

JOB PROGRESS REPORT

State: California

Project Number: W-54-R-7 Project Title: Nongame Wildlife Investigations

Job Number: III-1.0 Job Title: California Raptor Survey

Period Covered: July 1, 1974 to June 30, 1975 Job Type: Survey and Inventory

SUMMARY:

Forty-two routes were surveyed in 1975 resulting in a reported 3,873 raptor sightings of 16 species. In 1974 routes were not run, but for a comparable survey period 4,896 raptors were reported in 1971, with 4,398 in 1972 and 3,962 in 1973. These totals represent averages of 119.9 birds per 100 miles traveled in 1975, and 104.8, 97.1, and 110.3 birds per 100 miles of travel in 1971, 1972, and 1973 respectively.

BACKGROUND:

Raptor Survey, initiated December 1970, involves reporting all raptor species and numbers observed along permanently established survey routes throughout the state. Fifty-five routes were run in December, January, March and May of 1971 and 1972. In 1973 nine routes were deleted because they were duplications of areas already being adequately covered. Surveys were not run during fiscal year 1973-74 pending an evaluation of past survey results.

OBJECTIVES:

Determine relative abundance and population trends of California raptors. It is not intended to yield absolute population data but rather to provide a comparative index of population trends in diurnal birds of prey.

PROCEDURES:

Department personnel were requested to run 42 raptor survey routes during January and May. Routes are in areas of high raptor concentrations and are generally from 30 to 50 miles in length. Appended are the directions for running routes and recording sightings on Form FG 887.

FINDINGS:

Forty-two routes were selected for the 1975 raptor survey. Table 1 and Figure 1 show routes and locations. In January 41 routes were counted while in May, due to conflicting commitments, 33 were run.

In 1975 a total of 3,229.1 miles were covered during the two-month survey period, and 3,873 raptors were reported, 119.9 birds per 100 miles of travel. Table 2 summarizes statewide raptor data for comparable two-month periods for each of the four years in which counts were made. Number of birds per 100 miles of travel was highest in 1975 while number of miles traveled was the lowest for the four survey years.

Tables 3 and 4 summarize raptor sightings and birds per 100 miles of travel by species for the Department's five regions. The most frequently reported raptors

were red-tailed hawk (27.7%), turkey vulture (26.4%), American kestrel (22.7%), marsh hawk (5.2%), and white-tailed kite (4.1%). Six percent of raptors sighted could not be identified and the 11 remaining species constituted 7.9% of the total.

Tables 5 and 6 summarize raptor sightings and birds per 100 miles of travel by geographical area. As in the past, the Sacramento Valley-Delta area was the principal raptor wintering ground. This was followed by the San Joaquin and Antelope Valleys area even though from 1970-1973 the North Coast area ranked second. During the breeding season, the North Coast had the highest population, but figures for Sacramento Valley-Delta and Cascade Mountain areas were nearly as high. In previous years the South Coast area ranked third while Cascade Mountains ranked fifth.

ANALYSIS:

Some factors affecting the 1975 raptor survey findings with data from earlier surveys were the deletion of 9 routes in 1973 and deletion of 4 routes in 1975. Those routes retained were known to have higher raptor concentrations. Another important bias is the failure to survey 9 of the 42 routes in May of 1975. Since the raptor survey is intended to provide an index that can be compared from year to year, it is very important that the area sampled be consistent.

RECOMMENDATIONS:

It is recommended that the California Department of Fish and Game:

1. Conduct a statewide raptor survey annually. Beginning in 1976, run 15 routes each year (Table 1) and every third year run counts on the full compliment of 42 routes.
2. Continue to run surveys as outlined in the attached survey procedures.

Prepared by:

Dusty Kirk
Dusty Kirk
Seasonal Aid

Approved by:

Howard R. Leach
Howard R. Leach
Wildlife Management Supervisor

Approved by:

Eldridge G. Hunt
Eldridge G. Hunt, Chief
Wildlife Management Branch

Date:

8-26-75

Figure 1.

