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JOB PROGRESS REPORT

State: California

Project Number: W-65-R-2 Subproject Title: Nongame Wildlife Investigations

Job Number: II-3 Job Title: Owl Nest Territory Monitoring Program

Period Covered: July 1, 1984 - June 30, 1985 Job Type: Survey and Inventory

SUMMARY:

During the 1984-85 fiscal year 88 new Spotted Owl territories were reported to the Department and entered into files which now contain records of 1,394 territories in 41 counties. These new territories began to significantly fill out parts of the known range. Re-checks of 161 different territories were reported. Some territories in northcoastal California were combined with other territories according to information supplied by field workers. The annual listing of Spotted Owl territories was distributed again and reflected the changes due to combining territories.

The Department was involved in three contracts for field work on Spotted Owls. Work on the habitat characteristics and breeding success of Northern Spotted Owls was finished. Breeding status was determined at 38 of 91 territories visited. Twenty-two of these territories were occupied by pairs attempting to nest. Thirteen of the attempts fledged 21 owlets but only 12 owlets survived to disperse from their parent's territory.

Another contract study, of California Spotted Owls in the central Sierra Nevada, was completed. Of 16 pairs checked for breeding, only six attempted to breed. Only three sites produced young, 4 young in all, and 2 of these were known mortalities before dispersal. Home range size during the breeding season for two pairs was 2800 and 4000 acres. Summer roosts had high canopy cover, high basal area of conifers and few hardwoods. Fall and winter roost characteristics basically were similar. Also, owls generally foraged in various habitats in proportion to their availability.

The third contract study is investigating density, composition, turn-over, and occupation rates of Northern Spotted Owls in a 108 square mile study area in northwestern California. The first year's results won't be available until the next report period.

The Nongame Wildlife Section became much more involved with the U.S. Forest Service's land management planning effort as it affects Spotted Owls. Despite grave reservations about Forest Service guidelines, it was decided to closely monitor individual forest implementation of the guidelines and the consistency from forest to forest of the implementation. Plans to maintain Spotted Owls on two forests were reviewed and some problems were identified. Spotted Owl plans on six more forests will be checked for compliance and consistency in implementation during 1985-86.

Nineteen meadow systems in nine counties were surveyed for Great Gray Owls during the 1984 breeding season. Owls were found at seven areas, all in the Yosemite area; reproduction occurred at four of these sites. Owls were not found at two areas where they were found in 1981. Thirty-eight verified sight records have been received in the past five years, but breeding wasn't documented at any additional sites. A revised estimate of the state's population is about 60 individuals. Recently, breeding has occurred only in 1981 and 1984, during years when the microtine and pocket gopher prey was most abundant.

One known Barred Owl site was monitored and found to still be occupied while another Barred Owl was found occupying a site in old-growth Redwood which had been used previously by Spotted Owls.

The Department didn't support any monitoring of Elf Owls this fiscal year.

BACKGROUND:

The understudied nature of owls in California was best demonstrated at the 1979 National Audubon Symposium "Owls of the West" and in the Department's "Bird Species of Special Concern in California." At the symposium the only recent studies of owls in California consisted of single studies each on Barn Owls, Burrowing Owls, Flammulated Owls, and Elf Owls and a small number of studies 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 14 species of owls found in California, 6 species are on this list. Additionally, two species, the Elf Owl and the Great Gray Owl, are listed as Endangered in the state; of the eight remaining species, one is an irregular winter visitor, one a recent colonizer, the status of three is virtually unknown, and the status of another in part of the state is in doubt. Since 1979 the only research on owls in California has been on the two Endangered species and the politically and economically important Spotted Owl and its ecological rival, the Barred Owl. The survival of the first three species is closely associated with the preservation of old-growth and mature forest habitats.

Because of the concern for the future of Spotted, Great Gray, and Elf owls, monitoring of the breeding territories of these species and the Barred Owl is to be done on an annual basis after baseline studies have established the species' general range and abundance. This has been done for the Spotted Owl since 1974 and sporadically for the Elf, Great Gray, and Barred owls. In the future the status of other species, whose current status is unknown, will be monitored if necessary in this job.

OBJECTIVES:

1. Monitor selected Spotted Owl, Barred 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:

The vast majority of the reports of new and re-checked Spotted Owl territories come from U.S. Forest Service personnel. Additional sightings are made by field ornithologists and Department personnel. All sighting reports obtained 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 on an annual basis. Information on the status of Great Gray Owls is compiled by Jon Winter, a field ornithologist who has studied Great Gray Owls for the Department and U.S. Forest Service in the past. Reports for Great Gray and Elf Owls are filed and histories of each pair are kept.

