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## REVISED BREEDING DISTRIBUTION OF THE BOREAL OWL IN THE NORTHERN ROCKY MOUNTAINS<sup>1</sup>

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The 1983 AOU checklist of North American birds describes the southern extent of western Boreal Owl (*Aegolius funereus*) populations as south central Canada, although it also records breeding populations in Colorado and northwestern Wyoming. Isolated sightings of the owls and the presence of juvenile owls in Colorado accounted for the inclusion of Colorado in the distribution of the species (Baldwin and Koplin 1966). Palmer and Ryder (1984) documented the location of 15 Boreal Owls prior to 1980 and contacted 31 owls during their own studies in Colorado (Palmer 1986). In addition, Palmer and Ryder (1984) documented 12 sightings of Boreal Owls in Montana, Wyoming, and Washington. Rogers (1985a, 1985b, 1986) recently reported numerous observations in northeastern Washington. Hayward and Garton (1983) confirmed the presence of a breeding population of Boreal Owls in central Idaho. Continued study of the central Idaho population in the River of No Return Wilderness establishes the resident status of the population. Between January 1984 and July 1986, we heard over 40 calling males and located 10 nest sites. These nests fledged nine young.

Between February and April 1984 to 1986, over 60 people, primarily Forest Service biologists, cooperated in a search for breeding Boreal Owls in the northern Rocky Mountains (here we refer to the Rocky Mountains south of Canada and north of 42°N) conducting foot, car, and snowmobile surveys using playback of tape recorded calls. Personnel of 13 National Forests, as well as Grand Teton National Park, Wyoming Game and Fish, and the Garnett district of the Bureau of Land Management completed over 130 surveys in forest habitats from 1,285 to 3,050 m elevation. Surveyors contacted a total of 49 calling male Boreal Owls (Table 1) including sightings on nine National Forests where Boreal Owls had not been previously located (Fig. 1). All Boreal Owls were heard in subalpine fir (*Abies lasiocarpa*) or western hemlock (*Tsuga heterophylla*) habitat types above 1,585 m. Elevations at which Boreal Owls were heard reflected the latitudinal gradient in forest types—the most northerly sightings were the lowest in elevation.

Our own intensive work and that of Bondrup-Nielson (1984) indicate that only potentially breeding males call, so we are confident these locations represent the presence of breeding populations. Most likely, northern Rocky Mountain Boreal Owl breeding populations have been well established but remained undetected because of the inaccessibility of breeding habitats during their February to May vocal period. Surveys required considerable effort and participation rapidly declined during the three years. The relative ease with which our cooperators contacted almost 50 Boreal Owls once they reached appropriate habitats, however, leads us to predict that continued searches will reveal breeding Boreal Owls in Oregon and Utah. Calling rates vary widely between years. In poor prey years, almost no males may call. Searches in bad years, therefore, may not reveal the presence of resident Boreal Owls.

Although results of our surveys confirm a widespread distribution, the true extent of Boreal Owl populations remains unknown. Are populations isolated relicts of

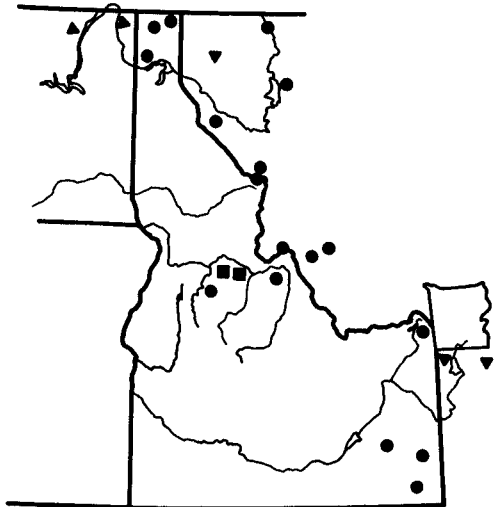


FIGURE 1. Boreal Owl observations located in Idaho and neighboring states in 1983 to 1986. Circles = Observations located during our study (see Table 1). Squares = River of No Return Wilderness population. Triangles = Observations cited in Kingery (1984) and Rogers (1984, 1985a, 1985b, 1986).

<sup>1</sup> Received 17 July 1986. Final acceptance 10 December 1986.

TABLE 1. Boreal Owl singing locations in the northern Rocky Mountains since 1983<sup>1</sup> (ID = Idaho, MT = Montana).

County, state	Year	Latitude (N)	Longitude (W)
Idaho, ID	1984	46°39'	114°21'
Bonner, ID	1984	48°22'	116°45'
Boundary, ID	1984	48°57'	116°45'
		48°40'	116°39' <sup>2</sup>
	1986	48°57'	116°03' <sup>3</sup>
		48°56'	116°03' <sup>3</sup>
		48°55'	116°03' <sup>3</sup>
		48°55'	116°05'
		48°54'	116°05'
		48°43'	116°37'
		48°42'	116°33'
		48°54'	116°48'
		48°55'	116°46'
		48°55'	116°45'
		48°56'	116°45'
		48°55'	116°42'
Bear Lake, ID	1984	42°17'	111°30'
		42°16'	111°32'
Caribou, ID	1985	42°42'	111°22'
		42°48'	112°07' <sup>3</sup>
Lemhi, ID	1984	45°39'	113°58' <sup>3</sup>
		45°05'	114°05'
Valley, ID	1986	45°42'	113°57'
		45°24'	116°04'
	1984	44°34'	115°54'
		44°37'	115°50'
Freemont, ID	1985	44°37'	115°47'
		44°25'	111°22'
Glacier, MT	1986	44°25'	111°22'
Lake, MT	1983	48°45'	114°17'
		47°34'	113°52' <sup>3</sup>
Mineral, MT	1985	47°34'	113°52'
		47°48'	113°53'
		46°52'	114°42'
Missoula, MT	1984	46°41'	114°21'
		46°41'	114°29'
Beaverhead, MT	1985	46°41'	114°29'
		46°38'	114°29'
		46°39'	114°21'
		46°41'	114°21'
		45°35'	113°05'
1986	45°34'	113°07'	
	45°08'	113°28'	
	45°45'	113°37'	
	45°45'	113°37'	

<sup>1</sup> Excludes sightings from the River of No Return Wilderness, Idaho.<sup>2</sup> Sighting of fledged juvenile.<sup>3</sup> Two owls heard simultaneously.

a more widespread multi-latitudinal Pleistocene population, as theorized by Baldwin and Koplin (1966), or do interbreeding populations form a continuous peninsula along the Rocky Mountain corridor? We must still determine the degree of interchange among demes in order to assess the potential vulnerability of local populations to extinction.

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