Location of Raptor Survey Routes and
Geographical Areas

1975

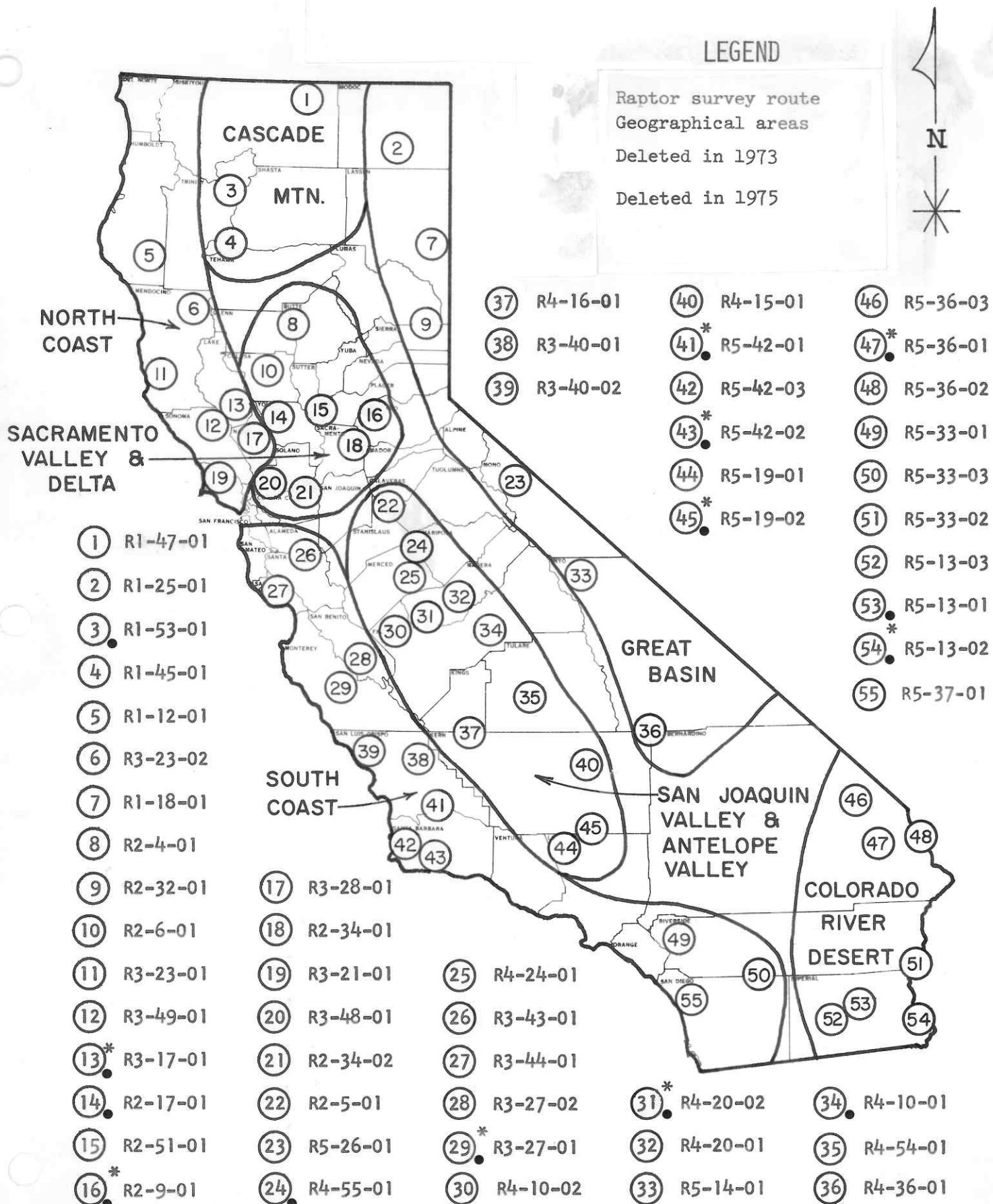


TABLE 1
Raptor Survey Routes - 1975

Route Name	County	Route No.
Region 1		
Garberville-Bridgeville	Humboldt	R1-12-01*
Litchfield-Nevada Line	Lassen	R1-18-01
Warm Springs Valley	Modoc	R1-25-01
Redding-Platina	Shasta	R1-45-01
Lower Klamath-Butte Valley	Siskiyou	R1-47-01*
Total -- 5 routes		
Region 2		
Sacramento River	Butte, Glenn & Tehama	R2-4-01*
Calaveras-Stanislous	Calaveras & Stanislaus	R2-5-01
Colusa	Colusa	R2-6-01
Sierra Valley	Plumas & Sierra	R2-32-01*
White Rock	Sacramento	R2-34-01*
Bradford-Jersey Island	Sacramento	R2-34-02
Sutter-Natomas	Sutter	R2-51-01
North Yolo	Yolo	R2-57-01
Total -- 8 routes		
Region 3		
Bodega Bay-Stafford Lake	Marin & Sonoma	R3-21-01
Coast Highway #1	Mendocino	R3-23-01
Longvale-Covelo	Mendocino	R3-23-02
King City-Santa Ana Valley	Monterey	R3-27-02
Napa-Lake Berryessa	Napa	R3-28-01
San Juan Valley	San Luis Obispo	R3-40-01*
Paso Robles-Laguna Lake	San Luis Obispo	R3-40-02*
Mt. Hamilton-Livermore	Santa Clara & Alameda	R3-43-01
Santa Cruz-Pescadero Marsh	Santa Cruz	R3-44-01
Grizzly Island	Solano	R3-48-01*
Laguna de Santa Rosa-Sulphur Creek	Sonoma	R3-49-01*
Total -- 11 routes		

TABLE 1
Raptor Survey Routes - 1975 (Cont.)

Route Name	County	Route No.
Region 4		
Los Banos Wildlife Unit	Fresno	R4-10-02*
