

JOB PROGRESS REPORT

State: California

Project Number: W-54-R-13

Project Title: Nongame Wildlife Investigations
Owl Nest Territory Monitoring

Job Number: II-3

Job Title: Program

Period Covered: July 1, 1980 - June 30, 1981

Job Type: Survey and Inventory

SUMMARY:

A survey of the major stronghold of Elf Owls in the area north of Needles resulted in an estimate of five pairs. This is the same population size as estimated in 1979 but below the ten pairs estimated in 1978. No other Elf Owls were found at other sites checked in southern California.

Three pairs of Great Gray Owls were found and followed on the Stanislaus National Forest, Tuolumne County. The males of each pair were radio-tagged and information on home range, habitat utilization and requirements, food habits and hunting behavior was gathered.

During the report period 139 new Spotted Owl territories were reported and entered into Department files which now contain records of 625 territories in 40 counties. One hundred and seven of the new sites came from western Siskiyou County and notable expansions in our knowledge of the Spotted Owl's range came from the south Warner Mountains, southeastern Modoc County, Burney Mountain, eastern Shasta County, and near Mammoth Mountain, southwestern Mono County. Spotted Owls were still present at 74% of 58 territories reported rechecked during the report period. The U. S. Forest Service is in the process of long-term planning for the preservation of Spotted Owls throughout the California region.

BACKGROUND:

The understudied nature of owls in California has been best demonstrated at the 1979 National Audubon Society symposium "Owls of the West" and in the Department's draft publication "Bird Species of Special Concern in California." At the symposium it was obvious that recent studies on owls in California consisted of single studies each on Barn Owls, Burrowing Owls, Flammulated Owls, and Elf Owls and a small number of studies done on Spotted Owls. The purpose of the Department's special concern list was to draw attention to those species whose status was unknown and whose populations may be in trouble. Of the 13 species of owls found in California, 6 species are on this list. Two species, the Elf Owl and the Great Gray Owl, have since been removed from the concern list and added to the list of rare and endangered species of California. Of the remaining seven species, one is an irregular winter visitor, the status of three is virtually unknown, and the status of another in part of California is in doubt.

Most recent work on owls in California stems from concerns of the effects of forest alteration on habitat. Gould (1973, 1974) identified this problem with Spotted Owls as well as providing a cursory inventory of statewide populations of this species and a method for inventory. Using the draft of the "Bird Species of Special Concern in California" as a guide, the Department surveyed Elf Owl populations in 1978 (Cardiff 1978) and along with Winter's (1979) suggestion initiated work on Great Gray Owls (see W-54-R-12, Job II-9) in 1979.

Because of the concern for the future of the Spotted, Great Gray and Elf Owls, monitoring of the breeding territories is to be done on an annual basis after baseline studies have established the species general range. This has been done for the Spotted Owl since 1974 and for the Elf and Great Gray Owls since 1979. It is hoped that future information on other owl species whose future is unknown will be monitored in this job.

OBJECTIVE:

1. Monitor selected Spotted Owl, Great Gray Owl, and Elf Owl nest territories for occupancy and determine status of breeding populations.
2. Determine the status of all species of owls on the list of bird species of special concern.

PROCEDURES:

Sightings of the three species of owls come from a variety of sources. In the case of the Elf Owl, Dr. Melody Serena checked the nesting of Elf Owls while surveying the Arizona Bell's Vireo along the Colorado River for the Department. Dr. Serena checked the area north of Needles, San Bernardino County that was checked by Steven Cardiff in 1978 and 1979 (see E-W-3, Job IV-1.0 and W-54-R-12, Job II-3).

Jon Winter, who has studied Great Gray Owls for the Department and the U. S. Forest Service, continued field studies on this species under contract to the latter agency. This study remains on the Stanislaus Forest, in Tuolumne County. Three Great Gray Owls were radio-tagged and the Department helped provide the radio transmitting and receiving equipment.

