

SHELDON-HART MOUNTAIN NATIONAL ANTELOPE REFUGES

MODOC NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

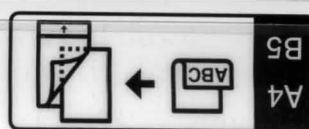
1970

LAKEVIEW PERSONNEL

William D. (Pete) Carter	Refuge Manager
Jack L. Richardson	Assistant Refuge Manager
Eugene P. (Gene) Heath	Special Assistant
Mabel D. Thornton	Clerk-Typist

MODOC PERSONNEL

O. E. (Larry) Larochelle (Trans. 10/26)	Assistant Refuge Manager
Harry C. Hoshaw	Mechanic (Heavy Duty)
Irvin K. (Shorty) Wilson (WAE)	Maintenanceman I
Raymond L. (Bill) Russell (WAE)	Maintenanceman I
Will M. Hoskins (Temp. 4/7-10/6)	Laborer
D. J. Fulfer (Temp. 4/26-5/15)	Laborer
Charles Mack (6/8-9/5)	Student Trainee



Engineering Equipment Mechanic Hoshaw
on right and Temporary Laborer Fulfer
on left. (Larochelle)

Student Trainee Charlie Mack.
(Larochelle)



Assistant Manager Omer Larochelle.
(Larochelle)

Maintenanceman Shorty Wilson.
(Larochelle)





Maintenanceman Bill Russell.
(Larochelle)

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NARRATIVE REPORT

1970

I. GENERAL

A. Weather Conditions

Tabulated below ^{are} ~~is~~ the weather data for the year 1970. The information was recorded at Modoc Refuge headquarters.

TABLE 1. ANNUAL WEATHER SUMMARY

1970	Precipitation			Temperature	
	Snowfall	Rain/Water Equiv.	Average*	Max.	Min.
January	-	3.99	1.79	56	-12
February	-	1.78	1.37	62	14
March	4	1.10	1.40	62	12
April	6	.80	1.11	62	16
May	7	.85	1.19	82	21
June	-	2.73	.79	94	33
July	-	.10	.40	96	33
August	-	.10	.23	96	28
September	-	.30	.42	89	18
October	2	.66	1.10	86	13
November	-	3.58	1.34	67	14
December	5	2.65	1.66	50	-14
	24"	18.64	12.80	96	-14

*Based on 34 years of records.

An analysis of the above weather records indicates above average precipitation for the year. Wind and evaporation rates were near normal.

B. Habitat Conditions

1. Water. Heavy runoff from refuge watersheds during January contributed greatly to Dorris Reservoir water storage, adding 4,340 acre feet during the month. Releases were made simultaneously from the reservoir to leave a margin of SAFETY during the winter months and to maintain refuge marsh units.

By April 1, water levels in Dorris were at maximum stage to assure an ample water supply for the irrigation season.

Stream flow from Parker Creek into the reservoir held up well through June and ample surface acreage was available for recreational use. Inflow from Parker Creek during the period April 1 through June 30 is important for recreational use of the reservoir.

During the summer months after brood rearing, Teal Pond was drained and a new dike was re-located and constructed to take the place of the old dike. This unit, and others, refilled prior to the waterfowl hunting season.

Winter icing conditions in and around canals and water control structures continues to be a maintenance problem.

2. Food and Cover. This was a good year for waterfowl food production. All marsh units with the exception of Teal Pond, which was dry, produced good crops of aquatics. Refuge grainfields in the hunting area were available for the fall migrants, and were utilized heavily during the pre-hunting season period and nightly during the season.

The Grandma and Town grainfield production continues to drop off due to excess moisture and subsequent weed infestations. Management changes will continue to take place in 1971 to help alleviate the problem. These two fields of 140 acres total, comprise the total grain in the closed hunting area and is important. All refuge grain is produced on a 2/3 and 1/3 permittee share basis.

Upland game habitat, primarily along Pine Creek and the borders of the agricultural land, provided excellent food and cover during the year. The newly seeded levees along the Pit River also provided good cover for nesting waterfowl.

II. WILDLIFE

A. Migratory Birds

Whistling Swan. A few whistlers (175) were recorded on the refuge at the beginning of the year. The birds were found on Dorris Reservoir, warm spring ponds and the North Grainfield. Numbers increased to a high of 325 by early February. The last record for the spring period was five birds on June 7, slightly later than usual.

The first whistlers of the fall period arrived the first of October and peaked with 260 birds in mid-December. The year closed with 25 birds recorded using Teal and Duck ponds.

Geese, General. Increase in goose use was realized again this year as has been the case since goose management began in 1962. Refuge objectives of 1,500,000 use days are possibly not realistic, since we recorded over 3.4 million use days this year. Dorris Reservoir contributes greatly to this use, since large rafts of geese are common sights, during migration.

Large Canada Geese. Honkers utilized browse available in refuge meadows, pastures and croplands, as well as pondweed (*Potamogeton spp*) beds at Dorris Reservoir. Spring and fall peaks were 3200 and 11,000 respectively and total use days for the year came to 1,221,850.

The wintering population increased this year somewhat from 600 to 1500, and these birds utilized the three Warm Springs Ponds near headquarters during the severest part of the winter when all other water areas were frozen.

Large Canada Goose Production. Paired geese were apparent by mid-January and nesting started in early March. The first brood was observed in Goose Pond on March 31. This year, 1016 goslings were raised to flight stage. This well surpasses the master plan objectives of 750, however revised objectives call for an optimum of 1500 Canada geese raised. During 1970, a goose nest site inventory was conducted and the results are tabulated in Table 6.

Table #2 represents production data for the past several years.

TABLE 2. CANADA GOOSE PRODUCTION 1/

UNIT	GODFREY			WEST			EAST			DORRIS			TOTAL		
Year	2/N	B	G	N	B	G	N	B	G	N	B	G	N	B	G
1964	1	4	24	7	40	240	14	6	33	7	13	29	29	63	326
1965	3	-	15	32	-	128	23	-	116	15	-	61	73	64	320
1966	3	5	18	34	51	246	52	38	253	26	9	44	115	103	561
1967	3	2	11	9	61	348	28	31	201	11	26	124	51	120	684
1968	5	6	32	19	69	378	71	43	246	24	21	112	119	139	768
1969	5	7	34	24	72	392	110	49	279	27	29	132	166	157	837
1970	5	4	22	43	36	194	156	132	713	28	23	87	232	195	1016

1/ Revised master plan objective is 1500

2/ N = Nests located; B = Broods observed; G = Goslings reaching flight stage.

Small Canada Geese. Use by cacklers and lessers totaled 2,117,675 days. This use has increased dramatically during the last three years, possibly indicating a change in flight patterns of these birds. The peak of 36,000 birds occurred the last week in November. The fall birds utilize available grain on the refuge and in the immediate area of the refuge; on their return trip the spring birds clean up grain-fields and move out onto green browse. Both large and small Canadas depend heavily on browse available on the Ebbe Ranch located in the northern portion of the refuge. This private piece of land, involving approximately 200 acres, is a prime food source for northern migrating and resident geese. It is possible that the property will be up for sale in the near future and would make an excellent addition to the refuge.

Snow Geese. Snows were using the refuge at the beginning of the year and the spring use peaked at 750 birds during mid-February. Fall migrants appeared in late September and peaked at 400 in late November. The annual use was near normal with 40,670 use days. It is possible that snows stopping off at Dorris Reservoir during migration are not recorded, due to their short stay on the refuge.

White-fronted Geese. This year's 57,470 use days exceeded last years 32,900 days as well as the previous record of 21,245 days in 1968. The spring peak of 1,300 is also the greatest peak recorded. These birds have responded well to the improved pasture sites as early food sources. The site in the Hill Field is an exceptional good source of food during snow periods, because the crested and intermediate wheatgrass is not buried completely.

