Schlorff, R. 1982

JOB PROGRESS REPORT

82.23

State: California

Project Number: W-54-R-14 Project Title: Nongame Wildlife Investigations

Job Number: 11-2.0 Job Title: Diurnal Raptor Eyrie Monitoring Program

Period Covered: July 1, 1980 - June 30, 1982 Job Type: Survey and Inventory

SUMMARY:

During the period, information on the breeding activities of Swainson's Hawks (Buteo swainsoni), Goshawks (Accipiter gentilis), and Ospreys (Pandion haliaetus) was gathered and added to diurnal raptor eyrie files. Surveys also were conducted on California Condors (Gymnogyps californianus), Bald Eagles (Haliaeetus leucocephalus), and American Peregrine Falcons (Falco peregrinus anatum); further details on these results appear in reports concerning endangered species. A total of 90 Swainson's Hawk territories were visited, 51 were active. Insufficient data were gathered to yield meaningful information on Swainson's Hawk productivity. Three fresh Swainson's Hawks eggs were taken from nests in Yolo County in order to conduct pesticide contamination studies. No significant levels of organochlorides or PCB's were found and eggshells were of normal thickness.

Information on the locations of over 200 Goshawks has been received, primarily from various National Forests within the species' range in California. More information on the Goshawk is contained in the report dealing with the Montane Forest Accipiter Study.

A significant sample of Osprey territories was monitored in northern California for the first time since 1975. Most information was received from the U.S. Forest Service involving territories located on several National Forests in northern California. Additional data were gathered by Regional personnel and Nongame Wildlife Program staff. Greater detail on this investigation is contained in the report concerning Osprey Status Review.

As was the case during last report period, much of the eyrie location information has been entered into the Department's Natural Diversity Data Base, a computer listing of locality information on a number of species of plants and animals throughout the State.

BACKGROUND:

Department of Fish and Game personnel have reported on the location of raptor eyries since the 1950's. Much of the information was gathered in an informal manner; however, recent records obtained in the past dozen years have been filed systematically. There has been an effort to maintain a central file containing information on raptor nest locations, breeding success, and other facts concerning the nesting activities of several species. New information is added on a continuing basis. Currently, Department eyrie files contain information on the following raptors: Turkey Vulture (Cathartus aura), California Condor, White-tailed Kite (Elanus leucurus), Goshawk,

Cooper's Hawk (A. cooperii), Sharp-shinned Hawk (A. striatus), Swainson's Hawk, Golden Eagle (Aquila chrysaetos), Bald Eagle, Osprey, Prairie Falcon (F. mexicanus), Peregrine Falcon, and American Kestrel (F. sparverius).

The raptor eyrie files contain information on over 1,500 nest sites and territories that have been active both historically and recently. The files are most complete and contain the greatest number of records on Prairie Falcons (500+), Ospreys (300+), Golden Eagles (250+), Goshawks (200+) and Swainson's Hawks (150+).

OBJECTIVE:

The primary objective is to establish base line data for use in evaluating raptor population trends. Information on the size of breeding populations and their breeding success on an annual basis is contained in the raptor eyrie files and used to monitor populations of selected raptor species and to determine research and management needs. Location information for endangered species and those popular in falconry is kept confidential to reduce human disturbance and harassment. However, this information is available to cooperating agencies and qualified personnel for use in planning activities and the design of research studies. These same agencies and personnel often are the source of new raptor eyrie information. The raptor eyrie file often functions as a starting point when a study to determine the status of a particular species is undertaken. Information gained as a result of such studies is added to the system and facilitates periodic monitoring thereafter.

PROCEDURES:

Information on territory or nest site location, date of nest check, status of occupancy, number of eggs or young, and other notes are completed on field forms. Nest and territory records are completed by Department and cooperating field personnel and forwarded to the raptor eyrie repository. Land use changes that might adversely affect nests and nesting territories are noted. These data are also entered into the computer file of the Natural Diversity Data Base.