The majority (95%) of the reports of new Spotted Owl territories came from U. S. Forest Service personnel as did 53% of the information on territories that were rechecked. Additional sightings were made by Department of Fish and Game personnel and field ornithologists. All sighting reports obtained by the Department are checked for validity and catalogued by species. Histories of each territory are maintained on the date and location of the observation, number of owls observed and the name of the observer. Updated lists of Spotted Owl sightings have been provided to agency wildlife and land managers for management purposes.

RESULTS:

Elf Owl

Dr. Melody Serena, while surveying the Colorado River area for Arizona Bell's Vireo, checked the Soto Ranch on 12 May 1981 for Elf Owls. This site is 8 miles north and 1.5 miles west of Needles and is where Steven Cardiff found 10 and 5 pairs of owls in 1978 and 1979 respectively. In 1981, only seven owls were heard and they probably represent five pairs. The site near Water-Wheel Resort, Riverside County, has not been rechecked since a single bird was heard there in June, 1978.

Great Gray Owl

In a continuation of Winter's work (see W-54-R-12, Job II-3) data were gathered from three radio-tagged male Great Gray Owls at Ackerson Meadows, Tuolumne County, California. The pairs represented by the radio-tagged males bred or attempted to breed in 1981. Two pairs successfully fledged a total of three young owls, but the third pair failed in the egg stage of nesting.

The analysis of home range and space-use was based on a total of 1020 coordinates gathered between 4 April 1980 and 7 September 1981. The averages of home range size, using three different methods of analysis, ranged from 591 to 638 acres (239 ha to 258 ha). The average spacing between the centers of each home range, as determined by the intersection of the means of the X and Y coordinates, was 0.82 mi (1.32 km). Two pairs of owls utilized second-growth habitats. The third pair had both old-growth and second-growth components in their home range, but showed a preference for the old-growth. The owls spent more than 90% of their time in meadow systems or within a 200 yard strip of timber bordering meadows.

A comparison of Great Gray Owl prey data taken in 1980 and 1981 showed an increase in the prey biomass of microtines and a decrease in pocket gopher prey biomass in 1981. This shift in prey emphasis is believed to be related to an increase in the population of microtines. Microtine abundance is thought to directly influence breeding success.

Two types of hunting behavior, termed "passive" and "active" hunting are described. The average hunting perch height was 10.8 feet (3.3 m) and the average prey stoop distance was 29.6 feet (9 m). The prey success of one male observed making 62 prey attempts was 13 percent. This same male failed in his nesting attempt.

The average day roost was 98.2 yards (89.8 m) from the nearest meadow edge. The mean perch height of the day roosts was 30.5 feet (9.3 m). The Great Gray Owls at Ackerson Meadows perched closer to the trunk of the roost tree in warm weather than in cool weather. Temperature is believed to influence several parameters of day roost behavior.

The findings noted above are further enumerated in the attached report:

Winter, J. 1982. Further investigations on the ecology of the Great Gray Owl in the central Sierra Nevada. U. S. Forest Service, Region 5, Stanislaus Nat. For., Sonora, Calif. Contract #43-2348, final report. 41 pp.

Spotted Owls

A July 1, 1981 updated supplemental list of the locations of Spotted Owls in California contained the legal descriptions of 625 territories in 40 counties (Figure 1, Appendix 1). This is an increase of 139 territories from the number known at the end of the 1979-80 fiscal year. Approximately 110 of these new sites are the result of efforts on the Klamath National Forest in western Siskiyou County. The other almost thirty sites were located in 14 other counties with multiple sightings coming from work on the Stanislaus, Tahoe, Mendocino and Los Padres National Forests.

Table 1. Known distribution of Spotted Owls by county as of June 30, 1980.