All sighting reports are maintained in the Section's data base files. Data are maintained on sighting locations and productivity for the four species being monitored. The data on Spotted Owls also describe habitat, land ownership, and extensive information on land management activities at each territory. Additionally, sighting files for Spotted Owls, Great Gray Owls and Elf Owls are maintained by the Department's California Natural Diversity Data Base (CNDDB) in the Planning Branch. These files are accessed by the Department, other agencies and private companies involved in the environmental impact report and review process. This job has accounted for the preparation of Element Occurrence forms used by the CNDDB to enter sighting data into their computer system.

RESULTS:

Spotted Owl:

On July 1, 1985 we were aware of 1,394 Spotted Owl territories verified by either the Department or the U.S. Forest Service (Table 1). Of these, 745 are in the range of the Northern Spotted Owl (Strix occidentalis caurina), 536 are in the Sierra Nevada portion of the range of the California Spotted Owl (S. o. occidentalis), and 113 are in the south coastal portion of the range of the California Spotted Owl.

During the 1984-85 year reports of 88 new Spotted Owl territories were accessed into Department files. Thirty-eight of these were found during the 1983-84 year and 50 were found in previous years and not reported until this report period. These new territories were reported from 21 of the 41 counties where Spotted Owls had been found previously. Of the 88 new territories, 55 came from U.S. Forest Service sources, 22 from contract field ornithologists, 7 from other ornithologists and four from Department employees.

The 88 territories first recorded in 1984-85 do not represent a gain of 88 territories from the 1,314 territories reported by mid-1983. Continued work with forest biologists has led to some consolidation of sightings previously reported as separate pairs. This correction process provides for a better

understanding of the local distribution of Spotted Owls but results in eliminating some territories each year. The current listing (Table 2) should be consulted as the standard for this year. Ed. note: Table 2 removed; contact Department for more information.

The newly reported territories filled in the distribution within the already known range of Spotted Owls, particularly in Calaveras, Humboldt, Shasta, Trinity, Tulare and Tuolumne counties.

During the report period staff biologists surveyed for Spotted Owls on the Shasta-Trinity, Tahoe, Eldorado and Sierra National Forests, Jedidiah Smith, Humboldt Redwoods, and Bothe-Napa State Parks. The work on the Eldorado N.F. involved checking 16 low-elevation and already-known territories in conjunction with previous work which indicated that many of these territories might be unoccupied. However, Spotted Owls were located at 11 of the 16 territories in addition to the discovery of a new territory.

During the last two report periods, Stephen Laymon, a graduate student at the University of California, Berkeley, completed a contract study of Spotted Owls. The study investigated reproductive success, dispersal of young, habitat utilization, and both breeding and non-breeding season movements of adults. The results of this study are identified in the following, appended papers and will be further expanded upon when Laymon publishes his Ph.D. dissertation in 1986:

Laymon, S. A. 1984. California Spotted Owl Habitat Study - Central Sierra Nevada. Unpubl. progress report. Calif. Dept. of Fish and Game, Wildlife Mgmt. Branch. Sacramento, CA. 4 pp.

Laymon, S. A. 1985. California Spotted Owl Habitat Study - Central Sierra Nevada. Unpubl. report. Calif. Dept. of Fish and Game, Wildlife Mgmt. Branch. Sacramento, CA. 15 pp.

A second contract funded during the 1983-84 season was finished in this report period by William LaHaye, a graduate student at Humboldt State University. LaHaye's Masters dissertation will describe the habitat characteristics found at Spotted Owl nest sites. The following, appended report summarizes work on locating nest sites of Northern Spotted Owls and determining reproductive rates at those sites:

LaHaye, W. 1985. Spotted Owl Nesting Survey: Northwestern California. Unpubl. final report. Calif. Dept. of Fish and Game, Wildlife Mgmt. Branch. Sacramento, CA. 9 pp.

