

A CAR SURVEY OF RAPTORS IN SOUTHEASTERN IDAHO 1974-1976

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A car survey of raptors was conducted over a 187 km route in southeastern Idaho during the non-nesting seasons from November 1974 to May 1976. The American Rough-legged Hawk (*Buteo lagopus*) was most numerous, followed in abundance by the American Kestrel (*Falco sparverius*) and the Golden Eagle (*Aquila chrysaetos*). Perched raptors were commonly on the tops of power poles. The Marsh Hawk (*Circus cyaneus*), the American Rough-legged Hawk, and the American Kestrel were most numerous in agricultural lands while the Prairie Falcon (*Falco mexicanus*) and the Golden Eagle were seen most often in the mouths of river valleys around native vegetation.

Introduction

Car surveys for raptors allow collection of information on distribution and relative density estimates over a fixed route (Gier 1970). These data can be used to investigate population changes from year to year as in Johnson and Enderson (1972) or from season to season. Information on perch preference may help land managers to choose the kinds and placement of new perches that might improve raptor habitat.

The present study was designed to produce information on relative densities of raptors during the nonbreeding season on a National Environmental Research Park (NERP) in southeastern Idaho, the Idaho National Engineering Laboratory (INEL) Site.

Study Area

The 2315 km² study area is a cool desert (Odum 1971) with an average elevation of 1524 m. Big sagebrush (*Artemisia tridentata*)-grass vegetation types are predominant (Harniss and West 1973), and Utah junipers (*Juniperus osteosperma*) occur sporadically over portions of the site. The INEL Site is bordered on the northwest by the Lost River and Lemhi mountain ranges and the Big Lost River, Little Lost River, and Birch Creek valleys (fig. 1). The characteristic vegetation of the study area is interrupted by agricultural lands in the Little Lost River valley and on the northeastern edge of the INEL Site.

Materials and Methods

The raptor survey, by automobile, began on 20 November 1974. Each survey was begun after 0800 (MST) and all surveys were completed by 1435. They were completed only on calm days during which little precipitation occurred. Surveys were conducted twice a month; but they were not evenly spaced throughout the month because of variations in weather.

The survey route circled the western portion of the INEL Site and was 187 km long. It was run at an average speed of about 45 kph, and all raptors observed were

recorded; direction was alternated on each survey. In all, 32 surveys were conducted: 14 from 20 November 1974 to 25 May 1975 and 18 from 30 August 1975 to 29 May 1976. A total of 5984 km were driven during the survey, and more than 130 hours were spent in this pursuit. The survey was discontinued from 25 May 1975 to 30 August 1975 and on 29 May 1976 as most migrant raptors had left the study area and nesting raptors were sedentary.

Although 12 species of raptors were observed, 7 were observed infrequently enough to be incidental sightings; thus records on perch preference and location are reported herein on the most frequently encountered species.

A problem arising in this type of study is that many observations are actually re-sightings; the same individuals may be seen more than once on the same survey day. Since my survey route was large (about 4 hours/survey), birds probably did not move far enough to be recounted during the same survey. Similarly, I drove faster than others (Craighead and Craighead 1956; Marion and Ryder 1975) and reduced the chance that birds were resighted. Unfortunately, this speed also decreased the probability of sighting raptors.

Marion and Ryder (1975) report that over half of all raptors were flying when they were first seen. However, with the exception of the Marsh Hawks, raptors were usually seen perched on the INEL Site. This probably reflects the fact that I paid particular attention to potential perching sites.

Results and Discussion

Most birds were seen in the first two hours of each survey with the exception of the American Rough-legged Hawks. These birds were seen anytime in the survey although usually before 1200.

Marsh Hawks were rarely seen on the survey route during the winter but began arriving on the INEL Site in March. A total of 33 (0.18/km) were seen, mostly in April, May, and August (23). They were probably migrating across the study area (table 1). Most Marsh Hawks were seen in areas surrounded by farm land, and perhaps the hay fields offered good hunting areas for them. Additionally, the even, low vegetation of the agricultural lands make low-flying birds easier to see.