Tehachapi Wildlife Unit	Kern	R4-15-01
Avernal Wildlife Unit	Kings-Kern	R4-16-01
Madera Wildlife Unit #1	Madera	R4-20-01
Turlock Wildlife Unit	Merced	R4-24-01
Ridgecrest Wildlife Unit	San Bernardino-Inyo	R4-36-01
Sequoia Wildlife Unit	Tulare	R4-54-01
Total -- 7 routes		
Region 5		
Imperial Wildlife Area	Imperial	R5-13-03*
Pleasant Valley-Big Pine	Inyo	R5-14-01*
Palmdale-Gorman	Los Angeles	R5-19-01*
North Mono	Mono	R5-26-01
Lake Mathews	Riverside	R5-33-01
Palo Verde Valley	Riverside	R5-33-02*
San Jacinto Unit	Riverside	R5-33-03
Topock Gorge	San Bernardino	R5-36-02
New York-Providence Mt.	San Bernardino	R5-36-03
Camp Pendleton	San Diego	R5-37-01*
Orcutt-Vandenberg	Santa Barbara	R5-42-03
Total -- 11 routes		
State Total -- 42 routes		

* 15 Sample routes.

Table 2

Raptor Survey, Statewide Summary of Birds
per 100 Miles, 1971-1975

<u>Year</u>	<u>Month</u>	<u>Miles Traveled</u>	<u>Raptors Reported</u>	<u>Raptors per 100 Miles</u>
1971	Jan.	2,335.2	2,793	106.2
	May	<u>2,337.7</u>	<u>2,103</u>	<u>90.0</u>
Total		4,672.9	4,896	104.8
1972	Jan.	2,331.0	2,687	115.2
	May	<u>2,197.0</u>	<u>1,711</u>	<u>78.5</u>
Total		4,528.0	4,398	97.1
1973	Jan.	1,658.7	2,394	144.3
	May	<u>1,662.0</u>	<u>1,568</u>	<u>94.3</u>
Total		3,320.7	3,962	110.3
1975	Jan.	1,777.6	2,470	139.0
	May	<u>1,451.5</u>	<u>1,403</u>	<u>96.6</u>
Total		3,229.1	3,873	119.9

