

JOB PROGRESS REPORT

State: California

Cooperators: Audubon Society

Project No.: W-54-R-2 Project Title: Special Wildlife Investigations

Job No.: III - 5 Job Title: Statewide Heron Rookery Study

Period Covered: February 1 to June 1, 1970

SUMMARY:

The second Heron Rookery Survey was conducted in the spring of 1970 by the Department of Fish and Game. A statewide inventory of 75 active rookeries revealed 4,267 active nests of which 51% were great blue herons, 14% were common egrets, 7% were snowy egrets and 28% were black-crowned night herons. This compares to 55, 13, 7 and 25 percent respectively for 1969. Nineteen rookeries active in 1969 which had 110 active nests were found to be inactive in 1970. Twenty-nine previously unreported rookeries were located in 1970. These contained 1,552 active nests. Fifty-three rookeries which were active in 1969, were rechecked in 1970. Thirteen of these rookeries were inactive. These rookeries were found to have 2,530 active nests in 1969 and 2,422 in 1970, reflecting a 4.3% decrease in active nests. Analysis made of the herons nesting in these rookeries in 1969 and 1970 revealed an increase of 1.8% active nests for great blue herons; a decrease of 12.5% for common egrets; an increase of 22.4% for snowy egrets; and a decrease of 25.1% for black-crowned night herons. Significance of these fluctuations are not fully understood. It is expected that survey data will be more meaningful when several years of data are collected.

Graduate students, fulfilling field project requirements for a masters degree, initiated studies at two rookeries, to determine reproductive success of great blue heron and common egret. Rookeries are located near Lincoln and on the San Joaquin River near Los Banos, California. The Lincoln rookery contained 68 breeding pair of great blue herons and the San Joaquin River rookery contained 300 pair of great blue herons and 50 pair of common egrets. Data from the Lincoln rookery revealed fledging of 2.6 great blue herons per nest. The San Joaquin River rookery study revealed 2.8 great blue herons were fledged per nest in contrast to 1.8 for common egrets. Great blue heron reproduction was thought to be normal whereas reproduction for common egrets was thought to be subnormal. Additional information on heron reproduction is needed before reliable conclusions can be drawn. It is recommended that these two studies be continued to obtain further knowledge concerning heron reproduction and life history. Such data is needed to interpret the statewide Heron Rookery Survey.

BACKGROUND:

When the Heron Rookery Survey was initiated in 1969, information was unavailable concerning the status of this important resource. This survey is designed to provide an inventory of heron rookeries from which population trends of four species of herons can be determined. In addition, selected rookeries are being studied to determine reproductive success as an index to possible environmental degradation due to contamination by pesticides or other pollutants.

OBJECTIVES:

Maintain a statewide inventory of heron rookeries and conduct an annual survey program to be used as a basis for measuring population trends. Conduct studies on selected heron rookeries to gather knowledge needed to assure perpetuation of breeding colonies of egrets and herons.

PROCEDURES:

Regions were requested in January, 1970, to report on the current status of all known heron rookeries in their region through a standard reporting form (FG-881). These reporting forms provided the basis of the 1969 rookery inventory and were resubmitted to each region at the onset of the breeding season in 1970. Onsite inspection by Department field personnel or, in some cases, by interested conservationists were recorded and submitted to Sacramento by June 30, 1970. All rookeries discovered for the first time in 1970 were also submitted for entry into the master inventory file. This file is maintained by the Department's Special Wildlife Investigation in Sacramento.

Two rookeries were selected for detailed study. These were: (1) Lincoln Rookery, a great blue heron rookery 5 miles northwest of Lincoln, Placer County, California; and (2) San Joaquin River Rookery, consisting of both great blue heron and common egret, 16 miles north of Los Banos, Merced County, California. Graduate students working on degrees at Sacramento State and Fresno State Colleges were assigned to do the study. An account of study methods and findings is appendid to this report.

FINDINGS:

Rookery Inventory

Results of the 1970 inventory of heronries in California are recorded in Table 1 and 2.

TABLE I

ROOKERY INVENTORY SUMMARY BY SPECIES
1969 - 1970

Area	Great Blue Heron		Commen Egret		Snowy Egret		Black-crowned Night Heron		Total Rookeries	
	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970
Region 1	11	14	2	3	1	2	6	6	13	17
Region 2	17	12	2	2	2	0	7	2	25	15
Region 3	18	18	1	2	2	2	3	2	18	18
Region 4	10	10	4	6	1	2	1	2	11	12
Region 5	7	10	4	6	3	3	4	3	9	13
Total	63	64	13	19	9	9	21	15	76*	75*

* Because several species may nest in one rookery, the total rookery figure will not equal the totals listed under the nesting species.

