Refuge Copy
NWR.

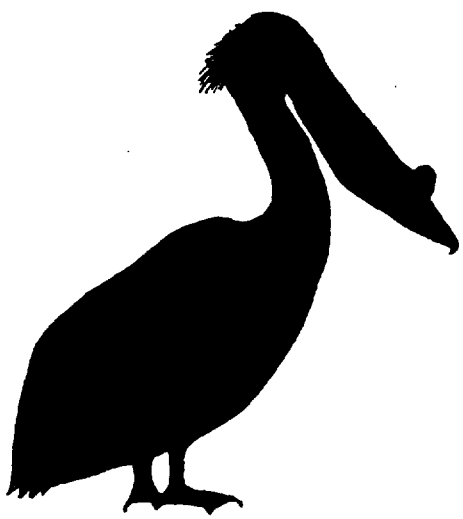
SALTON SEA NATIONAL WILDLIFE REFUGE

&

WATERFOWL DEVELOPMENT AREAS

NARRATIVE REPORT

MAY - AUG. 1949



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UNITED STATES DEPARTMENT OF THE INTERIOR
FISH & WILDLIFE SERVICE
BRAWLEY, CALIFORNIA

Salton Sea National Wildlife Refuge

&

Waterfowl Development Area

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NARRATIVE REPORT

May, June, July, August, 1949

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United States Department of the Interior
Fish and Wildlife Service
Brawley, California

REFUGE PERSONNEL

REGULAR PERSONNEL

Edward J. O'Neill.....Refuge Manager
James H. Hall.....Foreman-Farm Operations
Will T. Wesley.....Refuge Maintenance Man
Clyde W. Stewart.....Tractor Operator
Alfred N. MacFarland.....Tractor Operator

TEMPORARY PERSONNEL

G. R. Cook.....Laborer
L. D. Nichols.....Cement Finisher
W. C. Ford.....Tractor Operator
L. W. Lynch.....Laborer
J. W. Sexton.....Laborer (SERVED PART-TIME AS CLERK)
M. E. Nix.....Laborer
Melvin Ford.....Laborer
J. L. Merrill.....Tractor Operator
Jack Merrill.....Tractor Operator
John Barros.....Laborer
F. W. Saurberg.....Laborer

Cover.....Pelican

NARRATIVE REPORT

I GENERAL CONDITIONS

A. Weather, Etc.

Calm weather was interrupted frequently with days of strong winds and dust storms, none of which were considered unusual. The regular buildup of summer temperatures was interrupted May 16 when a trace of rain fell, cooling the general Valley area. First high temperature recordings of the period were made May 27 and 31 when the mercury recorded 106 degrees. The minimum for the same month was 56 degrees. In simple it was the same ole story--wide variations in temperatures.

A light shower covered most of Salton Sea, the adjacent refuge units north of headquarters and then shifted to the Chocolate Mountains the afternoon of July 20th.

Tabulated below is the local weather data as compiled by the U. S. Naval Air Station at El Centro.

MONTH	MAXIMUM	MINIMUM	PRECIPITATION
May	106.0	56.0	0.00
June	110.0	60.0	0.00
July	115.0	70.0	0.00
August	116.0	64.0	0.00

B. Water Conditions.

No change has occurred in water conditions since previous reports.

C. Fires.

No fires detrimental to property or wildlife occurred on the refuge area during the period.

II WILDLIFE

A. Migratory Birds

1. Populations and Behavior

On May 5th an estimated 125 Fulvous Tree Ducks arrived from points south. As always they took to irrigated fields and were apparently satisfied with what they had to offer. A few broods of these ducks were seen during June. On the 12th of June one parasitised nest was found containing 17 eggs which were then spilling from the nest. Several times thereafter adult birds were observed at the nest. A later observation or photograph was interrupted as back waters from New River claimed the slightly elevated shoreline where the nest was located in the cattail growth. By the last of August it was evident that a few Fulvous ducks were returning to Imperial Valley as the population increased.

As in the past a few Ruddy Ducks, Cinnamon Teal and Pintails nested on and around the development units. August 10th saw what appeared to be the first fall migrants when 40 pintails showed up. In formation they flew for hours swooping, shying over the contoured areas before they finally came to rest. In the weeks to follow the population swelled until a peak of 230 were using Unit I.