TABLE 3

RAPTOR SURVEY, SIGHTINGS SUMMARIZED BY REGION
1975

REGION	NO. OF ROUTES	MONTH	MILES	TURKEY VULTURE	CALIF. CONDOR	GOLDEN EAGLE	BALD EAGLE	OSPREY	RED- TAILED HAWK	RED- SHOULDERED HAWK	SWAINSON'S HAWK	ROUGH- LEGGED HAWK	FERRUGINOUS HAWK	MARSH HAWK	GOSHAWK	COOPER'S HAWK	SHARP- SHINNED HAWK	WHITE- TAILED KITE	PEREGRINE FALCON	PRAIRIE FALCON	MERLIN	AMERICAN KESTRAL	UNIDENT.	TOTAL
1	5	Jan.	205.8	4	--	11	16	--	47	--	--	14	--	4	--	--	--	--	1	1	--	22	34	154
	4	May	170.0	52	--	5	1	--	53	--	--	1	--	1	--	--	--	--	--	1	--	11	16	141
Total			375.8	56	--	16	17	--	100	--	--	15	--	5	--	--	--	--	1	2	--	33	50	295
2	7	Jan.	281.3	46	--	5	1	--	144	--	--	26	--	40	--	3	--	54	--	1	--	156	55	532
	8	May	332.4	130	--	1	--	--	67	1	--	--	--	19	--	3	1	10	--	--	--	46	20	298
Total			613.7	176	--	6	1	--	211	1	--	26	--	59	--	6	1	64	--	1	--	202	75	830
3	11	Jan.	522.6	161	--	15	2	--	302	4	--	20	2	46	--	7	3	20	--	3	--	233	34	863
	11	May	522.6	533	--	12	--	5	152	4	--	1	--	9	--	2	1	14	--	--	--	84	20	825
Total			1045.2	694	--	27	2	5	454	8	--	21	2	55	--	9	4	34	--	3	--	317	54	1,688
4	7	Jan.	327.5	8	--	9	--	--	141	2	2	19	2	55	--	3	3	39	1	7	--	147	27	464
	1	May	50.0	12	--	1	--	--	13	2	--	--	--	--	--	--	1	--	--	--	--	6	--	35
Total			377.5	20	--	10	--	--	154	4	2	19	2	55	--	3	4	39	1	7	--	153	27	499
5	11	Jan.	440.4	53	--	10	2	--	113	1	1	38	--	29	--	7	3	22	--	8	--	146	23	457
	9	May	376.5	23	--	3	--	--	42	--	--	--	--	--	--	3	--	1	--	--	--	27	5	104
Total			816.9	76	--	13	2	--	155	1	1	38	--	29	--	10	3	23	--	8	--	173	28	561
ALL REGIONS	41	Jan.	1777.6	272	--	50	21	5	747	8	3	117	4	174	--	20	10	135	2	20	--	704	173	2,470
	33	May	1451.5	750	--	22	1	--	327	6	--	2	--	29	--	8	2	25	--	1	--	174	61	1,403
GRAND TOTAL	42		3229.1	1,022	--	72	22	5	1,074	14	3	119	4	203	--	28	12	160	2	21	--	878	234	3,873
PERCENT OF TOTAL				26.4		1.8	.6	.1	27.7	.4	*	3.1	.1	5.2	*	.7	.3	4.1		.5	*	22.7	6.0	