American Rough-legged Hawks were the most numerous wintering raptors on the study area, and a total of 288 (1.54/km) were recorded. They were first noted on the survey route in mid-October and were absent by mid-April, although a few remained later in the year. There was a significant difference in the number observed on 14 surveys in 1974-1975 (100) and on 13 surveys in 1975-1976 (170) which began on 19 November and continued through May (Group Comparison t ; $t = 1.91$, $p .05$); however, the reasons for this difference are not apparent. The highest number observed on the INEL Site in one survey was 37 on 29 January 1976. A significant percent were perched on power poles (75.1%) (Clopper and Pearson Chart for confidence belts of proportions, $p .05$; Dixon and Massey 1957), and most (149) were on the top. Fenceposts and cross arms on power poles were almost equally selected, but few hawks were seen on the ground (probably since the height of the vegetation hindered observation) or in trees (few of the total available perches were trees). Marion and Ryder (1975) also detected a predisposition of American Rough-legged Hawks to perch on power poles. Most surveyed birds were sighted in farming lands, and fewer were seen in the sagebrush flats adjacent to the Birch Creek valley. The portion of the survey route which ran 20 km out on the Snake River Plain had fewest

birds. Since there were adequate perches on the plain, factors other than perch availability must limit distribution of wintering American Rough-legged Hawks in these areas.

Prairie Falcons were seen throughout the year on the study area and nest on and around the INEL Site. They were seen in every month of the survey except December, and a total of 32 (0.17/km) were observed. Six were sighted on 25 October 1975; but no more than three were seen on any other survey. Nearly 94% of the Prairie Falcons were on power poles, although there seemed to be no significant preference for tops or cross arms of the poles (Clopper and Pearson Chart, $p > .05$ and $p > .05$, respectively). Most Prairie Falcons were on portions of the survey route crossing the mouths of the desert valleys.

American Kestrels do not winter on the study area, but 111 were observed in the spring and fall of 1975 and 1976, most in April, May, and September. They were the second most frequently encountered species on the survey route (0.59/km). Significantly more were on the top of the power pole or on wires than on cross arms (Clopper and Pearson Chart, $p < .05$), and 14.7% were on fence posts. Most American Kestrels were seen in farming areas adjacent to the mountain ranges which border the INEL Site. Perches in these areas may have concentrated migrating American Kestrels.

Golden Eagles were seen 44 times (0.24/km) on the survey, most during the winter. Golden Eagles occur on the INEL Site throughout the year, although few remain during the summer. Most were perched on power poles (73.7%) although nearly as many were on the cross arms as on the pole tops. Golden Eagles were seen perched on the ground (15.8%) more frequently than any other raptor, perhaps because they were more visible. However, Enderson et al. (1970) found that the majority of Golden Eagles were on the ground or on fenceposts on an aerial survey in Colorado. More Golden Eagles were seen in the mouths of the river valleys than in other areas.

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Table 1. Most frequently observed raptors sighted while driving a 187-km survey route on the INEL Site, 1974-1976.

	Marsh Hawk (<i>Circus cyaneus</i>)	American Rough-legged Hawk (<i>Buteo lagopus</i>)	Prairie Falcon (<i>Falco mexicanus</i>)	American Kestrel (<i>Falco sparverius</i>)	Golden Eagle (<i>Aquila chrysaetos</i>)
1974					
11-20	0	8	2	0	4
12-6	0	6	0	0	1
12-16	0	11	0	0	0
12-23	0	5	0	0	1
1975					
1-17	0	11	1	0	8
2-2	0	8	0	0	0
2-17	0	15	2	0	5
3-2	0	11	0	0	1
3-16	2	7	1	0	0
3-31	0	10	1	0	2
4-13	10	7	1	2	1
4-29	3	0	1	27	0
5-10	2	1	0	14	0
5-25	1	0	0	5	0
8-30	5	0	1	1	1
9-15	0	0	1	26	0
9-28	3	0	3	10	0
10-12	1	2	0	8	0
10-25	0	16	6	0	1
11-19	0	15	3	0	4
11-28	2	19	1	0	0
12-14	0	10	0	0	3
12-28	0	12	0	0	2
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Table 1, Con't.

1976						
1-10	0	18	0	0	5	
1-29	1	37	1	0	1	
2-14	0	25	0	0	4	
3-4	0	17	1	0	0	
3-22	1	9	1	0	0	
4-4	0	8	1	0	0	
4-20	0	0	2	12	0	
5-5	0	0	1	5	0	
5-29	2	0	1	1	0	
TOTAL	33	288	32	111	44	

Table 2. Perch preference of selected raptors observed over a 187-km survey route on the INEL Site, 1974-1976.