TABLE 2

SUMMARY OF ACTIVE NESTS BY SPECIES
1969 - 1970

Area	Great Blue Heron		Common Egret		Snowy Egret		Black-crowned Night Heron		Total Nests	
	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970
Region 1	106	182	73	185	25	78	319	375	523	820
Region 2	550	442	45	43	--	--	6	--	601	485
Region 3	273	318	115	152	152	100	436	128	976	698
Region 4	779	1,086	73	89	50	125	50	700	952	3,000
Region 5	60	158	95	106	--	--	3	--	158	264
Total	1,768	2,186	401	575	227	303	814	1,203	3,210	4,267

Seventy-five active rookeries were reported statewide in 1970. Nesting species included great blue heron, common egret, snowy egret and black-crowned night heron. This compares with 76 reported in 1969. Of the 75 rookeries reported in 1970 (Table 1), 85% had active great blue heron nests, 25% had active common egret nests, 12% had active snowy egret nests, and 20% had active black-crowned night heron nests. This compares with 83, 17, and 12 and 28% respectively for 1969.

Sixty-nine percent of the active rookeries include only one species nesting at the rookery site while 31% consisted of 2 or more species. Three rookery reports indicated all 4 species were nesting at one site each in San Bernardino, Marin, and Siskiyou counties.

A total of 6,306 adult birds and 4,267 active nests were reported for the 75 rookeries. Average number of active nests per rookery was 56.9 for 1970 as compared to 42.2 in 1969. Of these 4,267 active nests, 51% were great blue herons, 14% were common egret, 7% were snowy egret, and 28% were black-crowned night herons. This compares to 55, 13, 7 and 25 percent respectively for 1969.

Nineteen rookeries active in 1969, were inactive in 1970. In 1969 these rookeries had 110 active nests. Causes for abandonment of these 19 rookeries were: 14 unknown, 1 was displaced by a freeway, 1 because of human disturbance, 1 by removal of rookery tree, 1 due to shooting and 1 change in land use.

Twenty-nine previously unreported rookeries were reported in 1970. These rookeries had a total of 1,552 active nests. Status of 7 rookeries listed in 1969 were unreported, 2 were duplicate listings and 2 could not be located.

Table 3 summarizes results from reports on 53 rookeries which were active in 1969 and rechecked in 1970. Of these 53 rookeries there were 2,530 active nests recorded in 1969 and 2,422 in 1970. This reflects a 4.3% decrease in active nests for approximately an 80% sample of the rookeries surveyed in California. An analysis of nesting birds by species reveals an increase in active nests of the great blue heron, of 1.8%; a decrease of 12.5% in common egrets; increase of 22.4% in snowy egrets; and a decrease of 25.1% in black-crowned night herons. Significance of these fluctuations can not be determined at this time. Limited life history knowledge and only two years data prevent a detailed evaluation of survey results at this time.

TABLE 3

COMPARABLE DATA FROM 53 ROOKERIES
1969 - 1970

	Great Blue Heron		Common Egret		Snowy Egret		Black-crowned Night Heron		Total	
	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970
Active Nests	1,647	1,676	375	328	77	95	431	323	2,530	2,422
Percent increase or decrease	+ 1.8%		- 12.5%		+ 22.4%		- 25.1%		- 4.3%	

Rookery Studies

Detailed progress reports of the two-year studies being conducted on rookeries selected to obtain reproduction data are attached.

The Lincoln Rookery Study is being conducted by Mr. Jack Wilburn, graduate student at Sacramento State College, Sacramento, California. The San Joaquin River Rookery Study is being done by Mr. Pete Page, graduate student at Fresno State College, Fresno, California.

Study results in both studies will be used to fulfill field project requirements for a master's degree. Sponsoring professors for the graduate students are Dr. Robert Livezey and Dr. Arthur Stabler from Sacramento and Fresno State Colleges respectively.

RECOMMENDATIONS:

1. Statewide Heron Rookery Survey be continued in the same manner as in 1969 and 1970.
2. The life history studies at the Lincoln and San Joaquin River Rookeries be continued next breeding season.

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