FINDINGS:

Swainson's Hawk

During 1982, Swainson's Hawks were surveyed in the Central Valley and Klamath Basin regions of the State. Nongame Wildlife Program staff conducted surveys in the Valley and Pete Bloom of Santa Cruz Predatory Bird Research Group conducted surveys on the Klamath Basin population. Number of known territories in the Valley has increased 2.5 times since 1979 (Table 1 & 2). Also, about twice as many territories were monitored during 1982 compared to 1981. However, due to timing of surveys, and other work commitments, it was not possible to gather an adequate sample of productivity data for the Central Valley. Bloom reported that only about 6 of the 36 territories he checked in the Klamath Basin were active and productive.

In addition to ground surveys for Swainson's Hawks, Nongame Wildlife staff also surveyed a 100 mile stretch of the Sacramento River from Red Bluff in Tehama County to Colusa, Colusa County. No territories were located during the survey, although there appeared to be adequate nesting habitat in several of the areas covered. This contrasts with a 1981 survey of the Sacramento River from Colusa to Isleton, Sacramento County, during which 16 territories were located along about 86 miles of stream.

TABLE 1

Swainson's Hawk Territories, Sacramento Valley
Survey 1979-82

County	Year	No. of Known Territories	No. of Territories Checked	Number of Active Territories
Butte	1979	1	1	1
	1980	2	1	1
	1981	2	0	0
	1982	4	2	2
Colusa	1979	3	3	3
	1980	4	4	2
	1981	9	6	6
	1982	11	11	3
Glenn	1979	2	2	2
	1980	2	0	0
	1981	2	1	1
	1982	2	0	0
Inyo	1979	0	0	0
	1980	0	0	0
	1981	1	1	1
	1982	2	1	1
San Joaquin	1979	9	9	9
	1980	10	5	1
	1981	16	8	8
	1982	19	17	5-6
Sacramento	1979	11	11	11
	1980	12	12	4
	1981	22	14	12
	1982	27	20	13
Solano	1979	0	0	0
	1980	0	0	0
	1981	0	0	0
	1982	2	2	2
Stanislaus	1979	4	4	4
	1980	4	0	0
	1981	4	0	0
	1982	4	1	0
Sutter	1979	7	7	7
	1980	9	3	1
	1981	10	3	3
	1982	14	11	7

TABLE 1 (continued)

Swainson's Hawk Territories, Sacramento Valley Survey 1979-82

County	Year	No. of Known Territories	No. of Territories Checked	Number of Active Territories
Yolo	1979	16	16	16
	1980	18	17	8
	1981	29	19	15
	1982	38	25	15-19
Total	1979	53	53	53
	1980	61	42	17
	1981	95	52	46
	1982	123	90	51

TABLE 2

1982 Swainson's Hawk Survey Results: Sacramento Valley

Active = A
Not Active = NA

County	Terr. #	A/NA	New	#Visits	Productivity & Color Phases of Adults			
					#Adults	Color Phase	Nest	Yng.
Butte	03	A	New	1	2 AD	1 lt, 1 dk	nest	
	04	A	New	1	1 AD	1 lt		
Colusa	01	A		1	1 AD		nest	
	02	A		2	1 AD?		nest	
	03	NA		3				
	04	NA		1				
	05	NA		1				
	06	NA		1				
	07	NA		1				
	08	NA		1				
	09	NA		1				
	10	NA		3				
	11			1	2 AD	1 med-dk		
Inyo	02	A		1+	2 AD		nest	
San Joaquin	03	NA		1				
	04	NA		1				
	05	NA		1				
	06	NA		1				
	07	NA		1				
	08	A		1	1 AD	1 med	nest	
	10	NA		1				
	11	NA		1			nest	
	12	A		1	2 AD	2 dk		
	13	A?		1				1 yng.
	14	NA		1				
	15	NA		1				
	16	NA		1				
	17	A	New	1	3 AD	1 dk	nest	
	18	A	New	1	2 AD	2 dk		
	19	A	New	1	1 AD	1 dk		
Sacramento	01	A		1	1 AD			
	02	NA		1				
	03	NA		1				
	04	A		3	2 AD	1 lt, 1 dk		
	05	NA		1				
	06	A		3	2 AD	1 lt, 1 med-lt		