* - Less Than .1 Percent of Total

TABLE 4

RAPTOR SURVEY, BIRDS PER 100 MILES, SUMMARIZED BY REGION
1975

REGION	NO. OF ROUTES	MONTH	MILES	TURKEY VULTURE	CALIF. CONDOR	GOLDEN EAGLE	BALD EAGLE	OSPREY	RED- TAILED HAWK	RED- SHOULDERED HAWK	SWAINSON'S HAWK	ROUGH- LEGGED HAWK	FERRUGINOUS HAWK	MARSH HAWK	GOSHAWK	COOPER'S HAWK	SHARP- SHINNED HAWK	WHITE- TAILED KITE	PEREGRINE FALCON	PRAIRIE FALCON	MERLIN	AMERICAN KESTRAL	UNIDENT.	TOTAL
1	5	Jan.	205.8	1.9	--	5.3	7.8	--	22.8	--	--	6.8	--	1.9	--	--	--	--	.5	.5	--	10.7	16.5	74.8
	4	May	170.0	30.5	--	2.9	.6	--	31.2	--	--	.6	--	.6	--	--	--	--	--	.6	--	6.5	9.4	82.9
Total			375.8	14.9	--	4.2	4.5	--	26.6	--	--	4.0	--	1.3	--	--	--	--	.3	.5	--	8.8	13.3	78.5
2	7	Jan.	281.3	16.3	--	1.8	.4	--	51.2	--	--	9.2	--	14.2	--	1.0	--	19.2	--	.4	--	55.4	19.6	189.1
	8	May	332.4	39.1	--	.3	--	--	20.2	.3	--	--	--	5.7	--	.9	.3	3.0	--	--	--	13.8	6.0	89.6
Total			613.7	28.6	--	1.0	.1	--	34.4	.1	--	4.2	--	9.6	--	1.0	.1	10.4	--	.1	--	32.9	12.2	135.2
3	11	Jan.	522.6	30.8	--	2.9	.4	--	57.8	.8	--	3.8	.4	8.8	--	1.3	.6	3.8	--	.6	--	44.6	6.5	165.1
	11	May	522.6	101.9	--	2.3	--	.9	29.0	.8	--	.2	--	1.7	--	.4	.2	2.7	--	--	--	16.0	3.8	157.9
Total			1045.2	66.4	--	2.6	1.9	.5	43.4	.8	--	2.0	.2	5.3	--	.9	.4	3.2	--	.3	--	30.3	5.2	161.5
4	7	Jan.	327.5	2.4	--	2.7	--	--	43.0	.6	.6	5.8	.6	16.8	--	.9	.9	11.9	.3	2.1	--	44.9	8.2	141.6
	1	May	50.0	24.0	--	2.0	--	--	26.0	4.0	--	--	--	--	--	--	2.0	--	--	--	--	12.0	--	70.0
Total			377.5	5.3	--	2.6	--	--	40.7	1.0	.5	5.3	.5	14.6	--	.8	1.0	10.3	.3	1.8	--	40.5	7.2	132.2
5	11	Jan.	440.4	12.0	--	2.3	.4	--	25.6	.2	.2	8.6	--	6.6	--	1.6	.7	5.0	--	1.8	--	33.2	5.2	105.4
	9	May	376.5	6.1	--	.8	--	--	11.2	--	--	--	--	--	--	.8	--	.3	--	--	--	7.2	1.3	27.6
Total			816.9	9.3	--	1.6	.2	--	19.0	.1	.1	4.6	--	3.6	--	1.2	.4	2.8	--	1.0	--	21.2	3.4	68.7
ALL REGIONS	41	Jan.	1777.6	15.4	--	2.8	1.2	.3	42.0	.4	.2	6.6	.2	9.8	--	1.1	.6	7.6	.1	1.1	--	39.6	9.7	139.0
	33	May	1451.5	51.7	--	1.5	.1	--	22.5	.4	--	.1	--	1.9	--	.6	.1	1.7	--	.1	--	11.9	4.2	96.6
GRAND TOTAL			3229.1	31.6	--	2.2	.7	.2	33.3	.4	.1	3.7	.1	6.3	--	.9	.4	4.9	.1	.6	--	27.2	7.2	119.9

