

## FIVE-YEAR STATUS REPORT

- I. COMMON NAME: Great Gray Owl  
SCIENTIFIC NAME: Strix nebulosa  
CURRENT CLASSIFICATION: Endangered
- II. RECOMMENDED ACTION:
- Retain Endangered classification
- III. SUMMARY OF REASONS FOR RECOMMENDED ACTION:

Great Gray Owls probably have always been rare in California. They appear to be restricted to the scattered meadow-mature forest zone on the west slope of the Sierra Nevada. In this area, meadows have been degraded by cattle grazing and development while the mature forest has sustained heavy logging pressure.

Immediately prior to listing, only eight probable pairs of Great Gray Owls were known from four general areas in Yosemite National Park and adjacent national forests. Since listing in 1980, the species probably has not increased in actual statewide numbers or distribution. Some recent sightings in new areas appear to be the result of increased effort to locate Great Gray Owls. On U.S. Forest Service lands habitat conditions have not improved since listing; there is still significant timber harvest pressure. On National Park Service lands habitat conditions have remained stable although there is a potential for recreational development at some sites.

IV. NATURE AND DEGREE OF THREAT:

Great Gray Owls have suffered from habitat loss. This species occupies montane forest areas, characterized by an interspersed of meadows, in the Sierra Nevada. Historically, the mixed conifer and red fir forest zones, where the majority of Great Gray Owls have been located during the breeding season, have been the most important timber production zones in the Sierra Nevada. The large-scale commercial logging history of this zone goes back well over 100 years. This has reduced substantially the quantity of mature forest, and the second growth forest now extant in some areas consists of trees too small to generally support Great Gray Owls. Large tree size is a necessity for nest sites.

Montane meadow habitats have a long history of overgrazing. Grazing allotments in forest areas historically have been based on meadow systems and often meadows are privately owned by cattle grazers.

These meadow systems have been degraded by the reduction in grass cover which has resulted in a dropping of the local water table and the "gullying" of the water courses in meadows. These changes reduce the suitability of the meadows to sustain microtine and pocket gopher populations, the main prey items of Great Gray Owls in the Sierra Nevada.

The results of the extent of this habitat reduction are evident by the fact that suitable habitat is likely to have existed throughout the length of the Sierra Nevada. Yet, now 67 percent of the known sites are within Yosemite National Park, where habitat modification has been minimal. However, in recent years the U.S. Forest Service has initiated meadow restoration work and begun to exclude cattle from meadows by fencing. However, this restoration can't always be afforded in the large meadow systems needed to support Great Gray Owls and the necessary quality of adjacent forest often is still lacking in the area of renovated meadows.

#### V. HISTORIC AND CURRENT DISTRIBUTION:

##### Historic

Prior to 1980, Great Gray Owls had been located at 42 different sites in 15 counties, with 36 sites located in the central Sierra Nevada (Winter 1980, 1985) (Table 1). Great Gray Owls also were found in Del Norte and Siskiyou counties in northwestern California, from Modoc and Shasta counties in northeastern California, and from Tulare County in the southern Sierra Nevada. There was very little evidence of this species breeding at any site except two, and a number of the historical sightings were winter records.

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 Table 1. Accepted records of Great Gray Owls in California prior to 1980.

County	Location	Date	No. Found
Alpine	Grover Hot Springs S.P.	1979	1
Calaveras	between Sheep Ranch and Murphys	1979	1
Del Norte	Enderts Beach, Crescent City	1974	1
El Dorado	0.3 mi W of Carson Pass	1968-71	1
Fresno	Black Point	1979	3
Inyo	2 mi N Mt. Alice	1974	1
Madera	1.5 mi below Buena Vista Crest	1973	2
	Pine Grove Mine	1977	1
Mariposa	1 mi N Indian Rock	1915	1
	near Ostrander Lake	1927	1