A third contract under the direction of Dr. Ralph Gutierrez was entered into for research on Spotted Owls. Alan Franklin and Pat Ward of Humboldt State University were contracted to gather all available information on the breeding rate of Spotted Owl populations in California, to monitor the breeding rate of a specified population of Spotted Owls in a designated study area, and to determine the density of the study area population, their site fidelity and

their rates of mortality, and territory abandonment and re-occupation. The study is based on a 108 square mile area on the Six Rivers National Forest and contains at least 30 territories of pairs or single individuals. A major effort will be made to capture and band all adults and as many young as possible in the study area and to continue the study for a minimum of five seasons. However, funding is currently on a year to year basis. The first annual report is not due until the middle of F.Y. 1985-86 and will be reported during the next report period.

As the result of our inquiries of the Region 5 Office, U.S. Forest Service, we realized that the guidelines for the preservation of a viable population of Spotted Owls, provided by the Regional Office to the individual forests, didn't encompass all of our concerns. Furthermore, many of our concerns couldn't be addressed with the current state of knowledge. Also, we realized that the Land Management Plan process for Region 5 of the Forest Service was at various stages depending on the situation at the forest level. This resulted in some forests moving forward in preserving Spotted Owls according to the Regional guidelines and in some forests being at the very beginning of the process to implement the guidelines.

After discussions with the Wildlife Staff of the Region 5 Office, we decided to work toward long-term research to solve possible faults in the guidelines. In the short-term we are concentrating on improving the degree of implementation of plans to preserve Spotted Owls at the forest level and assuring compliance with the Regional guidelines. With the assistance of the Region 5 Office, we arranged to review Spotted Owl plans on eight of the 11 northern California and Sierra Nevada national forests. Reviews were started on two during the report period; the remainder will be checked during F.Y. 1985-86.

In reviewing the Spotted Owl plans for each forest, we're attempting to answer the following questions:

1. Is a Spotted Owl matrix established?
2. Does the matrix spacing follow the guidelines?
3. Is occupancy of matrix territories verified and what does verification mean?
4. Are matrix territories occupied by known breeding pairs?
5. Do matrix territories contain 1000 ac. of suitable habitat?
6. Is the core area known and how is it known and designated?
7. Does the core area contain 300 ac of contiguous habitat?
8. Are other matrix territory habitat quantities and qualities met?

9. What timber strata meet matrix territory guidelines?
10. Does the Spotted Owl have first priority in matrix territories?
11. Are matrix territory plans being written?
12. Have exceptions to the regional guidelines been documented?
13. Are additional acreages in the management prescriptions for each matrix territory identified?

Initial review work indicates a considerable variation from forest to forest in the degree and consistency of interpretation and compliance with the regional guidelines.

Barred Owl:

In May, 1985, the Nongame Wildlife Section's staff re-checked a previously known Barred Owl location on the southwestern edge of Jedidiah Smith State Park, Del Norte County. A single bird was again found here, apparently having been a continuous resident since it was first discovered in early 1982. While surveying the same park for Spotted Owls, another Barred Owl was found in the northwestern corner of the park, in the same area previously occupied by at least one Spotted Owl. This is the first evidence in California of a Barred Owl apparently displacing a Spotted Owl and the first time a Barred Owl has been located in old-growth redwood.

Great Gray Owl:

During the 1984 breeding season Jon Winter again was contracted to survey for Great Gray Owls. The following, appended report summarizes his findings:

Winter, J. 1985. Great Gray Owl Survey, 1984. Calif. Dept. of Fish and Game, Nongame Wildl. Invest., Job Progress Report, Project, W-65-R-2 (554), Job, II-3. 15 pp + appen.

During the 1985 breeding season, a pair of Great Gray Owls nesting in the Ackerson Meadows area, Stanislaus National Forest, used a man-made nest created by topping a large diameter, live tree. Great Gray Owls had nested previously in the area and the nest site was one of 11 similar, artificially created nest sites. None of 10 other barrel and wire mesh-type artificial nests built three years ago in the same vicinity have ever been used. This year's nesting attempt resulted in the fledging of one of two young hatched.

Elf Owl:

No field work monitoring the status of Elf Owls was performed by the Department during the 1985 breeding season nor were any reports of Elf Owls received from cooperating biologists.

ANALYSIS:

It appears that the Region 5 Office, U.S. Forest Service is as anxious as we are to see that Spotted Owl management is implemented on the 11 northern, timber-harvesting forests before the actual acceptance and implementation of formal Land Management Plans. This is a major step in making a region-wide plan for preserving a viable population of Spotted Owls work. This has already resulted in greater cooperation with the Department in assessing the degree of implementation of Spotted Owl management on each forest and the consistency with which the regional guidelines are being applied. With the involvement of the Regional Office, there will be greater ability to coordinate a more complete and uniform implementation of the guidelines and remove many of the inconsistencies inherent in multiple interpretations of the same document.