TABLE 2 (continued)

1982 Swainson's Hawk Survey Results: Sacramento Valley

Active = A
Not Active = NA

County	Terr. #	A/NA	New	#Visits	Productivity & Color Phases of Adults: #Adults	Color Phase	Nest	Yng.
Sacramento (cont.)	08	A		3	1 Ad		nest	yng
	09	A		3	2 Ad	2 med	nest	
	10	NA		1				
	11	NA		1				
	12	A		3	2 Ad	1 lt	nest	1 fledg
	13	NA		1				
	15	A		1	1 Ad	1 dk		
	19	A		2	2 Ad	1 dk, 1 med		
	23	A	New	1	2 Ad	1 dk, 1 med		
	24	A	New	3	2 Ad			
	25	A	New	1	1 Ad			
	26	A	New	2	1 Ad	1 dk		
	27	A	New	2	1 Ad	1 dk		
Solano	01	A	New	5+	2 Ad	2 dk	nest	1 Downy
	02	A	New	7	2 Ad	2 lt		
Stanislaus	02	NA		1				yng
Sutter	03	NA		1				
	04	A		1	1 Ad			
	05	A		1	1 Ad	1 lt		
	06	NA		1				
	07	NA		1				
	09	NA		1				
	10	A		1	1 Ad	1 med		
	11	A	New	1	3 Ad	3 med		
	12	A	New	1	1 Ad	1 med		
	13	A	New	3	2 Ad	1 med-lt	nest	3 yng.
	14	A	New	1	2 Ad	2 lt		
Yolo	01	NA		1				
	02	A		3	2 Ad	1 med/ 1 med-lt		*
	04	NA		2				
	05	A		4	4 Ad	2 med		* 1 yng
	06	A?		4	2 Ad		nest?	
	07	A?		4	1 Ad	1 lt		
	08	NA?		2				
	10	A		2	2 Ad	1 med		
	12	A		2	1 Ad	1 lt		
	13	NA		1			nest	
	16	NA?		4	1 Ad		nest?	

TABLE 2 (continued)

1982 Swainson's Hawk Survey Results: Sacramento Valley

Active = A
Not Active = NA

County	Terr. #	A/NA	New	#Visits	Productivity & Color Phases of Adults			
					#Adults	Color Phase	Nest	Yng.
Yolo	17	NA		1				
(cont.)	18	NA		2				
	19	A		2	2 Ad	2 lt		
	23			1	1 Ad		nest	
	24	A		3	2 Ad	1 med, 1 lt	nest	
	29	A	New	2	2 Ad	1 med, 1 lt	nest	*
	30	A	New	2	1 Ad	1 med		1 yng.
	31	A	New	1	1 Ad	1 dk		
	32	A	New	1	1 Ad	1 med		
	33	A	New	1	2 Ad			
	34	A	New	2	2 Ad	2 med		
	35	A	New	2	6+ Ad	**		
	36	A	New	15	2 Ad	2 dk		1 yng.
	37	A	New	1	1 Ad	1 med-lt		

*One egg collected at each of these sites
**Flock, 5/19/82, in vicinity of Yo-06, 07, 08, 16.

Three Swainson's Hawk eggs were collected from 3 different locales in Yolo County to analyze for pesticide residues. No significant levels of chlorinated hydrocarbon pesticides or PCB's were found (Table 3). Eggshells were measured and found to be of normal thickness. Locations of Swainson's Hawk territories are continually being entered into the National Diversity Data Base files.

Goshawk

Information on Goshawk territories surveyed is contained in the Montane Accipiter Study job progress report. Over 200 nest territories have been located on National Forest lands and these data are being entered into the Department's Natural Diversity Data Base.

Osprey

Details on the Osprey survey are contained in the job progress report entitled Osprey Status Review. Most information was made available by U.S. Forest Service. These data were supplemented by field surveys conducted by Nongame Wildlife staff and Regional personnel. This was the first large sample of Osprey territory data gathered since 1975.

Once compiled on appropriate report forms, these data will be entered into the Natural Diversity Data Base.