	"	1958	1
	Peregoy Meadow	1931-79	4*
	near May Lake	1934	1
	Turner Meadow	1941	1
	Badger Pass	1941	1
	"	1950	1
	"	1959	1
	Crane Flat	1949-79	4*
	Glacier Point road	1955-56	1
	Yosemite Valley	1957	2
	"	1969	1
	McGurk Meadow	1970	1
	"	1974	3
	"	1976	1
	"	1979	1
	Summit Meadow	1972	1
	Wawona	1972	1
	Gin Flat	1973	1
	Westfall Meadow	1974	1
	"	1976	2
	"	1979	1
	Pohono Trail east of Meadow Brook	1975	1
Modoc	Patterson Meadow	1972	1
	N. Deep Creek	1977	?
Mono	Agnew Pass	1950	2
	Sardine Meadow	1960	2
	"Valentine Camp", Mammoth Lakes	1975	1
Shasta	Bumpass Hell Trail	1956	1
Sierra	2.5 mi W Yuba Pass	1966	1
	Yuba Pass	1971	1
Siskiyou	1 mi SE Buckhorn LO	1977	1
Tulare	Wolverton Meadow	1965	1
Tuolumne	Tuolumne Meadow	1943	1
	Ackerson Meadow	1955	2
	"	1975	1
	"	1978	1
	"	1979	1
	Aspen Valley	1956	1
	jct. Ireland Cr. & Lyell Fork	1969	1
	Camp Mather	1973	1
	White Wolf Campground	1976-78	1
	Beehive Meadow	1976	1
	1 mi E Chinese Camp	1978	1
	Salt Lick Meadow	1978	1

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 \* Indicates breeding known.  
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Current

Since Winter's first state-wide survey in 1979, there have been sightings from 18 different sites in Mariposa and Tuolumne counties and one from Modoc County (Winter 1985) (Table 2). Eleven of these sites are new since 1979. This is not indicative of a broader distribution since these sites are in the Yosemite National Park area where there has been some effort to monitor Great Gray Owls. It is apparent that the species' distribution remains centered in the Yosemite area.

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 Table 2. Known current distribution and abundance of Great Gray Owls in California, 1980-1986.  
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County	Location	Date	No. Found
Mariposa	Crane Flat	1980	2
	"	1981	2
	"	1982	2
	"	1983	2
	"	1984	2
	"	1985	3*
	"	1986	5*
	Peregoy Meadow	1980	2
	"	1981	2
	"	1982	2
	"	1983	2
	"	1984	2
	"	1986	3*
	Westfall Meadow	1980	1
	"	1982	1
	"	1983	1
	"	1984	2
	"	1986	2
	McGurk Meadow	1980	1
	"	1981	3*
	"	1982	1-2
	"	1983	1
	"	1984	4*
	"	1986	4*
	Big Meadow	1981	1
	Mono Meadow	1981	1
"	1986	1	
Ostrander Lake Trail Head	1984	4*	
"	1986	2	
Summit Meadow	1984	4*	
"	1986	2	
Tamarack Creek	1984	1	
Modoc	Modoc National Wildlife Refuge	1981	1
Tuolumne	Ackerson/Stone Meadow complex	1980	4
	"	1981	9-10*
	"	1982	0
	"	1983	6

"	1984	4*
"	1985	4*
"	1986	1
Cottonwood Meadow	1980	1
upper Relief Valley	1981	1
Wilson Meadow	1981	4*
2 mi SE Groveland	1981	1
Twain Harte	1982	1
Kassabaum Meadow	1982	1
1 mi SW Red Rock Meadow	1982	1
Aspen Valley	1982	1
"	1983	1

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 \* Indicates breeding known.  
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## VI. HISTORIC AND CURRENT ABUNDANCE:

### Historic

There is no historic information on the abundance of Great Gray Owls in California. One can suppose that it was more numerous because of the broader distribution of historic sighting records and specimen records (Winter 1980). This would indicate the presence of a larger population than the current population at some time in the past.