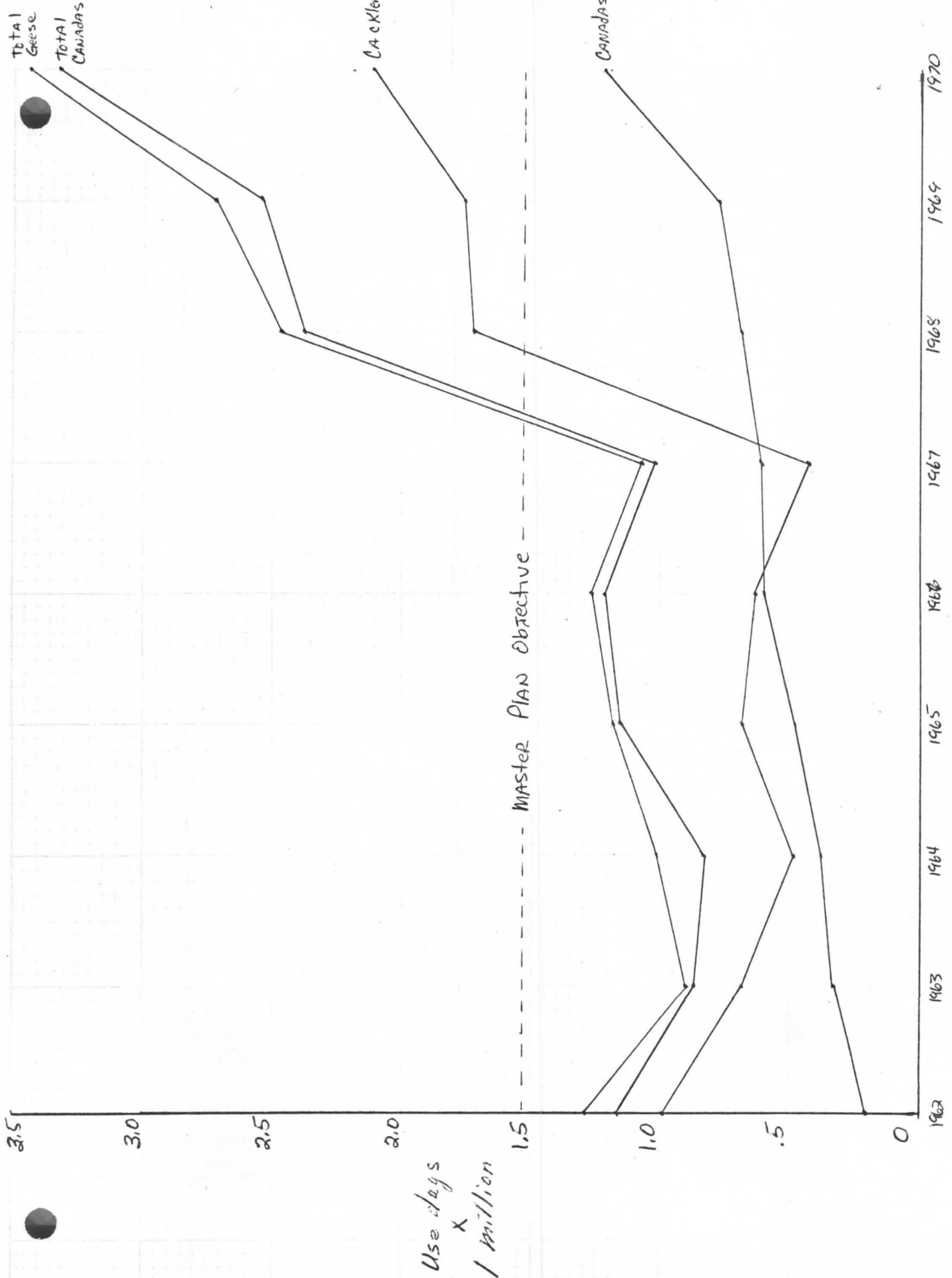
Ducks. Total duck use came to over 5.8 million use days, compared to last year's high of 4.5 million days. Over two-thirds of the year's use was recorded during the fall period. Refuge objectives call for an optimum of 3.5 million use days.

The spring migration began during late February and peaked at 16,875 the last week of March. The most numerous dabblers were mallard (3,500), shovelers (2,500), cinnamon teal (2,400), pintail (2,200), while divers included ruddies (1,100), bufflehead (800), and redhead (750).

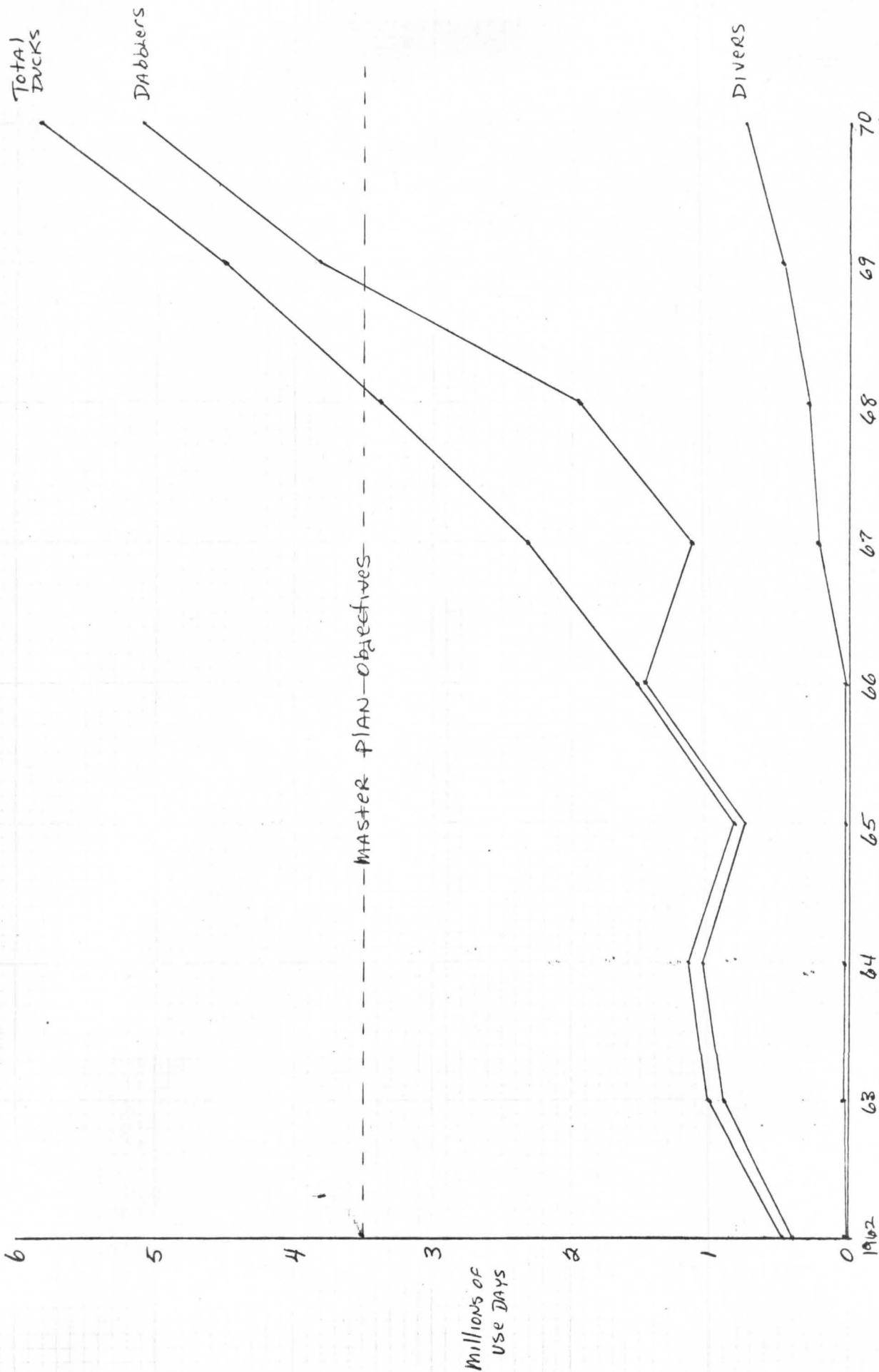
The fall peak occurred during early October, with 56,375 birds, of which 12,000 were pintail. Mallard use peaked during mid-November at 18,500 birds.

Early fall use of the refuge grain crop was slowed somewhat this year by deferred flooding of the fields until late October.

Duck Production. Breeding pair counts during mid-April recorded 335 pairs. These were composed of 29% mallard, 27% cinnamon teal,



Graph 1 ANNUAL CANADA GOOSE USE



GRAPH 2 ANNUAL DUCK USE

22% gadwall, 10% pintail, 9% redhead, and 3% total for shovelers, ruddies, widgeon and others.

The first duck nest, a mallard, was found April 25 in the South Grainfield. The first brood was observed there on May 12.

Breeding pair and brood surveys set the year's production of flight-aged birds at 2620. Tables 3 and 4 summarize duck production data for the past several years.

TABLE 3. DUCK BROODS OBSERVED

UNIT	1964	1965	1966	1967	1968	1969	1970
Godfrey	34	12	16	23	17	22	23
West	122	39	70	91	93	98	99
East	166	42	110	106	113	127	112
Dorris	88	59	34	62	67	61	60
Totals	410	152	230	282	290	308	294

TABLE 4. DUCKS PRODUCED TO FLIGHT AGE 1/

	1962	1963	1964	1965	1966	1967	1968	1969	1970
Mallard	300	700	760	-	366	706	726	762	768
Gadwall	50	100	310	-	76	195	232	606	575
Pintail	50	250	530	-	228	302	286	282	270
GWT	-	-	10	-	-	-	4	14	12
Cinnamon	790	800	1148	-	746	1172	1264	721	690
Shoveler	20	50	20	-	-	-	14	42	40
Redhead	10	20	18	-	-	21	16	24	220
Ruddy	10	30	-	-	-	10	12	222	20
Others	0	-	-	-	-	-	-	50	25
Totals	1230	1950	2796	942	1416	2406	2554	2723	2620
Coot	125	150	175	-	142	162	585	425	410

1/ Master Plan objective is 3000

B. Upland Game Birds

The year began with our two upland game birds, ring-necked pheasants and California valley quail numbering 100 each.

Production increased somewhat this year with 90 pheasants and 75 quail produced.

Fall numbers using the refuge during hunting season was placed at 150 pheasants and 200 quail. The refuge is not open to upland game hunting.

C. Big Game Animals

Mule deer frequented all parts of the refuge and some were on the area nearly all the time. Several bands, totaling up to 240 animals, wintered on the sagebrush flats surrounding Dorris Reservoir, the Godfrey Unit and along Pine Creek. Twenty deer were produced on refuge lands this year.

Pronghorn antelope are occasional residents on the refuge. These animals are part of the Likely Tables, Rocky Prairie and Pit River herds. Their use is limited to the fringe edge of the refuge. Five antelope were known to be produced on the refuge this year.

