Dorado)	0	1	1976
New Melones Reservoir (Tuolumne)	0	1	1983
Mono Lake (Mono)	0	1	1984
Bass Lake (Madera)	0	3	1978
Lake Tinemaha (Inyo)	1	4	1973
Lake Isabella (Kern)	1	2	1966
Total for California	2	12	
Nevada			
Lake Tahoe (Carson City & Douglas)	1 possibly	2	1976
Total for California and Nevada	3	14	

The number of nesting pairs in the northern Sierra Nevada between northwestern Plumas County and Lake Tahoe is not as well documented, but probably totaled between five and 10 pairs in 1987. None was reported in this area in 1975.

However, nesting has been documented since 1975 in this general area at Antelope Lake (Plumas County) since 1979, Lake Davis (Plumas County) which was discovered in 1987, Lake Oroville (Butte County) since 1977, Little Grass Valley Reservoir (Plumas County), Bullards Bar Reservoir (Yuba County) since 1986, and the Stampede-Boca Reservoirs area.

Dan Airola, an ex-U.S. Forest Service biologist who had previously provided information on Osprey distribution, abundance and breeding success in northern California, provided both Dr. Henny and the Department with information to use in assessing the species' current status. Airola (in press) used reproductive data collected since 1969 to analyze the population status of Ospreys on four areas on National Forest lands: the Klamath-Trinity River system, Shasta Lake, Eagle Lake, and Lake Almanor.

Reproduction in the Klamath-Trinity River, Eagle Lake and Lake Almanor areas appears to be sufficient or above levels needed to maintain populations, although not in all years. The reproductive levels are highest at Lake Almanor and the population has increased over time. Populations have remained relatively stable in the other two areas. The annual reproductive rates of Ospreys in the Shasta Lake area are mostly below the levels thought to maintain a stable population, but the population appears to be maintaining itself.

ANALYSIS:

The breeding population of Ospreys in California has increased in size and expanded in range since 1975. However, the extreme southerly nesting areas in the coastal counties, Central Valley, and Sierra Nevada are the same in 1987 as in 1975.

The most significant change in distribution has been the increase in the number of areas occupied by Osprey breeding pairs between the Lake Almanor area, Plumas County, and the southern end of the Sierra Nevada. This has been accompanied by a substantial increase in breeding population size. In a distance of 520 km (330 mi), the numbers of nesting areas and breeding pairs have increased from two known areas and two pairs in 1975 to at least 10 areas and perhaps 20 or more pairs in 1987.

The increase in the Osprey population in the Sierra Nevada reflects the generally improving population status throughout the remainder of the breeding range in northern California, with the possible exception of the north coast segment (Henny, 1987, in prep.).

Although the Department maintains historical and recent breeding status reports by site for the State's breeding population, no systematic monitoring has been done since the 1975 survey. This species has not been considered to be threatened or endangered, so no priority attention has been directed towards it since the mid 1970's by the Department, except for protection of nesting sites in timber harvest areas. In 1978, the Osprey was included on a Department administrative list of species of special concern because of the species' vulnerability to human disturbance, the destruction of nesting trees, degradation of aquatic feeding areas, and its history of DDE-caused reproductive failures (Remsen 1978).

The improving status of the breeding population appears to be reflected, too, in the increasing numbers of wintering Ospreys in California. However, for both breeding and wintering populations, the increases have not been systematically documented by the Department. A thorough understanding of the historical progress of the recovery of this species, which was nearly a threatened or endangered species as recently as the late 1960's or early 1970's, could be valuable to population ecologists and wildlife managers in planning recovery efforts for endangered species, such as the Bald Eagle.

Airola's reproductive data also indicate that Osprey populations in the main portion of the species' range in California are at least maintaining themselves, and perhaps increasing at some locations. Theoretical population modeling appears to approximately estimate the reproductive rates needed to maintain populations although populations appear to be stable at slightly lower reproductive rates than previously calculated as needed.

RECOMMENDATIONS:

1. Maintain within the Department current population and reproductive data on Ospreys in California, encouraging agencies to continue monitoring local breeding population, including the Klamath-Trinity River system, Eagle Lake, Lake Almanor, Shasta Lake, and Kent Lake.

2. Assess the current status of the north coast Osprey breeding population.

3. Document historical and current Osprey breeding status in the Sierra Nevada.

4. Add Osprey to field report forms used in the annual Mid-Winter Bald Eagle Survey to obtain additional information on Osprey winter population size and distribution in California.