White-winged doves, true to average schedule, arrived about May 1st although we didnt observe them until two days later

2. Shorebirds, Gulls and Terns

About 500 Long-billed Curlews were here May 9th and to our surprise they gradually increased until by the last week in June they numbered more than 4000 along the southern shoreline of Salton Sea. Never have we observed even an indication that the species nests here, however, they do remain, perhaps as young, unmated birds.

Yellowlegs showed up as early as July 5th on their southward trek. Only one species appeared present and from field observations we conclude that only the Lesser Yellowlegs was involved.

A long line of a flight group of Black-bellied Plover was seen the evening of July 8th following the New River channel westward.

Willets, Sandpiper peeps and Phalaropes all came to the area. The Willets however may have remained here throughout the summer for several times we heard and saw the species along the west shores of Salton Sea.

3. Marsh and Water Birds

Imperial Valley's storks, the Wood Ibis, returned this season about June 27th when 30 were seen. By July 8th more than 2000 were congregated in the northern portion of the Valley.

The Great Blue Heron, Egrets, Cormorants and the grebes all nested at Salton Sea this season.

Resume of Nesting Pelicans, Terns and Gulls At Salton Sea

Normally the wintering population of White Pelican at Salton Sea is comparatively low. Population counts run from a handfull to 200 birds. Information on their local movements is meagre but it is felt that they pass freely between Salton Sea, the Colorado River, Lake Henshaw and to some extent, the coastal waters, below the international boundary. Several times they have circled and spiraled upward from the sea to dizzy heights to completely disappear for days, apparently off on some excursion. Last winter several thousand showed up with black oily bellies arousing our speculation that they might have settled on some oil slick along the coast or Lower California Gulf.

Each year in April several hundred pelicans join the wintering group but seem to leave the Salton Sea late during the month. So far as is known the nesting colony consists mainly of birds that winter here.

This season the mating "bump" or wart atop the upper bill was one-fourth developed on some individuals as early as March 24th. They were in full bloom by early May. Later we found handfulls of these cast-off nuptual ornaments on the nesting islands where they had been shed. Invariably they were heaped upon the nesting material for want perhaps of a better use. Some were badly blood-stained indicating they may have been shed prematurly or were perhaps forced off.

The Salton Sea Islands are in reality a small group of sand dunes claimed by the gradual, more recent rise in the waters of Salton Sea. There exists today five of these sandy islands alon g the west shore of the Sea all of which provide about a total surface of 3 acres.

We dubbed the largest and most easterly island as "Still Island" as it was once the site of a whiskey still.

In mid-April a few pelicans and the desert lizards were the

only animal life present on the islands. Pelicans were still flying in formation and unconcerned with our intrusions. At first as the nesting season got under way, Pelicans dropped their eggs promiscuously about the sandy islands, apparently disinterested in them. As the season progressed however, twigs of Iodine bush (Allenrolfea occidentalis), which is substantially the only vegetation growing there, were carried or scraped around egg hollows by some of the birds. Gradually the birds became more and more conscious and concerned with our visits and the other bird life on the islands. No such thing as an animal predator ever showed up. Laughing Gulls, Caspian and Gull-billed Terns arrived later and competed for nesting sites. On April 30th 486 pelican nests with an average of 1.5 eggs per nest were found. Gull-billed Terns at that time had 67 nests and hollows with an average of 1.8 eggs per nest. Caspian Terns had laid an average of 1 egg in 28 nests.

Some pelican nests were found as close as 3 feet from water in one instance to a great variety of distances across the islands. One pair nested 2½ feet apart. Six feet was the average distance between nests recorded.

Gull-billed Terns were situated as close as 14 inches to water in two instances and another pair of nests were located 15½ inches apart. The average distance between nests was found to be slightly less than four feet. Often, as in the case of pelicans, the remnant of last years nest was used. Gull-billed Terns often placed green twigs of Iodine bush around nests. Generally speaking, pelicans preferred the soft sandy portions of the islands taking in a wide variety of situations. One nest was established on the carcass of one of last years dead birds. Some sought shelter but most of the nests were sheltered only by the birds and the blue sky above. They nested on three of the islands. Gull-bills infringed upon the chosen territories of the pelican in a number of instances. In the main though they colonized on the southern portions of three islands. One island was completely dominated by them.

Caspian Terns preferred one of the larger, central islands and maintained a firm stand on that island only.