	<u>No. of known territories</u>	<u>No. of Northern Spotted Owl territories</u>	<u>No. of California Spotted Owl territories</u>
1. Alameda			
2. Alpine	3		3
3. Amador	4		4
4. Butte	7		7
5. Calaveras	10		10
6. Colusa	2	2	
7. Contra Costa			
8. Del Norte	26	26	
9. El Dorado	36		36
10. Fresno	15		15
11. Glenn	1	1	
12. Humboldt	59	59	
13. Imperial			
14. Inyo			
15. Kern	6		6
16. Kings			
17. Lake	5	5	
18. Lassen			
19. Los Angeles	9		9
20. Madera	10		10
1. Marin	15	15	
22. Mariposa	24		24
23. Mendocino	20	20	
24. Merced			
25. Modoc	1	1	
26. Mono	1		1
27. Monterey	5		5
28. Napa	1	1	
29. Nevada	7		7
30. Orange	1		1
31. Placer	8		8
32. Plumas	19		19
33. Riverside	4		4
34. Sacramento			
35. San Benito			
36. San Bernardino	25		25
37. San Diego	10		10
38. San Francisco			
39. San Joaquin			
40. San Luis Obispo	3		3
41. San Mateo			
42. Santa Barbara	3		3
43. Santa Clara			
44. Santa Cruz			
45. Shasta	4	3	1
46. Sierra	10		10
47. Siskiyou	128	128	

Table 1. (con't)

	<u>No. of known territories</u>	<u>No. of Northern Spotted Owl territories</u>	<u>No. of California Spotted Owl territories</u>
48. Solano			
49. Sonoma	5	5	
50. Stanislaus			
51. Sutter			
52. Tehama	17	12	5
53. Trinity	51	51	
54. Tulare	34		34
55. Tuolumne	32		32
56. Ventura	4		4
57. Yolo			
58. Yuba	2		2
Total	625	327	298

Of the 625 territories, 327 are territories of the Northern Spotted Owl (*Strix occidentalis caurina*) and 298 are territories in the range of the California Spotted Owl (*S. o. occidentalis*) (Table 1). Some new and significant extensions of our knowledge of the Spotted Owl's range were uncovered. The three most significant confirmed territories were found: 1) on the southwest side of the Warner Mountains, Modoc County; 2) just south of Burney Mountain, eastern Shasta County; and 3) just northeast of Mammoth Mountain, southwestern Mono County. The nearest known Spotted Owl territories in California to the Warner Mountains territory are sites 80 miles to the southwest in northern Plumas County and 84 miles to the west in southeastern Siskiyou County. However, Spotted Owls have been known to exist in Oregon, near Klamath Falls and also about 80-90 miles away (to the northwest), for the last 10 years. Therefore, the sighting in the Warner Mtns. has extended the range of the Spotted Owl dramatically eastward into an island of suitable habitat surrounded by Great Basin habitat not normally associated with Spotted Owls.

The new site near Burney Mtn. occurs almost exactly equally distant from sites believed to be of Northern Spotted Owls in north central Shasta County and from sites in the range of the California Spotted Owl in northeastern Tehama County. Therefore, it lies in the zone where the ranges of the two subspecies of Spotted Owls which occur in California meet. The rather sparse known distribution in this area may be indicative of a natural gap, either present now or historically, which isolated the two subspecies.

In 1976 and 1977, three sites were reported in Alpine County, in drainages of the east slope of the Sierra Nevada and were the first sites documented on the east slope since 1960-61 (Johnson and Russell 1962). These latter two sites were north of Lake Tahoe, Placer County, but appeared to have been abandoned when checked in 1974 (Gould 1977). All three Alpine County sites were rechecked in 1980-81 and one of these appears to have been abandoned. This makes the location of a territory near Mammoth Mtn. only the third viable site on the east slope of the Sierra Nevada. This site is only 5 miles north of an unconfirmed sighting made in 1971 and may indicate a spot in the Sierras where occasionally Spotted Owls are observed and may establish territories in possibly only periodically suitable habitat.

During the year there were 58 territories, located in 18 counties, which were rechecked for occupancy. Seventy-four percent were still found to be occupied while no response was received at 15 territories. This does not mean that these territories are not occupied for sure although this could be the case. Usually three checks should be made over time before considering a territory abandoned. U. S. Forest Service personnel were responsible for 53% of the territories rechecked, the Department for 22% and field ornithologists for the remaining 24%.