D. Fur Animals, Predators, Rodents and other Mammals.

Muskrats are the most numerous furbearers on the refuge. This year's spring population was estimated at 3000 animals. This figure is more than twice the number one year ago. This is due to a closed season on trapping in an effort to produce more houses for goose nesting. Trapping will be conducted again in 1971 to hold the population in check. Damage caused by burrowing rats is far greater than the benefit received by their presence at Modoc.

Mink, though not abundant, are occasionally seen along canals and main marsh units. The spring population was estimated at 50.

Predators. Raccoon, though seldom seen, are evident by their sign over the entire refuge. They are most abundant along Pine Creek, Dorris Canal and the Pit River. The present population is estimated at 40.

Striped skunk sightings have been greatly reduced, undoubtedly as a result of the waterfowl predator control program that has been conducted for the past three years. The April 30 population was estimated at 100.

The badger population was estimated at 10 and no significant change has taken place. Control measures accounted for only two removals this year. The greatest threat posed by the badger is his digging for ground squirrels in the Dorris Dam. The elimination of squirrels at this location should limit his presence.

Dogs and feral cats continue to plague the refuge during nesting season. These animals are made unwelcome at every opportunity.

Belding ground squirrel control continued this year through a joint effort by the County Agricultural Commissioner and refuge personnel. An animal control management plan was written during the year and should be in effect during 1971.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

Golden eagles were common throughout the year. Bald eagles were common also but in fewer numbers.

A few ravens were seen throughout the year but none raised young on the area. Crows were seen during early spring and late fall but were in small flocks of 10-30 and never became numerous. None were known to nest.

Magpies were quite common throughout the year, the spring peak was 200 and the fall 350.

F. Fish

In the past, fish management has been handled entirely by the State Department of Fish and Game. Last year they planted 2,000 Shasta strain rainbow trout at 6/pound during late April in Dorris Reservoir. That was the last trout plant planned by the state for Dorris. Results of the past several years marked fish return studies have indicated to them that a trout fishery is not presently feasible for Dorris.

At this time assistance from Division of Fisheries Services and the State Fish and Game Department is warranted to investigate, review and develop a long range fishery management plan for Dorris Reservoir.

The primary purpose of the reservoir is to provide an irrigation water supply for the refuge. At the same time it would benefit our public and recreational use image by providing the best possible sport fishery.

G. Reptiles

Several species of nonpoisonous snakes are common on the refuge. Rattlesnakes have not been seen on the refuge for several years.

H. Disease

This was the second year that botulism has plagued the refuge.

The first signs of weak birds were noted in the Goose Pond on August 13. Pick up of dead birds started immediately and was continued periodically through October 6, when the outbreak subsided. In all 1303 ducks were picked up by refuge personnel.

The problem seems to be restricted, at least for the past two years, to the Goose Pond. This unit will be drained during early August 1971 and remain dry through early October as a control measure.

Scaring and herding devices will be employed along with constant surveillance and pick up as the need arises during 1971.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Habitat. Most of the outdoor work season was spent in rehabilitating old levees and dikes, installing water control structures and building waterfowl nesting and loafing islands.

a. Duck Pond. Tire nesting sites were established on nearly all of the 81 islands which were built during 1969. These tires with hay in them will be used until the natural grasses become established on the islands.

b. Teal Pond. Work in this unit was begun in 1969 with the installation of a 36" flashboard riser water control structure and raising 700' of dike. The remainder of the work was undertaken this year. Sixteen hundred feet of dike was rehabilitated and 2,500 feet of new dike was relocated and seven nesting and loafing islands were pushed up with the crawler tractor. This increased the marsh from 30 to 130 acres. Also two 12" pipes were installed leading into the Teal Pond for irrigation drain purposes.

2. Irrigation System. Ten additional pipe and flashboard riser combination structures were installed as replacements for deteriorated facilities in other areas of the refuge. These ranged from 10" to 24" structures used in the very complex irrigation system.

3. Flood Repairs. Flood conditions on the south fork of the Pit River in December of 1969 and again in January and February of this year, added to the \$48,000 worth of damage sustained early in '69. Total damage to dikes, roads, fences, dams and the irrigation system during 1969 and '70 at Modoc Refuge was placed at \$70,000.

Repair was continued during 1970 to the dike along the Pit River. The dike was raised and widened. Rip-rap was placed along the bank at eroded locations. Gravel was spread on this dike and the south public hunting access road. The work was accomplished under contract. Also the Neer Pond levee was raised, widened and rip-rapped under flood damage contract.

A contract will also be awarded during 1971 to construct a concrete dam to replace the washed out South Dam on the south fork of the Pit. This will restore our control of flood waters and make better utilization of the irrigation system on the west side of the river.

4. Dorris Reservoir Recreation Area. A power pole swim boom was placed in the northwest corner of the reservoir to improve swimming SAFETY in relation to boating activities. This proved to be a satisfactory means of controlling the problem. The poles themselves have become a maintenance problem and will be replaced with rope and floats as funds are made available.

A temporary boat launching ramp was also installed by utilizing excess aircraft landing mats. This facility was located near the new visitor contact station.

Due to vandalism problems at the reservoir, visitor use was restricted to daylight hours only and an entrance sign and gate was installed for enforcing this regulation.

B. Plantings

1. Cultivated Crops. The refuge farming program is conducted by two cooperative permittees who planted 440 acres of Hannchen barley this year. The Town Grain Field which has had a severe weed problem was fallowed and planted to winter rye in the fall.

C. Collections and Receipts

1. Seed or other propagules. None.
2. Specimens. None.

D. Control of Vegetation

Roadsides and waste places totaling 35 acres were sprayed with a low-volatile 2,4-D ester at a rate of 2 lb./Ac, to control thistles.

E. Planned Burning

The Dorris Reservoir dam was chained and burned on recommendation of the State of California Dam Inspector. This was done to remove rank mustard and other broadleaf weeds and encourage grass growth. Also to open up ground squirrel and badger damage, so control measures could be implemented. The dam was later seeded to 10 lb./acre of Topar wheatgrass.

F. Fires

None.

IV. RESOURCE MANAGEMENT

A. Grazing

In 1970 eight permittees utilized 5,401.5 AUM's at \$3.00 per AUM for a cash return of \$16,204.50. The grazing season extended from May 1 through November 30.

A majority of the grazing forage produced is on native wet meadows which are managed to provide green browse for waterfowl. With the proper management of water and livestock we have several hundred acres of succulent green forage waiting for fall and spring migrants.

B. Haying

Preparations for haying begins annually with meadow dragging in February. Two men are kept busy rebuilding earthen checks, spreader ditches and removing dead vegetation from the bottom of dried up canals. Some water control structures were reinstalled and replaced as needed.

Irrigation began on the first of April and two irrigators continued at this until late June when they began drying up meadows in preparation for haying.

Five permittees began harvesting a less than average crop from 2,252 acres on July 6. They finished on August 20, harvesting 2,686.5 tons at \$7.00/ton for a cash revenue of \$18,805.50.

Irrigation was resumed on each field as soon as hay was hauled off. The resultant new growth was soon being utilized by waterfowl. Cattle were turned on following one complete irrigation cycle requiring from 5 to 12 days. Their clipping kept succulent regrowth available to waterfowl.

TABLE 5. HAYING AND GRAZING UTILIZATION

Date	Tons Hay	AUM's Grazing
1970	2,686	5,401
1969	3,103	5,772
1968	2,385	6,528
1967	3,908	5,684
1966	2,817	6,215
1965	4,018	4,586
1964	3,335	4,212
1963	4,346	4,617
1962	2,908	3,553
1961	2,833	3,847

C. Fur Harvest

No harvest program was in affect this year, however a trapping permit lottery was set up for the 1971, '72 and '73 seasons.

V. FIELD INVESTIGATION ON APPLIED RESEARCH

A. Canada Goose Banding

This year's goose banding program was conducted by refuge personnel and resulted in the banding of 145 birds (115 goslings and 30 adults). The birds were drive trapped in the Goose Pond Unit.

B. Canada Goose Nest Locations

During April and May, an intensive search was made of known preferred natural nesting areas and each artificial site was visited to locate Canada goose nests. This same procedure has been followed since 1968 to determine the ypes of nesting sites preferred by the Canada goose here at Modoc. This information has provided us with insight regarding the need for additional nesting sites.

Data gathered was the same as last year; height above water, distance to shore and other islands etc. Data on sites used was compared with that on sites not used and served in determining the nature of development constructed this year. Data obtained is contained in Table 6.

VI. PUBLIC RELATIONS

A. Recreational Uses

Recreational use at Modoc Refuge continues to increase. This year's total reached 70,745 visits of which over two-thirds were wildlife oriented. Fishing and swimming activities at Dorris Reservoir continues to be the greatest recreational use on the refuge.

Waterfowl hunting activities accounted for 7,370 visits to the refuge during the fall and winter months. The public hunting area is open every day and hunter numbers are not restricted. The two parking areas continue to be the main controlling factor in regulating hunting pressure, however 1380 hunters were recorded using the 1916 acre hunting area opening day. Waterfowl hunting pressure dropped off after the first couple weeks of the season.