Laughing Gulls, although the last to nest, were contented to use the higher portions of the islands when they could build nests in the Iodine Bush growths.

While stumbling over the islands the morning of May 16th we heard the first sounds of hatching pelicans. Although none had hatched, many could be heard from within the pipping eggs. The first egg examined had a pip-hole not much larger than a match head, within the egg shell and already firmly established

on it's host could be seen two lice---the inevitable.

Three days later, May 19th, Gull-billed Terns were pipping but none were out of the eggs. Young terns and pelicans were everywhere by the morning of May 31st, hatching, pipping, struggling, eager for their chance at life under the merciless grip of the midday sun which brought ground temperatures well above 150 degrees! Ants entered several nests and the pipped eggs. One nest was abandoned presumably due to the ants. Tabanid horseflies also had a field day. Laughing Gull nests were found this same day on the highest points of the island.

Pelicans brought food from waters apparently many miles from Salton Sea. Often a huge carp or a two or a three pound mullet was deposited at nests by some eager-beaver parent long before the young were hatched. Handfulls of fish fry were common among nests of unhatched eggs. Fish found at the nests after regurgitation in the following order of abundance were: Carp, Gobies, Green Sunfish, Mullet, Bluegill, Bullhead and Catfish.

Gull-billed Terns fed their young crickets, grasshoppers, and alfalfa butterflies. As the season progressed we found an occasional lizard and horned toad being brought to the nests.

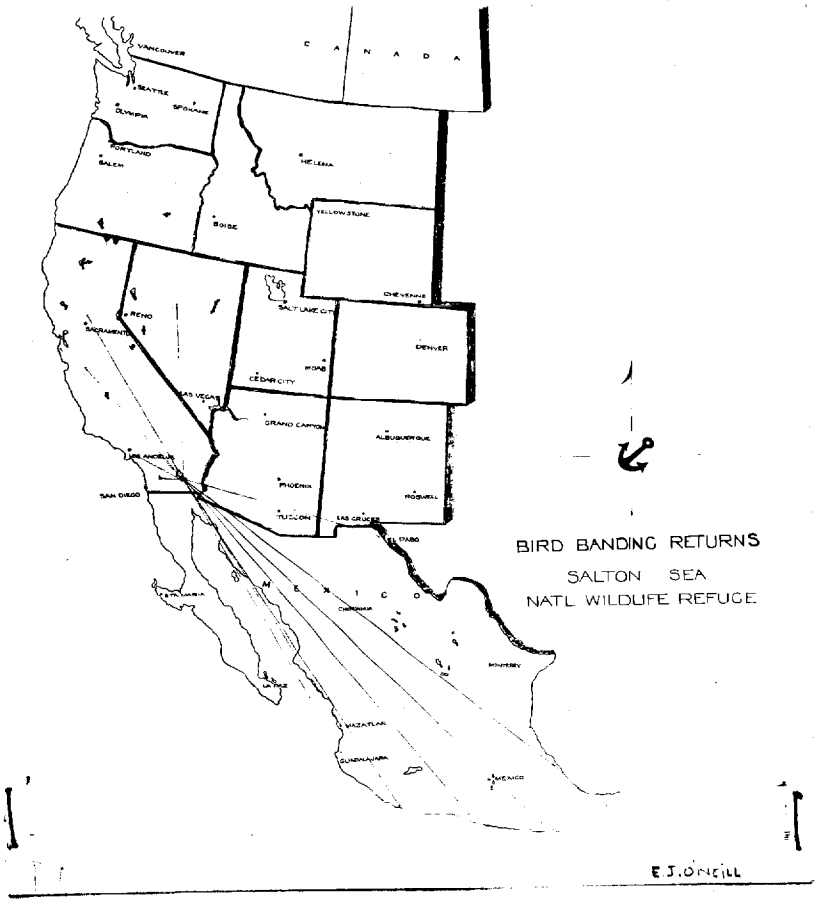
Surviving young pelicans thrived and grew at tremendous rates. The upper bill served as an excellent "stopper" after the young birds had gorged themselves on the food brought in. This was accomplished by merely hooking the upper portion of the bill inside the lower one. The trick looked simple for young birds but after about one month of age the upper bill becomes rigid and cannot be bent even by force. At this stage they used them unmercifully in their never ending attempt to gobble up younger brothers and sisters. Continuous pecking by older birds is no small item in mortality at the nest.