Because of the possible deficiencies in the guidelines, future research on Spotted Owls should be directed to correcting these deficiencies. The major need is to assess the species' population dynamics. This implies long-term studies because Spotted Owls appear to be long-lived and inconsistent breeders. The contract study with Humboldt State University on the Six Rivers National Forest was started with this type of study in mind. However, our funding is on a year to year basis so our ability to fund this as a long-term study can't be guaranteed. Also, a similar study needs to be done in the Sierra Nevada. The recent study by Laymon indicates that there may be some fundamental differences between populations of Spotted Owls in the Sierra Nevada and those in the north coast area.

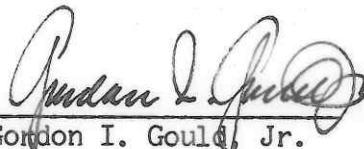
Because of the current legal and political interest in the Northern Spotted Owl in Oregon and Washington, and the similar problem of conflicts with timber harvest faced by the California Spotted Owl in the Sierra Nevada, almost all agency effort in research and management is being spent on these two populations. The southern California populations of the California Spotted Owl has the lowest known number of territories, by a considerable amount, of the three populations in the state. Also, U.S. Forest Service policy indicates that all known territories will be preserved. However, complete surveys of the species' range or evaluation of the distribution of suitable habitat in southern California hasn't been done. This means that all sites probably are not being maintained and the importance of each individual territory can't be assessed until the area-wide status is better known.

RECOMMENDATIONS:


1. Continue our involvement in the U.S. Forest Service's region-wide land management planning process involving Spotted Owls, particularly with the Land Management Plans and Spotted Owl Plans on each forest, and with the development of SOMA management plans.
2. Continue to work with the Region 5 Office, U.S. Forest Service, to evaluate the compliance of individual forests with the Regional guidelines for Spotted Owl management.

3. Conduct long-term research to determine normal breeding and mortality rates of Spotted Owls, the effects of timber harvest and habitat quality on those rates, and the factors which cause variations in the rates.
4. Write a Spotted Owl Management Plan which summarizes the known information on the species and recommend management guidelines which could be used instead of current guidelines. The document also should contain a statement of policy regarding Spotted Owls and the maintenance of old-growth forest habitat.
5. Establish a monitoring program and schedule for Elf, Great Gray, Spotted and Barred Owl populations as part of a management scheme for owls in California.
6. Survey additional areas of suitable habitat for all four species of owls and encourage the U.S. Forest Service to complete basic inventories for Spotted and Great Gray Owls on all forests in California.
7. Preserve the Elf Owl population north of Needles, San Bernardino County, through direct land purchase.
8. Increase Department involvement and expertise in the management of owls through Department conducted surveys and research.

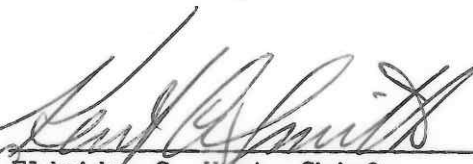
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Date:

2/19/86

Table 1. Known distribution of spotted owls in California, July 1, 1985

County	Present Number of Known Territories	Number of Northern Spotted Owl Territories	Number of California Spotted Owl Territories	
			Sierra Nevada	South Coast
Alpine	4		4	
Amador	6		6	
Butte	21		21	
Calaveras	17		17	
Colusa	3	3		
Del Norte	41	41		
El Dorado	79		79	
Fresno	26		26	
Glenn	13	13		
Humboldt	126	126		
Kern	13		10	3
Lake	18	18		
Lassen	11		11	
Los Angeles	13			13
Madera	26		26	
Marin	20	20		
Mariposa	29		29	
Mendocino	40	40		
Modoc	1	1		
Mono	1		1	
Monterey	10			10
Napa	4	4		
Nevada	12		12	
Orange	2			2
Placer	43		43	
Plumas	83		83	
Riverside	4			4
San Bernardino	28			28
San Diego	21			21
San Luis Obispo	9			9
Santa Barbara	17			17
Shasta	40	26	14	
Sierra	27		27	
Siskiyou	248	248		
Sonoma	5	5		
Tehama	55	44	11	
Trinity	156	156		
Tulare	42		42	
Tuolumne	66		66	
Ventura	6			6
Yuba	8		8	
TOTALS	1394	745	536	113