*Hunting acct.
says 6,150 hunters?
P.*

TABLE 6. 1970 GOOSE NESTING SITE INVENTORY

UNIT	How Located*	Earth Is.		Earth Is.		Hay		Dill		Tire on		Floating		Natural Sites			TOTAL NESTS		
		W/Tire	No. Used	W/O Tire	No. Used	Island	No. Used	Struct.	No. Used	Post	No. Used	Platform	No. Used	Containing Nests	Rat H.	Isl.	Shore	Devl.	Nat.
DUCK	1	0	0	41	17	0	0	0	0	0	0	0	0	1	0	3	17	4	21
FLOURNOY	1	0	0	0	0	4	4	0	0	0	0	0	0	4	0	0	4	4	8
FRONT	2	0	0	5	5	0	0	1	0	2	0	0	0	0	0	0	5	0	5
GOOSE	1	8	7	110	22	0	0	0	0	3	3	0	0	0	1	14	32	15	47
HQ.	2	0	0	2	2	0	0	0	0	0	0	1	1	2	2	5	3	9	12
TEAL	1	0	0	0	0	0	0	0	0	1	0	3	3	19	4	11	3	34	37
WHEAT	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0	2	3	2	5
OTHER E. SIDE	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	18	0	21	21
PIT	1	0	0	0	0	8	7	0	0	0	0	0	0	0	10	2	7	12	19
SUB-HQ.	1	0	0	2	2	0	0	0	0	0	0	0	0	1	0	2	2	3	5
OTHER W. SIDE	2	0	0	0	0	0	0	0	0	0	0	0	0	4	5	10	0	19	19
DORRIS	1	0	0	0	0	0	0	3	1	4	4	2	1	0	14	8	6	22	28
GODFREY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	5
TOTALS		8	7	163	51	12	11	4	1	10	7	6	5	32	38	80	82	150	232

* (1) Inventory Plan

(2) Incidental

1970
~~MONTHLY~~ RECREATIONAL USE REPORT

Refuge name

MODOC

State

CALIFORNIA

State

Code 05
(1-2)

Congressional

District Code 02
(3-4)

Refuge

Code 117
(5-7)

Report Yr. | Mo.

Period 70
(8-11)

(Card Columns). (12-13) (14-18) (19-25)

ACTIVITY	Code	VISITS FOR THE MONTH	
		Total Number	Total Hours
Hunting: Big Game	01		
Upland Game	02		
Waterfowl	03	7,370	29,480
Other Migratory	04		
Other	05		
Bow	06		
Fishing: Salt Water	07		
Warm Water	08	11,990	47,960
Cold Water	09	7,225	21,675
Environmental Education	10	386	772
Wildlife Photography	11	950	1,900
Wildlife Observation	12	8,075	8,075
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15		
Wildlife Tours/Routes	16	14	
Visitor Contact Stations	17		
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	8,680	8,680
Wildlife Interpretive Center	20		
Off-Site Programs	21	425	26

(Card Columns). (12-13) (14-18) (19-25)

ACTIVITY	Code	VISITS FOR THE MONTH	
		Total Number	Total Hours
On-Site Programs	22	949	55
*Miscellaneous Wildlife	23	1,590	305
Swimming	24	10,350	20,700
Boating	25	1,255	2,510
Water Skiing	26	6,860	27,440
Camping	27		
Group Camping	28		
Picnicking	29	7,920	7,920
Horseback Riding	30	500	1,000
Bicycling	31	850	850
Winter Sports	32	300	1,500
Fruit, Nut and Vegetable Collecting	33	104	208
*Miscellaneous Non-Wildlife	34	4,765	4,765
Peak Load Day	35	850	
Actual Visits	36	70,745	
Fee Area Use	37		
Number of Fee Areas	38	(14-18)	
Fee Collections	39	\$	
Collection Costs	40	\$	

B. Refuge Visitors

A total of 1403 visits to the office were recorded this year. Most were information seekers, many simply stopped by for a quick visit and a little business talk. A list of special visitors concerning refuge business follows.

DATE	NAME	AFFILIATION & ADDRESS	BUSINESS
1/12	Oran Fitch	Contractor-Supplier	Rip-rap source
1/26	John V. Mack	BSFW Construction Engineer	Flood damage
2/4	Mr. Barnes	Calif. Div. of Water Resources	" "
"	Mr. Rogers	" " " " "	" "
2/9-10	Robert Shields	BSF&W, Ass't Reg. Supv.	Permittee relations
"	Clay Crawford	" " " Dir.	" "
2/12	Robert E. Ducret	BSFW Engineer	Flood Damage
"	Mr. Downing	" "	" "
2/18	Mr. Barnes	Calif. Div. of Water Resources	Water Mgmt.
"	Mr. Rogers	" " " " "	" "
3/5-7	Robert Shields	BSF&W, Asst. Reg. Supv.	O&M Inspection
"	Ellis W. Klett	"	" "
5/12	John Lucas	Calif. Highway Dept. Eng.	New Highway Const.
"	Howard Mitchell	" " " "	" " "
6/23	Charles Yocum	Humboldt State College Prof.	Courtesy Call
8/18	Lee R. Jacoby	BSF&W Planning Engineer	Pit River Dike Cont.
8/26	John V. Mack	BSF&W Const. Engineer	Neer Pond Flood work

C. Refuge Participation

Refuge participation was as follows.

Larochelle - Continued as an observer in the Western States Phenological Survey

Frequent items were furnished to the radio, TV and printed media.

Attended weekly Kiwanis Club Meetings.

3/10 Presented a refuge slide talk to 22 members of the Alturas Lions Club.

4/28 Attended the managers workshop in Reno.

29 &
30

5/13 Presented a talk and film to members of five grade school classes.

5/14 Talk and tour of refuge to Bluebird Scout group.

5/19 Tour of Refuge to 22 Alturas Cub Scouts.

5/20 Tour of Refuge to students.

5/21 Tour of Refuge by 28 Alturas 6th graders. Slide talk on Refuge Activities to Alturas Garden Club.

5/24 Refuge orientation to exchange students from Belgium, Argentina, Holland, Rhodesia and Australia.

- 5/27 Talk and tour of Refuge for 86 students.
- 6/3 Tour of Refuge for Canby school.
- 6/23 Alturas grammar school environmental appreciation class toured Refuge.
- 7/18 Presented bighorn sheep talk at the Annual Trek of the Order of the Antelope at Hart Mountain Refuge.
- 9/15 Rotary presentation concerning Refuge program at Cedarville.

Participated in all activities of the Alturas Rifle and Pistol Club.

Hoshaw & Russell - Attended all meetings and training sessions of the Alturas Volunteer-Fire Department.

D. Hunting

3-123 days 7,1370 hunters? P.
The refuge public hunting area was open to hunting for the season, which ran from October 10 through January 10. The 93 day season saw 6,150 hunters use the 1916 acre hunting area. Bag checks of 1235 hunters revealed that 1679 ducks; 165 Canada geese; 39 cacklers and 7 white-fronted geese were bagged. Opening day saw 1,380 hunters using the area, as compared to 735 last year.

Due to the extreme hunting pressure a quality hunt on the refuge was hard to find opening weekend, however success was near a 3 bird average. Hunting pressure dropped after the first two weekends and at the same time bird use decreased during the day. Birds made heavy use of the closed area during daylight hours as feeding activities shifted to night use.

Hunters in general were pleased with the season, and several good comments were received concerning the refuge public hunting program.

Future management may call for some restrictions on the number of hunters using the area during the first couple of weeks of the season.

E. Violations

Sound law enforcement cooperation between refuge personnel and California Fish and Game Wardens exists throughout the year. During the migratory waterfowl hunting season at Modoc, we have tried to use as much preventive law enforcement as possible; however, there are always a few who disregard game regulations. The results of our apprehensions are summarized below.

DATE	NAME	VIOLATION	Agent	Disposition
2/28	Daft, Greg	Destroying Gov't Prop.	Sheriff	Payment for damage
4/2	Freeman, Frank	" " "	"	6/1, \$125.00 Fine

Violations continued:

DATE	NAME	VIOLATION	AGENT	DISPOSITION
10/10	Bell, Glenn W	Refuge trespass	Russell	10/30 \$25.00
"	McDonald, David W	Unplugged gun-	Carling	10/19 \$50.00
		No license		\$50 suspended
"	Mazur, Stanley (NMN)	Early shooting	Carling	10/21 \$15.00
"	Fulfer, Daniel J.	" "	"	10/20 \$15.00
"	Smith, Robert L.	" "	"	10/20 \$25.00
"	Snyder, C.W.Jr.	" "	"	10/20 \$25.00
10/11	Hayter, Ronald	" "	Russell	10/26 \$25.00
10/11	Ghirarduzzi, Angelo	" "	"	10/23 \$25.00
10/11	Forbs, Gary D.	Take & possess sandhill crane	Larochelle	
			Carling	10/21 \$100.00
10/24	Bowen, Berry L.	Lake shooting	Russell	12/10 \$25.00
11/1	Van Fleet, Hilton B	Shooting swan	"	2/1/71 \$100.00
11/1	Emsen, Gary S.	" "	"	1/20/71 \$100.00
11/20	Allard, Bernie	Refuge trespass	"	3/10/71 \$ 25.00
11/20	Deel, Boyd	" "	"	\$ 25.00
12/15	Ettling, Conrad J.	Late shooting	Carling	12/16/70 \$ 15.00
12/15	Combs, Everett D.	" "	"	12/16/70 \$ 15.00

All above cases were filed in Alturas Justice Court, Alturas, California by California Department of Fish and Game Warden Harold Carling.

F. SAFETY

Monthly staff and SAFETY meetings were held throughout the year on appropriate subjects. A pertinent film was also shown at most meetings. Various literature was distributed as it came in and discussed at the regular meeting.

The refuge has never had a lost time accident since it was first manned on December 7, 1961.