### Current

Ten different pairs of breeding Great Gray Owls have been documented in California in the last seven breeding seasons. Methods used to determine the characteristics of the habitat used by these owls and the availability of similar habitat elsewhere, have led to an estimate of the statewide population at 60 individuals (Winter 1985).

## VII. SPECIES DESCRIPTION AND BIOLOGY:

The Great Gray Owl is the longest and has the largest wingspan (5 feet) of any species of owl in North America although it doesn't weigh quite as much as Great Horned or Snowy owls. In addition to a long tail and wings, Great Grays have a large head with a large circular facial disc.

Plumage is thick which provides insulation for winter living at high elevations and in northern latitudes. The gray and gray-brown feathers are streaked with light and darker grays. There is some barring on the feathers of the belly.

There is no regular seasonal migration. However, food scarcity or availability causes post-breeding season movement upslope and downslope movement in the winter. The same pair of owls probably returns to the same nesting area each year if nesting is going to be attempted. This is determined by the quantity of prey, usually microtines and pocket gophers in the Sierra Nevada, that are available early in the year. In

the period of 1980 to 1986, there was no breeding observed in three of the seven seasons.

Nests usually are placed in the broken tops of large conifer trees where the soft heart of the tree is hollowed out with harder wood forming a rim. Nests are often 35 feet or more from the ground and trees must be large to provide for a nest for a 30 inch long owl. Up to five eggs may be laid though two or three are usual. Intervals in laying the eggs of up to 12 days may occur, resulting in young hatching at different times. Incubation by the female starts with the first egg. It lasts about 30 days and nestlings remain in the nest about three weeks. The flightless young remain in the vicinity of the nest for another three to five weeks. These fledglings stay in the nesting territory for several more months until they can fend for themselves.

#### VIII. HABITAT REQUIREMENTS:

The habitat utilized by Great Gray Owls in the Sierra Nevada has been studied extensively by Winter (1981, 1982a, 1982b). In summary, the preferred habitat of Great Gray Owls during the breeding season is, on the lower margin, Sierra Nevada mixed conifer. On the upper margin, they are found in the red fir forest. Except for birds dispersing, nearly all Great Gray Owls are found in or near meadows. It is not known what ecological parameters are necessary for Great Gray Owls to accept a particular meadow as a foraging area. However, a number of meadow characteristics appear to be important including the quality of forest around the meadow. Important meadow characteristics include meadow size, height of grass, the presence of grazing, and the portion of the meadow covered by non-grass/forb vegetation. Important characteristics of the forest surrounding the meadow include forest with a high canopy closure, and a high density of snags per acre greater than 24 inches DBH. Nesting requires large diameter snags in a forest with high canopy closure to provide a cooler sub-canopy microclimate.

#### IX. CURRENT AND RECOMMENDED ACTION:

Currently the National Park Service is assessing the potential of human disturbance on Great Gray Owls in Yosemite National Park. This assessment involves studying the species' annual movement patterns, its daily activity cycle, the impact of increased human activity on the owl's prey base and its reproductive success, and if human created noises are detrimental to the owl's ability to hunt. This study will continue until 1990. While the study is developing information on National Park Service lands, the information also could serve as a guide for management procedures on National Forest lands.

As a result of the initial studies and recommendations (Winter 1980, 1981, 1982a), artificial nest sites have been constructed on the Groveland Ranger District, Stanislaus National Forest. A single artificial nest site, different each year, has been used by Great Gray Owls in this area in 1985 and 1987. This management strategy may be

used as the first step in providing augmented habitat for nesting on lands which have a history of logging.

In addition to the information being gathered in the National Park Service study and the eventual implementation of management derived from that study, the next most important action is to continue to survey potential habitat and to follow-up on unconfirmed sightings. This will provide a base on which future management can be applied and, in the interim, can provide some protection to currently occupied breeding habitat using already developed management guidelines (Winter 1982a).

X. SOURCES OF INFORMATION:

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XI. REPORT PREPARED BY:

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