TABLE 5
RAPTOR SURVEY, SIGHTINGS SUMMARIZED BY GEOGRAPHICAL AREA
1975

AREA	NO. OF ROUTES	MONTH	MILES	TURKEY VULTURE	CALIF. CONDOR	GOLDEN EAGLE	BALD EAGLE	OSPREY	RED- TAILED HAWK	RED- SHOULDERED HAWK	SWAIN- SON'S HAWK	ROUGH- LEGGED HAWK	FERRUGINOUS HAWK	MARSH HAWK	GOSHAWK	COOPER'S HAWK	SHARP- SHINNED HAWK	WHITE- TAILED KITE	PEREGRINE FALCON	PRAIRIE FALCON	MERLIN	AMERICAN KESTRAL	UN- IDENT.	TOTAL
North Coast	6	Jan.	596.2	139	--	6	2	--	129	3	--	2	--	8	--	3	--	4	--	2	1	140	20	459
	6	May	596.2	467	--	8	--	5	96	4	--	1	--	--	--	--	--	15	--	--	--	44	20	657
Total			1192.4	606	--	14	2	5	225	7	--	3	--	8	--	3	--	19	--	2	1	184	40	1116
Cascade	2	Jan.	86.3	4	--	11	14	--	30	--	--	5	--	3	--	--	--	--	1	--	--	11	12	91
	1	May	50.5	--	--	1	1	--	35	--	--	1	--	1	--	--	--	--	--	1	--	3	8	51
Total			136.8	4	--	12	15	--	65	--	--	6	--	4	--	--	--	--	1	1	--	14	20	142
South Coast	9	Jan.	418.1	25	--	15	2	--	251	2	1	16	2	21	--	10	1	22	--	4	--	183	16	573
	8	May	404.2	123	--	7	--	--	102	--	--	--	--	2	--	5	3	1	--	--	--	46	9	296
Total			822.3	148	--	22	2	--	353	2	1	16	2	23	--	15	4	23	--	4	--	229	25	869
Sac. Valley & Delta	6	Jan.	198.5	46	--	4	--	--	129	--	--	16	--	61	--	3	--	70	--	1	--	144	57	532
	7	May	249.6	117	--	1	--	--	53	--	--	--	--	25	--	1	1	10	--	--	--	34	9	252
Total			448.1	163	--	5	--	--	182	--	--	16	--	86	--	4	1	80	--	1	--	178	66	784
San Joaquin & Antelope Valleys	8	Jan.	382.8	46	--	9	1	--	165	2	2	26	2	63	--	3	4	39	1	5	--	168	31	566
	2	May	90.3	19	--	1	--	--	--	2	--	--	--	1	--	2	1	--	--	--	--	13	9	77
Total			473.1	65	--	10	1	--	165	4	2	26	2	64	--	5	5	39	1	5	--	181	40	643
Great Basin	6	Jan.	235.0	--	--	3	2	--	32	--	--	51	--	4	--	1	1	--	--	5	--	7	28	134
	5	May	200.0	13	--	2	0	--	12	--	--	--	--	--	--	--	--	--	--	--	--	22	6	55
Total			435.0	13	--	5	2	--	44	--	--	51	--	4	--	1	1	--	--	5	--	29	34	189
Colo. River & Desert	4	Jan.	158.8	12	--	2	--	--	11	--	--	1	1	14	--	--	1	--	--	3	--	61	9	115
	4	May	158.8	11	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	15
Total			317.6	23	--	4	--	--	11	--	--	1	1	14	--	--	1	--	--	3	--	63	9	130