VII. OTHER ITEMS

A. Items of Interest

We were pleased to have had Charles Mack as a member of our refuge staff this past summer. Charles served as Student Trainee from the University of Nevada at Reno. We feel that he will be a valuable asset to the National Wildlife Refuge System in the years to come.

On October 26, Refuge Manager Larochele and his family transferred to Toppenish Refuge in Washington. The Assistant Refuge Manager position at Modoc was not filled at years end. (Steve Vehrs, his wife Bonnie and three young boys from the San Luis Refuge moved to Modoc in February).

A great deal of time and effort by R.O. and refuge personnel went into a right-of-way land exchange agreement with the California Division of Highways. Their proposal to relocate Highway 395 required a right-of-way across the northwest corner of the refuge. We were not at all enthusiastic about their proposal but earlier commitments had obligated our cooperation. The issuing negotiations were flavored with various degrees of political pressures from local, state and national sources.

We were determined to mitigate all losses of wildlife habitat if at all possible and spent considerable time evaluating on a dollar basis the losses that would occur. Even though we weren't in a position to take the "hard line" we did assume this position and ultimately arrived at an agreement which we consider to be an advantage to the refuge.

The map following shows the location of the new highway and the lands exchanged with the Division of Highways.

Credits

This report was prepared by Assistant Manager Steve Vehrs. The Lakeview staff supplemented a few sections and typed the report.

18

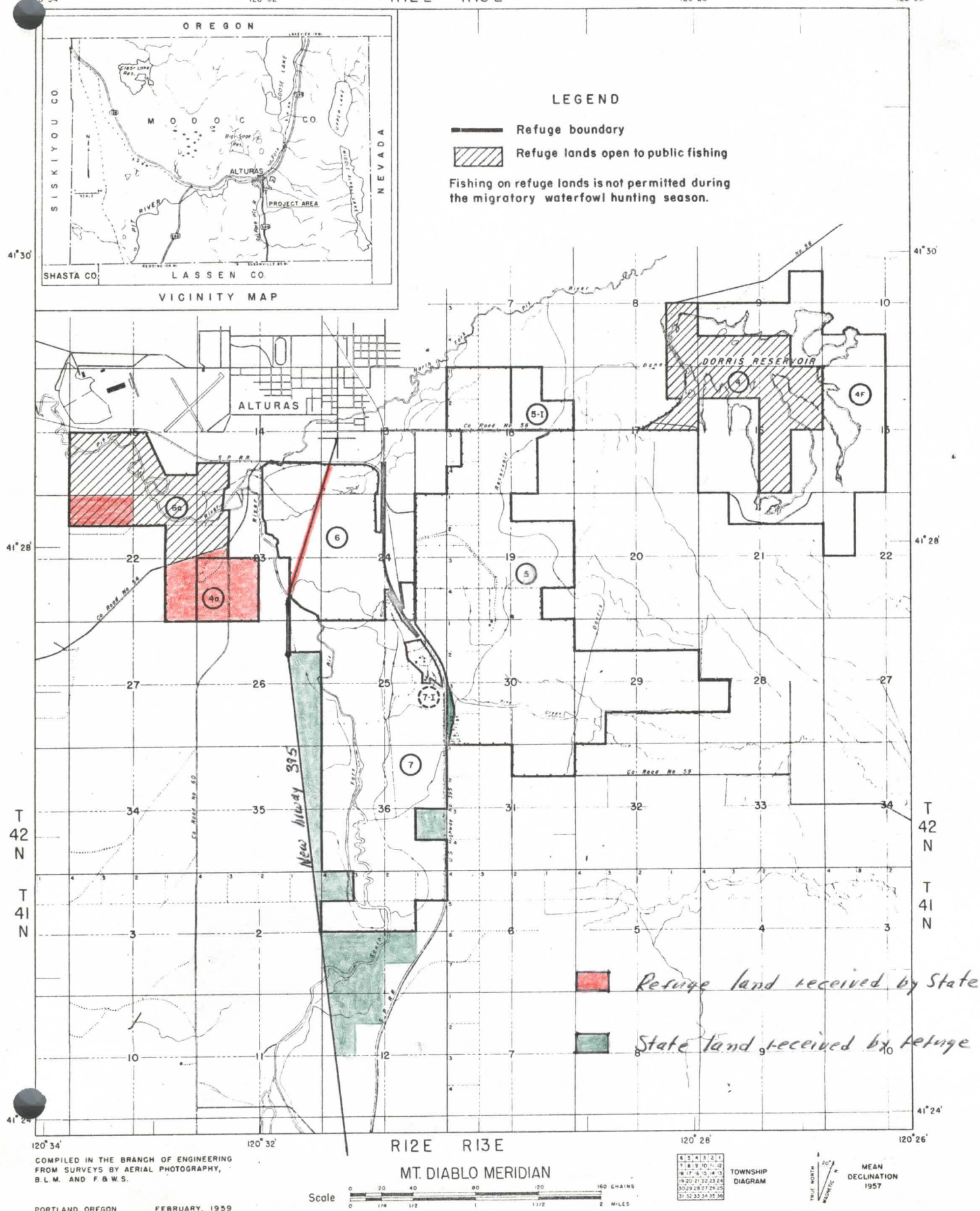
U S FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

UNITED STATES
DEPARTMENT OF THE INTERIOR

R12E R13E

120° 28'

120° 26'



SIGNATURE PAGE

Submitted by:

W. D. Carter
(Signature)

W. D. Carter
(Title)

Date: April 9, 1971

Approved, Regional Office:

Date: _____

(Signature)

(Title)

WATERFOWL

REFUGE Modoc

MONTHS OF January TO April, 19 70

(1) Species	(2) Weeks of reporting period									
	1/4-10 1	1/11-17 2	1/18-24 3	1/25-31 4	2/1-7 5	2/8-14 6	2/15-21 7	2/22-28 8	3/1-7 9	3/8-14 10
Swans:										
Whistling	175	300	300	50	25	325	250	100	30	45
Trumpeter										
Geese:										
Canada	1,600	900	1,200	1,800	2,100	2,900	3,200	2,800	2,600	2,600
Cackling	9,600	9,600	8,000	8,000	3,000	7,500	9,600	13,000	17,500	8,500
Brant										
White-fronted	25						100	150	550	400
Snow	75	25	150	300	300	15	750	750	425	700
Blue Ross	15	15	60	60	40	15	15	25	60	15
Other Total Geese	11,315	10,540	9,410	10,160	5,440	10,430	13,665	16,725	21,135	12,215
Ducks:										
Mallard	3,500	1,200	700	2,500	4,000	3,000	600	900	1,200	2,900
Black										
Gadwall	200	100	10	50	50	150	400	750	800	600
Baldpate	400	100	10	-	-	150	150	400	600	750
Pintail	500	-	25	-	-	-	1,275	4,400	2,750	1,200
Green-winged teal	100	25	-	-	-	-	-	200	600	1,500
Blue-winged teal										
Cinnamon teal							15	300	150	600
Shoveler	150	100	25	25	25	200	600	800	800	1,100
Wood								25	25	25
Redhead	100	25						25	75	250
Ring-necked	25	25	10	10	10			50	300	300
Canvasback							25	150	150	50
Scaup	25	10	10	10	10	25	75	200	200	400
Goldeneye	100	100	100	100	50	50	150	100	75	75
Bufflehead	75	100	125	50	50	50	75	300	400	150
Ruddy	50	50	25	25	25	50	150	50	200	350
Other Com Merg	5	10	10	10	10	15	15	30	30	30
Total Ducks	5,230	1,845	1,050	2,780	4,230	3,690	3,530	8,680	8,655	10,580
Coot:	100	100	100	100	300	300	500	500	1,200	1,600

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	11,690	350	
Geese	1,467,935	21,135	
Ducks	1,041,110	15,925	
Coots	133,700	2,500	

SUMMARY	
Principal feeding areas	Refuge grain fields meadows, marshes and water units.
Principal nesting areas	Dorris Reservoir (Goose Point) Refuge meadows, dikes and artificial nest mounds.
Reported by	O. E. Larochelle

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

WATERFOWL

REFUGE MODOC

MONTHS OF May TO August, 19 70

(1) Species	(2) Weeks of reporting period									
	5/3-9 1	5/10-10 2	5/17-23 3	5/24-30 4	5/31-6/6 5	6/7-13 6	6/14-20 7	6/21-27 8	6/28-7/4 9	7/5-7/11 10
Swans:										
Whistling	5	25	25	5	5					
Trumpeter										
Geese:										
Canada	2,200	1,700	1,700	1,700	1,800	2,100	2,750	2,750	2,750	2,750
Cackling	600									
Brant										
White-fronted										
Snow										
Blue										
Other Total Geese	2,800	1,700	1,700	1,700	1,800	2,100	2,750	2,750	2,750	2,750
Ducks:										
Mallard	1,500	1,100	1,100	1,800	1,800	1,200	1,200	1,200	1,400	1,400
Black										
Gadwall	900	900	800	600	600	600	600	600	600	600
Baldpate	500	500	700	700	400	400	250	250	250	150
Pintail	400	650	750	700	600	400	300	250	250	300
Green-winged teal	300									
Blue-winged teal	25	25						25	25	25
Cinnamon teal	2,000	1,400	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Shoveler	900	400	400	250	250	250	250	250	250	250
Wood	25									
Redhead	900	750	600	600	600	600	600	600	600	600
Ring-necked	10									
Canvasback	50	125	175	100	25	25	25	25	25	25
Scaup	100	75	75	25	25	10	10	10	10	10
Goldeneye	50	25								
Bufflehead	200	150	150	100	75	75	25	25	25	25
Ruddy	300	450	450	400	400	300	300	300	300	300
Other Com. Merg.	5	5								
Total Ducks	8,165	6,555	6,400	6,475	5,975	5,060	4,760	4,735	4,935	4,885
Coot:	1,600	1,200	1,200	1,200	1,000	1,000	1,000	1,000	1,000	1,000