LITERATURE CITED:

Bickett, J. 1982. Osprey Status Review. Calif. Dept. of Fish and Game, Nongame Wildl. Invest., Project W-54-R-14, Job II-10. 7pp.

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Remsen, J. V., Jr. 1978. Bird Species of Special Concern in California. Calif. Dept. of Fish and Game, Wildl. Manage. Branch, Admin. Report No. 78-1. 54 pp.

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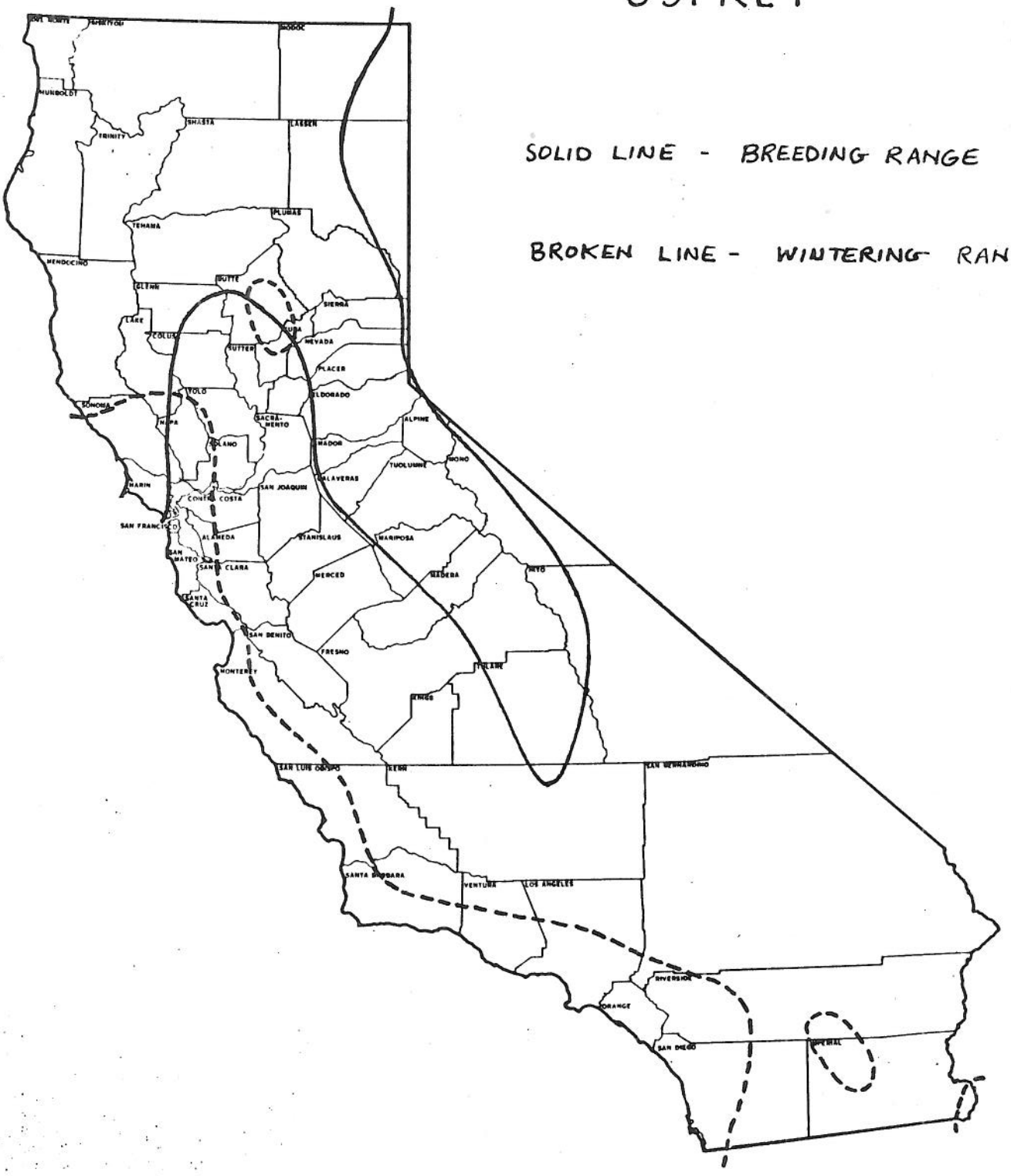
Figure 1.

OSPREY



SOLID LINE - BREEDING RANGE

BROKEN LINE - WINTERING RANGE

RMJ 10-1-87

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