Perhaps the main item of mortality was the nesting Gull-billed Terns. Each time visitors frightened the young pelicans off the small islands the attack was renewed. Like small aircraft they plunged from various heights, pecking the unprotected chicks to death. Adult pelicans were always able to stave off the attacks of the Gull-billed Terns by snapping at the diving terns, however, one day we watched one Caspian Tern stand off 3 mature Pelicans which were attempting to pass its nest along a narrow portion of the island.

By the end of the season some 370 young pelicans had been hatched out by an estimated population of 180 adult birds. A total of 300 young pelicans were successfully captured and banded in the interest of further information on their migrational wanderings.

From the returns obtained by the Service and Mr Fred Gallup, cooperator who banded young pelicans during war years, it is evident that there is somewhat of a late summer movement to the north of at least some of these birds.

We are indebted to Mr Gallup for part of the information contained in the migration map shown below.



Above map shows returns from White Pelicans banded as nestlings at Salton Sea.

Early in July the Atomic Energy Commission, with headquarters at Sandy Beach, took over much of the land embracing the south end of Salton Sea. The action extracted from the old Salton Sea Refuge thousands of acres, part of which included the Pelican Islands. In the future perhaps the AEC will look with favor upon the colonies of nesting species. There should be no real conflict with the Commissions general operations as told. Exclusion of trespass through the area---which of course the Service has never been able to do, would benefit this nesting group to no small extent. On the other hand, should the Commission utilize all of the land as it is now utilizing Still Island it may become necessary for the birds to seek another area. One supervisory employee at the base stated that on Still Island alone, "about ninety percent of the young birds died from lack of care when we started building on that island"

4. Food And Cover

Food and cover conditions are substantially unchanged since the previous period. A good growth of Spiny Naid has become established just west of Tract 13, Unit I and appears to be spreading.

5. Diseases

No known diseases have occurred during the period.

B. Upland Game Birds

1. Population and Behavior

On June 20th State men from the local game bird farm transplanted 280 mature pheasant brood hens to Unit I of the refuge. At the time the temperatures were high, many of the fat, conditioned birds were picked up dead by personnel along contours, ditches and patrol roads. Cocks that did not die from heat exhaustion or some similiar cause appeared to have been driven from the area by resident breeding males. After a few weeks there were very few of the hatchery birds present on the area. On the humerous side was the countless number of eggs and the unthinkable places they were dropped by the "hopped up" hens fresh from the farm runs.

Many factors tend to limit the success of the pheasants in the Imperial Valley. Perhaps the outstanding factor is the type of farming practiced here. Alfalfa appears to rate as the number one preferred nesting cover and with constant irrigation every

10 or 12 days, cutting every 25 to 30 days there is little wonder that the survival rate is rather low.

Harvest by mowing usually takes place during daylight hours but many farmers harvest the crop at night to escape the heat of the day or to maintain a deadline. Dehydration plant harvesters operate day and night on a 24 hour basis. In a field that has been cut at night the mortality of wildlife runs high. Cutterbars of tractors traveling 8 to 12 miles per hour through a hayfield have left a trail of pheasants, meadowlarks, sparrows, horned larks, snakes, frogs, toads, gophers etc.

Young pheasants are faced with the hazards of deep "V" shaped drains and canals which contain the only drinking water available. This coupled with the practice of periodically spraying and burning ditchbanks each month leaves the pheasant with a very limited home or habitat suitable to his requirements.

2. Food and Cover

No substantial change since the previous period.

III REFUGE DEVELOPMENTS AND MAINTENANCE

A. Physical Development

1. Agricultural

On May 30th work started in Tract 3 of Unit I regrading contours, setting drop boxes, double disking, double floating, broadcast seeding Wild Millet at the rate of 10 pounds per acre, harrowing and closing the contours and flooding the crop. By June 16th the second flooding was underway with a 2 to 4 inch drop on the way. All of the contoured units were given the same treatment and planted to Sacramento Valley Millet.

Tract 4 of Unit I was deep chiseled, disked, releveled and planted to Sesbania the last week of May. In tract 15 and 16 of Unit II a volunteer crop of Sesbania was similiarly raised. In late June as seed pods began to form, it was promptly plowed under as a nitrifying green manure crop.