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	455	25	
Geese	320,250	3,200	1,016
Ducks	1,126,895	24,560	2,620
Coots	153,650	2,000	

SUMMARY	
Principal feeding areas	Refuge ponds, grainfields and meadows
Principal nesting areas	Refuge dikes, ditchbanks, islands and artificial sites.
Reported by	O. E. Larochelle

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

W A T E R F O W L

REFUGE MODOC

MONTHS OF September TO December, 1970

(1) Species	(2) Weeks of reporting period									
	9/6-12	9/13-19	9/20-26	9/27-10/3	10/4-10	10/11-17	10/18-24	10/25-31	11/1-7	11/8-14
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling				15	15	5	15	25	70	85
Trumpeter										
Geese:										
Canada	4,000	4,000	8,000	11,000	11,000	6,700	5,100	7,500	6,000	7,200
Cackling				25	400	100	300	800	4,500	13,550
Brant										
White-fronted			50	150	600	300	300	325	450	450
Snow			10	25	25	10	25	200	125	400
Blue Ross		10	5	5	5	15	15	15	25	20
Other Total Geese	4,000	4,010	8,065	11,205	12,030	7,125	5,740	8,840	11,100	21,620
Ducks:										
Mallard	12,000	12,000	15,000	17,000	17,000	10,000	8,000	9,500	11,000	18,500
Black										
Gadwall	3,500	3,500	4,700	6,000	6,900	4,200	2,900	3,400	2,900	2,500
Baldpate	1,200	1,800	4,500	5,900	6,000	4,000	3,000	3,500	2,500	2,900
Pintail	1,500	4,500	8,000	12,000	9,000	6,000	5,000	4,200	8,000	7,200
Green-winged teal	1,100	3,000	3,000	6,500	7,000	5,000	3,100	3,500	3,200	2,700
Blue-winged teal	15	25	10			5				
Cinnamon teal	2,700	1,900	1,900	1,500	1,500	900	400	300	250	300
Shoveler	1,000	1,700	2,500	3,200	3,500	2,200	1,700	2,000	2,200	1,800
Wood	25	125	300	300	300	200	150	75	100	50
Redhead	700	700	1,300	1,700	1,900	1,200	1,000	1,500	1,200	1,000
Ring-necked	50	75	125	125	125	250	250	300	325	200
Canvasback	500	900	600	500	400	300	200	300	350	500
Scaup	100	300	300	400	450	550	375	400	450	600
Goldeneye	10	10	10	25	25	25	25	75	100	150
Bufflehead	200	200	200	400	600	600	1,300	1,700	1,500	2,000
Ruddy	700	700	700	800	900	600	600	500	400	500
Other Com. Merg.	10	10	25	25	25	25	25	25	25	25
Total Ducks	25,310	31,445	43,170	56,375	55,625	36,055	28,025	31,275	34,500	40,925
Coot:	2,000	2,000	3,000	4,000	5,000	7,000	7,000	7,500	6,000	5,000

WATERFOWL
(Continuation Sheet)

REFUGE MONTHS OF September TO December, 19 70

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11/15-21	11/22-28	11/29-12/5	12/6-12	12/13-19	12/20-26	12/27-1/2			
Swans:										
Whistling	80	85	140	145	260	50	25		7,885	
Trumpeter										
Geese:										
Canada	6,000	5,200	3,500	2,300	1,400	1,500	1,100		640,500	
Cackling	25,500	31,750	36,000	15,500	6,000	2,500	2,000		972,475	
Brant										
White-fronted	300	100	60	175	200	75	50		25,085	
Snow	175	400	75	50	350	100	50		14,140	
Blue	10	10	10	10	5	5	5		1,190	
Other										
Total Geese	31,985	37,460	39,645	18,035	7,955	4,180	3,205		1,653,400	
Ducks:										
Mallard	17,000	11,000	3,500	5,000	4,200	3,000	2,500		1,233,400	
Black										
Gadwall	3,000	3,500	4,000	3,000	1,500	750	500		387,250	
Baldpate	3,500	4,200	4,500	3,000	1,200	700	800		372,400	
Pintail	7,200	7,000	7,500	1,500	2,000	1,800	750		634,330	
Green-winged teal	2,000	1,500	1,200	1,500	750	1,000	600		326,550	
Blue-winged teal									385	
Cinnamon teal	150	50							82,930	
Shoveler	1,500	2,000	2,100	1,200	600	500	200		289,300	
Wood	25	10							11,620	
Redhead	1,200	800	750	800	500	200	100		115,850	
Ring-necked	200	150	150	200	150	50	25		19,250	
Canvasback	600	400	250	100	150	50	10		42,770	
Scaup	500	250	200	150	100	25	25		36,225	
Goldeneye	200	200	200	150	200	100	50		10,885	
Bufflehead	1,800	700	500	800	750	500	200		97,650	
Ruddy	500	400	400	200	300	100	50		58,450	
Other	50	50	50	50	100	50	25		4,445	
Total Ducks	39,425	32,210	25,380	18,090	12,500	6,825	3,835		3,674,230	
Coot:	6,000	4,000	3,000	1,000	500	200	100		443,100	
				(over)						

	(5)	(6)	(7)
	Total Days Use :	Peak Number :	Total Production
Swans	7,805	260	
Geese	1,653,400	39,645	
Ducks	3,674,230	56,375	
Coots	443,100	7,500	

SUMMARY	
Principal feeding areas	Refuge ponds, grainfields and meadows.
Principal nesting areas	Refuge dikes, ditchbanks islands & artifical sites
Reported by	Stephen R. Vehrs.

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

MIGRATORY BIRDS
(other than waterfowl)

Refuge Modoc Months of January to April 1957

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Eared Grebe	1	3/29	60	4/27	Still Present					200
Western Grebe	1	4/3	50	4/28						150
Pied-Billed Grebe	3	3/14	60	4/28						200
White Pelican	13	2/26	40	4/24						175
D-C Cormorant	5	4/6	5	4/28						25
Great Blue Heron	16	1/1	40	3/11						150
Snowy Egret	7	3/21	80	4/24						200
B-C Night Heron	1	3/12	14	4/28						100
Am. Bittern	1	3/29	11	4/20						50
#Gr. Sandhill Crane	2	2/11	43	4/10						300
Virginia Rail	1	3/29	10	4/9						50
Sora Rail	4	3/27	10	4/9						50
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	-	Res.	300	4/10	Still Present					750
Common Snipe	-	"	250	4/6						500
Long-Billed Curlew	2	3/20	75	4/6						100
Spotted Sandpiper	7	2/23	130	3/30						300
Solitary Sandpiper	2	3/2	30	4/2						150
Willet	1	3/26	125	4/24						300
Greater Yellowlegs	2	2/24	100	4/17						300
Long-Billed Dowitcher	5	4/8	25	4/24						100
Am. Avocet	2	3/23	65	4/24						300
Wilson's Phalarope	8	3/26	25	4/27						100
Calif. Gull	3	1/28	1,400	4/2						2,500
Ring Billed Gull	5	2/5	475	4/2						1,200
Forsters Tern	7	3/27	125	4/24						400

(over)

(1)	(2)		(3)		(4)	(5)			(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	6	1/8	300	1/30	Still Present				750
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle	4	1/1	11	1/14					15
# Duck hawk	2	1/26	2	1/26					2
Horned owl	Res.	-	25	1/30					25
Magpie	"	-	75	1/10					350
Raven	"	-	6	3/2					25
Crow	5	2/28	25	1/12					125
Turkey Vulture	2	3/29	13	1/30					50
Red-Tailed Hawk	Res.	-	16	1/23					50
Swainson's Hawk	4	1/1	9	3/30					25
Bald Eagle	2	1/1	5	2/28					10
Marsh Hawk	1	3/2	25	1/24					100
# Prairie Falcon	1	3/2	3	1/24					10
Sparrow Hawk	2	2/2	20	1/2					100
Burrowing Owl	2	3/13	2	3/13					10
					Reported by <u>O/ E. Larochelle</u>				

Rare & Endangered

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

MIGRATORY BIRDS
(other than waterfowl)

Refuge MODOC

Months of May to August 1957 70

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Number
I. Water and Marsh Birds:										
Eared Grebe	*	*	75	8/6	*	*				200
W. Grebe			15	8/11						50
Pied-Billed Grebe			200	8/18				21	58	425
White Pelican			160	8/12						275
D-C Cormorant			9	8/1						25
Great Blue Heron			65	8/10						150
Snowy Egret			85	8/26						150
B-C Night Heron			25	8/26						200
Am. Bittern			15	8/24						75
#Gr. Sandhill Crane			81	8/30				16	21	200
Virginia Rail			25	8/14						100
Sora Rail			25	8/14						100
II. Shorebirds, Gulls and Terns:										
Killdeer	*	*	450	7/13	*	*		26	450	1,500
Common Snipe			500	8/1				20	130	1,500
Long-Billed Curlew			75	8/16						400
Spotted Sandpiper			500	8/18				3	14	2,000
Solitary Sandpiper			125	8/2						650
Willet			250	8/26				26	145	1,200
Greater Yellowlegs			100	7/29						1,400
Long-Billed Dowitcher			200	8/13						800
American Avocat			125	8/7				42	300	750
Wilson's Phalarope			400	8/7				24	400	1,200
California Gull			3,200	8/11						6,000
Ring-Billed Gull			200	8/24						750
Forster's Tern			350	8/8						800