Due to time constraints only a minor effort was made to coordinate and monitor the establishment and use of guidelines to preserve Spotted Owls in California through the long range planning process of Region 5 and the individual forests of the U. S. Forest Service. Since plans are being made to cut all the existing "old-growth" timber in California in the next 25 years, forest plans presently being drafted will describe the local plans for maintaining viable populations of Spotted Owls throughout their range while providing for the harvest of timber.

Considerable time was devoted to assisting the California Natural Diversity Data Base section of the Department in entering location information into the computer. Such information will be quickly retrievable upon user request. Delays in the Data Base system did not allow the system to be used with data on Spotted Owls during the report period.

ANALYSIS:

Work being done on the Elf Owl is rather limited with no information generated outside of the Department which must take the lead in monitoring and preserving this species. Land acquisition for this species must be considered soon. The U. S. Forest Service has become involved with the study of the Great Gray Owl because of the effects their land management may have on this species. However, intensive surveys for this species still need to be conducted to establish the present population size and bounds for habitat management for this species.

The U. S. Forest Service is becoming more involved in the management of Spotted Owls. There are still a number of national forests in the state where a more complete basic inventory needs to be made than that conducted by Gould (1974) almost a decade ago. Most forests are drafting long-term plans for the management of the Spotted Owl. These plans, if they follow regional guidelines and are integrated with other forest plans and the distribution of Spotted Owls on surrounding lands, should adequately provide for the species. However, the distribution on private lands is not well-known, there have been some misinterpretation of the guidelines, and although the guidelines are based in part on a population model, it isn't known that the planned population of Spotted Owls will provide adequate numbers for the necessary gene pool and gene flow for the species' survival.

Because of the growing number of known Spotted Owl territories, it is becoming imperative to expend some effort to seek out the current sightings and rechecks as it is no longer a unique experience to make a sighting of a Spotted Owl. This, along with the growing need to establish an organized monitoring program, implies an increased level of effort for this job in the future.

RECOMMENDATIONS:

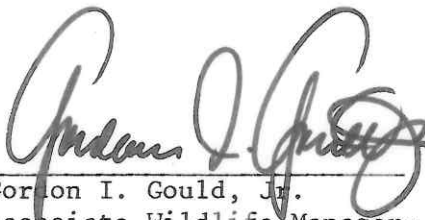
1. Continue the involvement in the U. S. Forest Service planning program which is establishing the agency's management guidelines to perpetuate Spotted Owls on their lands.
2. Establish a monitoring program and schedule for Elf, Great Gray and Spotted Owl populations.
3. Survey additional areas of suitable habitat for all three species of owls and encourage the U. S. Forest Service to complete basic inventories on all forests in California for Spotted and Great Gray Owls.
4. Continue the support for the U. S. Forest Service's studies of the habitat requirements necessary for successful breeding of Great Gray and Spotted Owls and make similar studies of those requirements for Elf Owls.
5. Take immediate action to preserve the Elf Owl population north of Needles, San Bernardino Co., either through direct land purchases or through a subsidized non-development agreement. It would be most desirable to preserve as much land as possible between the Soto ranch and the California-Nevada

state line. An additional benefit of this action would be to preserve one of the last sizeable flood plain vegetation tracts still existing along the California bank of the Colorado River. Although the area is not in pristine condition, it does support a number of species which are rapidly becoming scarce in California; and a program of enhancement and rejuvenation would almost certainly make the area attractive to additional threatened species.

LITERATURE CITED:

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Prepared by:


Gordon I. Gould, Jr.
Associate Wildlife Manager-
Biologist

Approved by:


Robert D. Mallette
Nongame Wildlife Coordinator

Approved by:


Eldridge G. Hunt, Chief
Wildlife Management Branch

Date:

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Figure 1. Distribution of Spotted Owls in California, July 1, 1981.