ANALYSIS:

The 1982 Sacramento Valley Swainson's Hawk Survey was the most extensive since the original work completed in 1979. The number of known territories in 1979 equaled 53, and by 1982, the number increased to 123. No significant change was discovered in the number of active territories, 53 in 1979 and 51 in 1982.

Swainson's Hawks are highly territorial and unless a death occurs in one member of a pair they will continue to use the same grove or tree for the life of the birds. Females are known to reoccupy the same territory after the death of the male. It is unlcear what happens when the female dies. The male may move to another territory to find a new mate. Since there are new territories constantly being located in the Valley while the 1979 territories are gone, this may indicate an unstable population with a high adult turnover rate (Bloom, pers. comm.).

There is increasing evidence that the status of Swainson's Hawks in the Sacramento Valley is determined by habitat quality. Toxic pesticide accumulation was suggested as contributing to the species' decline in the 1979 study. Three eggs were collected during the 1982 survey and analyzed for pesticide content. No significant levels of toxic substances were found but further study in a broader area needs to be conducted.

A survey of the Sacramento River from Red Bluff to Colusa (approximately 100 miles) also indicates the importance of habitat quality. No territories were located during the survey, although there was adequate nesting habitat in several portions of the area covered. The results can be partially attributed to a large reduction in potential foraging area, caused by replacing annual crops with orchards.

Each year the amount of information contained in eyrie files increases, but the efficient use of such files can not keep pace with the volume of data. It is encouraging

TABLE 3

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME

PESTICIDE LABORATORY REPORT

Lab No. L-131-82

E. P. No. P-408

Date Received 5/24/82
Sample

Swainson's Hawk eggs

Report Date 6/28/82

Remarks

These eggs were submitted to determine chlorinated hydrocarbon residue levels in this declining population of raptors.

RESULTS OF EXAMINATION

Residue levels of chlorinated hydrocarbons were insignificant.

L-131-2 (P-408)

- ppm -

Sample #	YO-02	YO-05	YO-29
% lipid	3.5	5.0	4.2
HCB	0.002	0.01	0.02
trans-nonachlor	0.01	0.02	0.01
oxychlordane	0.01	0.03	0.07
heptachlor epoxide	0.01	0.01	0.44
dieldrin	0.10	0.16	0.04
pp'DDE	1.6	1.9	2.5
pp'DDD	0.01	0.12	0.01
pp'DDT	0.01	0.18	0.14
Egg Shell Thickness	0.46 mm	0.41 mm	0.49 mm

to have input into the data file from a variety of sources. These include unit managers, biologists from federal agencies, environmental consultants, and contract personnel conducting Department studies. The data files contain sufficient information to determine population trends of certain species.

Ironically, more is known about the population status of the less common species than raptors such as Red-tailed Hawk (B. jamaicensis), Turkey Vulture, and American Kestrel. Since it has always been assumed these species were abundant and not threatened in any way, no effort has been made to study their populations. It will be important to establish a baseline population level for such species should they show signs of decline in the future.

As the volume and complexity of information in eyrie data files increases it is evident that the best way to maintain efficient use of such files is to computerize them via the Natural Diversity Data Base and other systems. The ideal system would allow input from several sources within and outside the Department. Access to information in certain species files would have to be kept confidential but could be available to qualified researchers and agency personnel with a need to know.

RECOMMENDATIONS:

1. Continue to gather baseline population and productivity information on species of diurnal raptors nesting in California.

2. Computerize information via the Natural Diversity Data Base and "in-house" programs and develop a system that can be expanded and utilized by a greater number of researchers within and outside the Department.

3. Maintain confidentiality of certain file information to protect sensitive and endangered raptors from distrubance and illegal take.

4. Determine, through monitoring, if annual productivity is sufficient to maintain populations of these species.

Prepared by: Ronald W. Schlorff
Ronald W. Schlorff
Wildlife Biologist

Approved by: Robert D. Mallette
Robert D. Mallette
Nongame Wildlife Coordinator

Approved by: Eldridge G. Hunt
Eldridge G. Hunt, Chief
Wildlife Management Branch

Date: September 28, 1982