* Present from last period & still present

† Rare & endangered

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	*	*	2,500	8/29	8		5	50	6,000
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle	*	*	11	5/6					15
# Duck hawk			1	5/2					2
Horned owl			25	8/2					25
Magpie			150	8/10					350
Raven			9	8/19					25
Crow			45	5/10					125
Turkey Vulture			18	7/8					50
Red-Tailed Hawk			18	8/14					50
Swainson's Hawk			11	8/3					25
Bald Eagle			5	8/11					10
Marsh Hawk			27	5/13					100
# Prairie Falcon			4	8/11					10
Sparrow Hawk			24	5/19					100
Burrowing Owl			4	6/21					10
					Reported by <u>O. E. Larochelle</u>				

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751

Form NR-1A
(Nov. 1945)MIGRATORY BIRDS
(other than waterfowl)Refuge NOBACMonths of September to December 1967

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Rared Grebe	*	*	20	9/1	2	12-10				300
Western Grebe			10	9/1	2	11-15				150
Pied-billed Grebe			30	9/1	*	*				400
White Pelican			90	9/9	5	12/2				250
Great Blue Heron			70	9/1	*	*				300
Snowy Egret			90	9/1	5	11/30				425
S-C Night Heron			125	9/1	*	*				350
American Bittern			20	9/15	2	11/30				100
Gr. Sandhill Crane			110	9/15	4	11/25				300
Virginia Rail			15	9/15	2	12/2				100
Sora Rail			15	9/10	1	12/3				75
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	*	*	600	9/1	*	*				3,500
Common Snipe			300	9/1	*	*				450
Long-billed Curlew			60	9/1	2	11/20				250
Spotted Sandpiper			550	9/2	20	12/2				575
Solitary Sandpiper			150	9/2	20	10/15				475
Willet			200	9/1	5	10/15				650
Greater Yellowlegs			75	9/1	2	11/15				700
Long-billed Dowitcher			200	9/1	5	12/1				200
American Avocet			150	9/15	3	11/2				225
Wilson's Phalarope			425	9/15	7	11/2				1,000
California Gull			2,500	9/1	*	*				4,000
Ring-billed Gull			150	9/1	2	11/25				1,000
Forster's Tern			300	9/1	2	11/15				1,000
Black Tern			100	9/1	1	11/30				700

* Present from last period & still present (over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	*	1,400	9/15		3,800
White-winged dove	*				
IV. <u>Predaceous Birds:</u>					
Golden eagle	*	16	11/15	*	18
Duck hawk		2	11/15	1	4
Horned owl		30	11/30	*	40
Magpie		200	11/15	*	550
Raven		5	11/15	*	
Crow		75	9/25	2	350
Turkey Vulture		20	10/15	2	50
Red-Tailed Hawk		10	11/10	*	50
Swainson's Hawk		12	11/15	*	50
Bald Eagle		5	11/30	*	10
Marsh Hawk		40	11/15	*	450
Prairie Falcon		5	12/15	*	20
Sparrow Hawk		40	12/15	*	200
Burrowing Owl		4	10/30		10
Reported by <u>Stephen E. Yehrs</u>					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge MODOC For 12-month period ending August 31, 1970

Reported by Stephen E. Vehrs Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat			(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage				
Godfrey	Crops	0	Ducks	348,445	195	85
	Upland	800	Geese	50,200	40	67
	Marsh	20	Swans	3,500	-	-
	Water	10	Coots	11,800	25	5
	Total	830	Total	413,945	260	157

West	Crops	540	Ducks	1,600,550	1,700	775
	Upland	1,570	Geese	750,000	700	185
	Marsh	20	Swans	5,800	-	-
	Water	30	Coots	159,500	310	75
	Total	2,160	Total	2,515,850	2,710	1,035

East	Crops	60	Ducks	2,126,000	3,900	1,305
	Upland	2,155	Geese	1,320,500	950	645
	Marsh	50	Swans	6,140	-	-
	Water	125	Coots	300,500	490	240
	Total	2,390	Total	3,753,140	5,340	2,190

Dorris	Crops	0	Ducks	1,100,000	750	455
	Upland	200	Geese	972,075	225	119
	Marsh	0	Swans	2,655	-	-
	Water	400	Coots	149,450	365	90
	Total	600	Total	2,224,180	1,340	664

Total	Crops	600	Ducks	5,174,995	6,545	2,620
	Upland	4,395	Geese	3,092,775	1,915	1,016
	Marsh	90	Swans	18,095	-	-
	Water	595	Coots	621,250	1,190	410
	Total	6,180	Total	8,907,115	9,650	4,046

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

WATERFOWL HUNTER KILL SURVEY

Refuge MODOC

Year 1967 70

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
10/10-16	616	10,800	Mallard-506, Pintail-165, GWT-165, Canada Goose-104, Widgeon-100, Shoveler-27, Gadwall-20, Cackler-8, Wht. Front-4, Wood duck-4, Cinn. Teal-4, Snow goose-3, Redhead-3, Coot-2, Ross goose-1, goldeneye-1.	1117	558	1675	1800	4894
10/17-23	196	7500	Mallard-69, Pintail-26, Widgeon-19, GWT-12, Gadwall-9, Canada Goose-3, Shoveler-2, Woodduck-1.	141	70	211	1250	1344
10/24-30	59	4380	Mallard-14, Pintail-8, Canada Goose-7, Gadwall-6, GWT-4, Scaup-1	40	20	60	730	742
10/31-11/6	60	1890	Mallard-21, Cinn. Teal-20, Canada Goose-17, Widgeon-11, GWT-8, Pintail-6, Shoveler-3, Canvasback-2, Redhead-2, Coot-1.	91	45	136	315	714
11/7-13	58	1740	Widgeon-17, Shoveler-16, Mallard-14, Cinnamon Teal-12, Pintail-8, Coot-5, GWT-5, Canada Goose-4, Redhead-2, Ringneck-1.	84	42	126	290	630
11/14-20	62	1800	Mallard-8, Gadwall-5, Canada Goose-3, GWT-3, Pintail-1, Coot-1.	21	10	31	300	150
11/21-27	51	2100	Mallard-31, Pintail-22, Gadwall-16, GWT-12, Canada Goose-7, Cackler-7, Widgeon-4, Shoveler-3, Ross-1, Coot-1.	104	52	156	350	1070
11/28-12/4	20	600	Gadwall-8, Mallard-6, GWT-5, Canada Goose-4, Cackler-4, Widgeon-4, Shoveler-3, Coot-3, Cinn. Teal-2, Redhead-2, Scaup-1.	42	21	63	100	315
12/5-12/11	25	480	Mallard-14, Pintail-9, Redhead-7, Canada-7, Widgeon-7, Gadwall-5, GWT-5, White Front-2, Wood duck-1, Canvasback-1.	58	29	87	80	278

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

3-1750c
Form 1C
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

MODOC

Refuge _____

Year 19670

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
12/12-12/18	31	900	Gadwall-12, Mallard-11, Pintail-9, GWT-9, Widgeon-5, Canada Goose-3, Coot-2, Wood Duck- 1, Canvasback-1.	53	26	79	150	382
12/19-12/25	14	1350	Mallard-19, GWT-12, Pintail-8, Widgeon-7, Shoveler-6, Gadwall-5, Coot-2, Canada-1, Goldeneye- 1, Cackler-1, Wht. Front-1.	63	31	94	225	1504
12/26-1/1	10	3000	Canada Goose-5, Cackler-4, Gadwall-3, Mallard -2, Pintail-2, Widgeon-2, GWT-1, Shoveler-1	20	10	30	500	1500
1/2-1/8	31	300	Cackler-14, Mallard-13, Gadwall-8, Pintail-4, GWT-3, Widgeon-3, Ruddy-2, Coot-2, Canvasback-1.	50	25	75	50	121
1/9-10	2	60	Mallard-2, Cackler-1	3	1	4	10	20
TOTALS	1235	36,900	Mallard 730, Pintail 268, GWT 232, Widgeon 179, Canada Goose 165, Gadwall 97, Shoveler 61, Cackler 39, Cinn. Teal 38, Coot 19, Redhead 16, WhiteFront Goose 7, Woodduck 7, Canvasback 5, Snow 3, Ross 2, Goldeneye 2, Scaup 2, Ruddy 2, Ringneck 1.	1887	940	2827	6150	13,664

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

UPLAND GAME BIRDS

Refuge Modoc Months of January to April, 19 70

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificoally requested. List introductions here.
Ring-necked pheasant	780 acres farm lands; 2,200 acres upland: total 3,000	30							100	
Calif. quail	As above	30							100	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

UPLAND GAME BIRDS

Refuge MODOC Months of May to August, 190

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	780 acres farm lands; 2,200 acres upland; total 3,000	30	8	90					150	
California Quail	as above		4	75					200	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

UPLAND GAME BIRDS

Refuge MODOC Months of September to December, 19 70

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-neck Pheasant	780 acres farmlands 2,200 acres upland, Total 3,000	30							150	
California Quail	As above	15							200	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1-3
Form NR-3
(June 1945)

BIG GAME

Refuge MODOC Calendar Year 1970

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Mule deer	Entire refuge land Area 4,763 acres	20										240	30	
Pronghorn Antelope	As above	5										200	200	

Remarks:

Stephen R. Vehrs.