TABLE 6

RAPTOR SURVEY, BIRDS PER 100 MILES, SUMMARIZED BY GEOGRAPHICAL AREA
1975

AREA	NO. OF ROUTES	MONTH	MILES	TURKEY VULTURE	CALIF. CONDOR	GOLDEN EAGLE	BALD EAGLE	OSPREY	RED- TAILED HAWK	RED- SHOULDERED HAWK	SWAIN- SON'S HAWK	ROUGH- LEGGED HAWK	FERRUGINOUS HAWK	MARSH HAWK	GOSHAWK	COOPER'S HAWK	SHARP- SHINNED HAWK	WHITE- TAILED KITE	PEREGRINE FALCON	PRAIRIE FALCON	MERLIN	AMERICAN KESTRAL	UN- IDENT.	TOTAL
North Coast	6	Jan.	596.2	23.3	--	1.0	.3	--	21.6	.5	--	.3	--	1.3	--	.5	--	.7	--	.3	.2	23.5	3.4	77.0
	6	May	596.2	78.3	--	1.3	--	.8	16.1	.7	--	.2	--	--	--	--	--	2.5	--	--	--	7.4	3.4	110.2
Total			1192.4	50.8	--	1.2	.2	.8	18.9	.6	--	.2	--	.7	--	.2	--	1.6	--	.2	.1	15.4	3.3	93.6
Cascade Mountains	2	Jan.	86.3	4.6	--	12.7	16.2	--	34.7	--	--	5.8	--	3.5	--	--	--	--	1.2	--	--	12.7	13.9	105.4
	1	May	50.5	--	--	2.0	2.0	--	69.3	--	--	2.0	--	2.0	--	--	--	--	--	2.0	--	6.0	15.8	100.0
Total			136.8	2.1	--	8.8	10.9	--	47.5	--	--	4.3	--	2.1	--	--	--	--	.7	.7	--	10.2	14.6	105.8
South Coast	9	Jan.	418.1	6.0	--	3.6	.4	--	60.0	.5	.2	3.8	.5	5.0	--	2.4	.2	5.2	--	.8	--	43.8	3.8	137.0
	8	May	404.2	30.4	--	1.7	--	--	25.2	--	--	--	--	.5	--	1.2	.7	.2	--	--	--	11.3	2.2	73.2
Total			822.3	17.9	--	2.7	.2	--	42.9	.2	.1	1.9	.2	2.7	--	1.8	.4	2.8	--	.5	--	27.8	3.0	105.7
Sac. Valley & Delta	6	Jan.	198.5	23.2	--	2.0	--	--	65.0	--	--	8.0	--	30.7	--	1.5	--	35.3	--	.5	--	72.5	28.7	268.0
	7	May	249.6	46.9	--	.4	--	--	21.2	--	--	--	--	10.0	--	.4	.4	4.0	--	--	--	13.6	3.6	101.0
Total			448.1	36.4	--	1.1	--	--	40.6	--	--	3.6	--	19.2	--	.9	.2	17.8	--	.2	--	39.7	14.7	175.0
San Joaquin & Antelope Valleys	8	Jan.	382.8	12.0	--	2.4	.3	--	43.1	.5	.5	6.8	.5	16.4	--	.8	1.0	10.2	.3	1.3	--	43.8	8.0	147.8
	2	May	90.3	21.0	--	1.1	--	--	--	2.2	--	--	--	1.1	--	2.2	1.1	--	--	--	--	14.4	10.0	85.3
Total			473.1	14.0	--	2.1	.2	--	34.9	.8	.4	5.5	.4	13.5	--	1.0	1.0	8.24	.2	1.0	--	38.2	8.4	135.9
Great Basin	6	Jan.	235.0	--	--	1.3	.8	--	13.6	--	--	21.7	--	1.7	--	.4	.4	--	--	2.1	--	2.9	11.9	57.0
	5	May	200.0	6.5	--	1.0	--	--	6.0	--	--	--	--	--	--	--	--	--	--	--	--	11.0	3.0	27.5
Total			435.0	3.0	--	1.1	.5	--	10.1	--	--	11.7	--	.9	--	.2	.2	--	--	1.1	--	6.7	7.8	43.4
Colo. River & Desert	4	Jan.	158.8	7.5	--	1.2	--	--	6.9	--	--	.6	.6	8.8	--	--	.6	--	--	1.9	--	38.4	5.7	72.4
	4	May	158.8	6.9	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.2	--	9.4
Total			317.6	7.2	--	1.2	--	--	3.5	--	--	.3	.3	4.4	--	--	.3	--	--	.9	--	19.8	2.8	40.9