Perch	American Rough-legged Hawk (<i>Buteo lagopus</i>)	Prairie Falcon (<i>Falco mexicanus</i>)	American Kestrel (<i>Falco sparverius</i>)	Golden Eagle (<i>Aquila chrysaetos</i>)
	%	%	%	%
Power Pole				
Top	58.0 [✓] (149)	51.6 (16)	45.1 (46)	39.5 (15)
Cross arm	17.1 (44)	41.9 (13)	4.9 (5)	34.2 (13)
Wire	0.0 (0)	0.0 (0)	30.4 (31)	0.0 (0)
Fencepost	16.3 (42)	3.2 (1)	14.7 (15)	5.3 (2)
Tree	2.3 (6)	3.2 (1)	1.0 (1)	5.3 (2)
Ground	6.2 (16)	0.0 (0)	3.9 (4)	15.8 (6)
TOTAL	99.9 (257)	99.9 (31)	100.0 (102)	100.1 (38)

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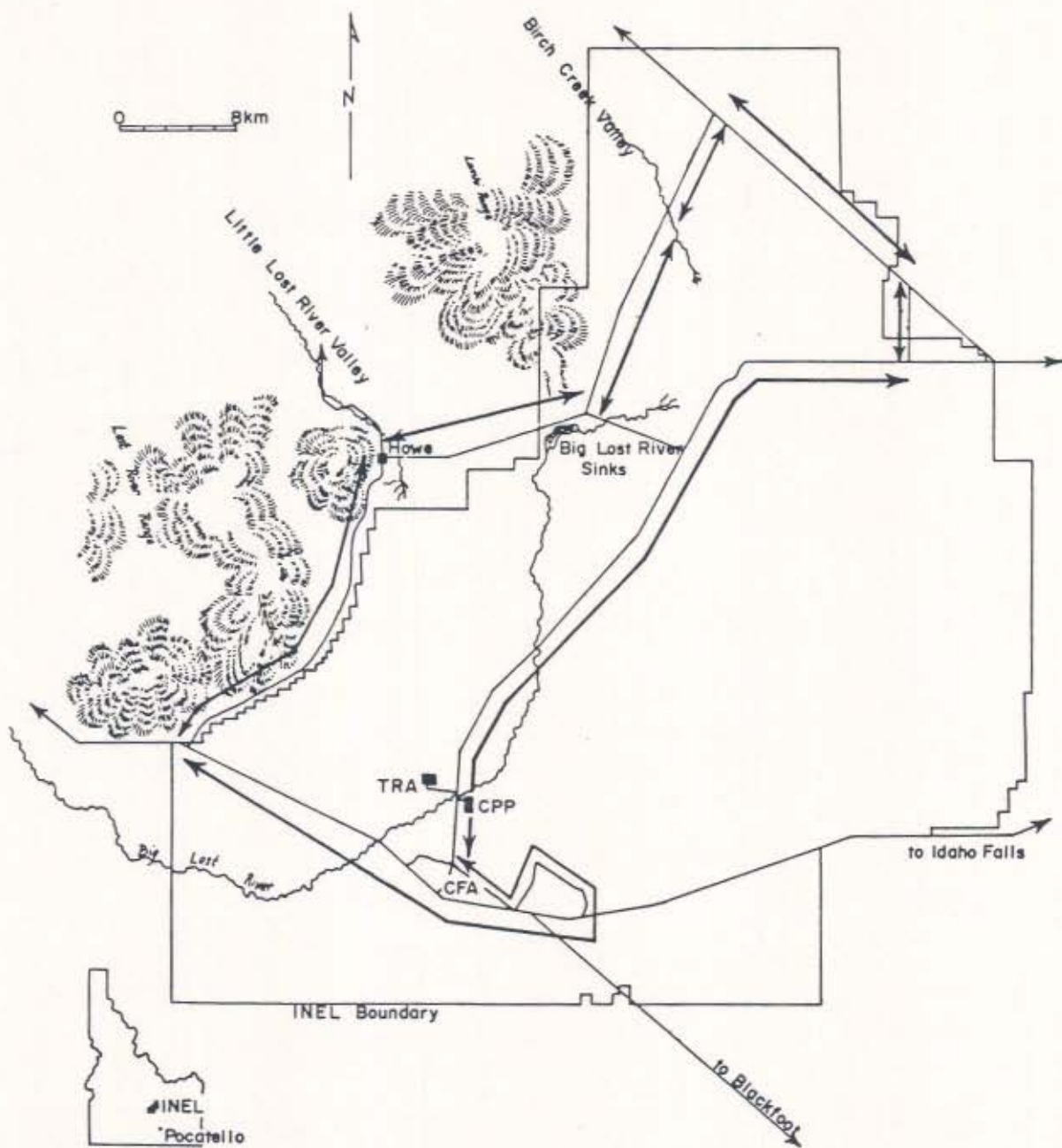


Figure 1. Map of the INEL Site showing the car survey route used in 1974-1976.