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

SMALL MAMMALS

Refuge Hodoc Year ending April 30, 1970

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Raccoon	1,000	25			7									40
Mink	1,000	20			-									50
Striped skunk	5,000	50			56									100
Badger	2,400	240			2									10
Coyote	5,000	500			4									10
Belding gr. squirrel	2,400	1/4			2500									9600
Muskrat	1,400	2+			30									3000
Blk.Tld.Jackrabbit	2,400	24			-									100
Mtn. cottontail	2,400	16			-									150
Feral housecat	5,000	250			26									20

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: Removals were through a joint effort involving Divi. of Wildlife Service, County Farm advisor and Refuge personnel.

Reported by O. E. Larochele

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

DISEASE

Refuge MODOC Year 19 70

Botulism

Lead Poisoning or other Disease

Period of outbreak 8/13 - 10/6

Period of heaviest losses 9/3 - 18

Losses:

	Actual Count	Estimated
(a) Waterfowl	<u>1303</u>	<u>1500</u>
(b) Shorebirds	<u> </u>	<u> </u>
(c) Other	<u> </u>	<u> </u>

Number Hospitalized	No. Recovered	% Recovered
---------------------	---------------	-------------

(a) Waterfowl	<u>25</u>	<u>4</u>	<u>16%</u>
(b) Shorebirds	<u> </u>	<u> </u>	<u> </u>
(c) Other	<u> </u>	<u> </u>	<u> </u>

Areas affected (location and approximate acreage)

Goose pond, App. 120 acre area affected

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.)

Water levels were lower than normal for a period prior to the outbreak

Condition of vegetation and invertebrate life

Remarks Sick birds were put on clean food and water:
No anti-toxin used.

Kind of disease

Species affected

Number Affected Species	Actual Count	Estimated
----------------------------	--------------	-----------

<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Number Recovered

Number lost

Source of infection

Water conditions

Food conditions

Remarks

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge

WDOOC

Year 19 70

Collections and Receipts (Seeds, rootstocks, trees, shrubs)							Plantings (Marsh - Aquatic - Upland)						
Species	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
NOTHING TO REPORT													

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks:

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge WODOC County WODOC State CALIFORNIA

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Barley		5760 bu.			200		440		
								Fallow Ag. Land	93

No. of Permittees: Agricultural Operations 2 Haying Operations 5 Grazing Operations 8

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Reeds Canary Goats Fescue Acker wheatgrass Madrid Clover	616	374	\$ 4,312.00	1. Cattle	3,173	5,394.0	\$16,151.40	3,478
				2. Other	3 horses	17.5	\$52.50	25
				1. Total Refuge Acreage Under Cultivation				530
Hay - Wild	2,070.5	1878	\$14,493.50	2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge W3300

Months of January through December, 1954

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
1. Barley	#150	0	#150				0	#150			

(8) Indicate shipping or collection points _____

(9) Grain is stored at Last Shop

(10) Remarks This grain is used for banding purposes

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

MODOC

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5/25 - 27	All broad leaf plants primarily Thistles, Mustard	Roadsides, ditch banks, waste places	48	2,4-D Low Volatile ester	25 gallons of #4/AE/Gal.	#2/A/AE	Water & diesel	boom sprayer
4/25	All plants	walks and parking area around headquarters	1/2	Ureabor	#25	1 lb/100 sq. ft.	dry	dry spreader

10. Summary of results (continue on reverse side, if necessary)

2-4-D kill was app. 90% on all broad leaf species, with exception of thistles.

Ureabor was 99% effective.



Mallard nest in tire on island in
Goose Pond.
(Larochelle)

The demand for goose nesting sites
on Modoc is great. This platform
tire was put up on the Goose Pond
dike about 200 feet from Highway
395. (Larochelle)



During the draw down and dike renova-
tion of the Goose Pond in 1969,
several of these small nesting
islands were constructed. They are
too small and tend to disintegrate in
the water. Geese, ducks, and muskrats
take to them immediately.
(Larochelle)

The platform was occupied the first
spring and was a big attraction to
townspeople out for an evening drive.
(Larochelle)





A serious outbreak of botulism on the Goose Pond required the loan of the Tule Lake airboat. About 1,300 birds were picked up on this one 200 acre area where the outbreak occurred.
(Larochelle)

California Department of Fish and Game waterfowl disease team assists in botulism control and analysis of infected waterfowl.
(Larochelle)



Dogs were a big help in recovering dead and sick birds.
(Mack)

Hart Mountain Assistant Manager Good and Maintenceman Longenecker helped the Modoc crew trap and band 144 local geese in June;
(Larochelle)





The refuge hosted the Alturas Rotary Club Kids Fishing Derby at Dorris Reservoir. They didn't catch many fish but ate lots of hot dogs. (Larochelle)

The Modoc Refuge conducts a hunters tour the day before the waterfowl season opens. Strangers to the area learn access points, see lots of waterfowl, and learn regulations. (Larochelle)



One of the best ways of controlling vandalism and littering on public use areas - close them at night.

Modoc Assistant Manager Larochelle and California Fish and Game Warden Carling checking part of 396 hunters checked of opening day crowd estimated at 1,380 hunters. (Larochelle)





Pit River channel through Godfrey Unit before Corps of Engineers Pit Flood Control work. About 750' of project in refuge. (Larochelle)

After many hours of sensitive negotiation, a highway right-of-way was granted along the west and north edges of the refuge. Some land exchanges were involved and the refuge came out better than we expected. (Larochelle)



Pit River channel after flood control work. Banks planted to Refuge specifications of Intermediate wheatgrass, Ranger alfalfa, and others. (Larochelle)

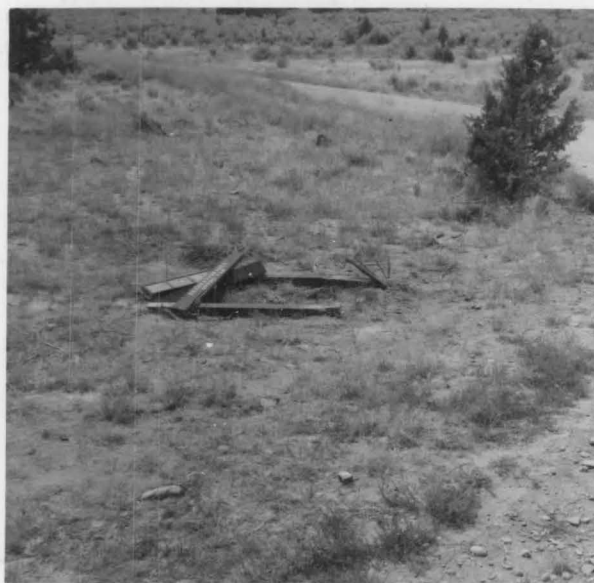
The contractor for the highway job was happy to dig us some waterfowl ponds to our specifications in exchange for the fill material. They had some super equipment that removed over 100,000 cu. yds. in a short time. (Larochelle)





We have an annual battle with small patches of Scotch thistle. Student Trainee Mack took his turn at it.
(Larochelle)

Some vandalism occurs on Dorris Reservoir even during daylight hours.
(Larochelle)



Flood damage of 1969 & 1970 to the North Grainfield dike was repaired by contract. 2,500 cu. yds. of riprap was placed to protect the dike from future floods.
(Larochelle)

One of the boat launching sites on Dorris Reservoir where minor vandalism occurs regularly.
(Larochelle)





A few days after this nice restroom facility at Dorris Reservoir was completed, and before the entrance gates were locked at night, some of the locals decided to toss the decorative (?) stone off the roof. (Larochelle)

Frequent personal & friendly contact with the users of our recreation area helps create an awareness of some of the problems. These youngsters were conducting a cleanup campaign of their own. (Larochelle)



Aircraft landing mat material was used on Dorris Reservoir for temporary boat launching sites. (Larochelle)

There are some jobs that can best be accomplished with tools of ancient design. This old pull grader does a good job on some of our irrigation ditches. (Larochelle)





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Mrs. Larochelle



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Exalst idea
2/15



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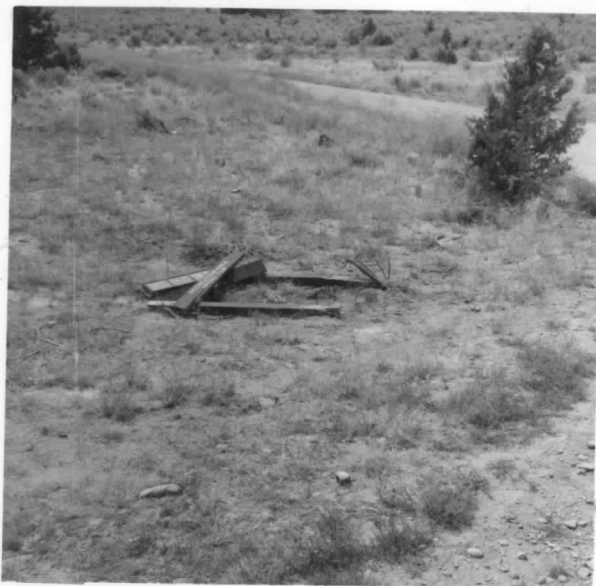
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Where's your toll bar? wk