By June 20th all of the contours in Tract 2 of Unit 1 had been regraded, boxes replaced and the lands tilled and seeded. An unusual number of irrigation water thieves upstream on Canal 13 caused these lands to drop down in water depth often. Brisk winds and alkali soon bleached exposed flats and killed the new growths of wild millet. On the other hand often too great an amount of water in the contours followed by winds caused the impounded waters to burst their restraining contours and drain

the unit dry.

In section 13 of Unit I the undertaking of removing brush, filling gullies, leveling etc of additional land was started on the north half of the area. Tillage consisted of disking, floating, chiseling and leveling with the D-7 and Carryall. This tract of land should prove to be most desirable and productive in time.

In mid-June one mile of service ditch along Trifolium Drain No 1 was cleaned, graded and lowered three feet to eliminate subing of private lands and to allow for better water flow to the main tracts of Unit I.

This year an estimated 88 second feet of free water reached Unit I as surplus canal water, this due to the vigilance of the men on the job.

In July, Unit II was acquired and added to the Salton Sea Refuge development areas. Men and equipment went into action working two shifts, both night and day in order that the various alfalfa tracts might be prepared in time for planting. From 5 am until midnight the operations were continuous through July, August and September.

The new alfalfa left in tract 4 of Unit II and most of that in tract 7 was lost due to lack of water during a critical period of its growth. Hot weather during July caused the crop to scald and it will be necessary to replant these areas.

Work got underway in tract 26, Unit I which was also acquired under Lea Act. The land had lain dormant following harvest of a wheat crop in May. The land was double disked, floated, deep chiseled, landplaned three times, leveled and returned to its original 50 foot bands, with new irrigation boxes and a clean ditch. With these preparations the land was ready for alfalfa seed, to provide forage for wintering ducks.

The men on the refuge charged with the most arduous tasks of all, cleaning ditches and replacing boxes and pipe, proceeded in full stride through Unit II. Plenty of know-how plus a healthy attitude toward the final product resulted in the Service's most spectacular accomplishments with these lands to date.

2. Construction

At headquarters excavations were made, forms set and the flooring for the new metal service building was poured in late May and early June. The later part of July and early August saw a new shadow cast across the headquarters court as the actual erection of this much needed building got under way.

3. Collections

There were no collection made during this quarter.

IV PUBLIC RELATIONS

A. Recreational Uses

Recreational uses of the refuge were restricted to bird enthusiasts and fishermen along the New River in Unit I.

B. Visitors

NAME	DATE	ORGANIZATION	PURPOSE
D. Woodward	5/2-4/49	FWS - Lands	Land lease, purchase
F. Ross A. Hensley	5/11/49	Calif Fish & Game Game Supervisors	Information
F. Gallup	5/13/49	Banding Cooperator	Bird Banding
J. Reynolds	5/17/49	Calif Game Warden	Information
J. Reynolds	6/2/49	Calif Game Warden	Tour Refuge
A. Ferrie	6/20/49	Calif Fish & Game I.V. pheasant hatchery	Release stock
R. Scharr O. Wilson	6/27/49	FWS - Lands IIDistrict	Cantact
K. MacDonald	7/19-21	FWS - Refuges	Inspection
K. Walker	7/23/49	Rice University Student Ichthiologist	collecting
L. Coble	7/31-8/12	FWS - R. O.	Office work

C. Violations

There were no apprehensions made during this period.

Submitted . . . . .October 13, 1950

Edward J. O'Neill
Refuge Manager

Approved: _____

WATERFOWL

Refuge Salton Sea National Wildlife Months of May to August 1949

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for Period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard	previous period		8	5/6	4	6/11			200
Black duck									
Gadwall									
Baldpate	previous period		60	5/6	2	5/28			150
Pintail	"	"	230	8/1					7000
Green-winged teal	"	"	340	5/6					500
Blue-winged teal									
Cinnamon teal	"	"	200	7/2					500
Shoveller	"	"	70	5/6					200
Wood duck									
Redhead									
Ring-necked duck									
Canvas-back									
Scaup	"	"	40	5/6	10	7/9			150
Golden-eye									
Buffle-head									
Ruddy duck	"	"	330	7/30					500
Fulvous Tree Duck	"	"	200	—					200
IV. Coot:	"	"	560	5/6					1000

3-1750
(July 1946)

(over)

Form NR-1

SUMMARIES

Total Production:

Geese None

Ducks 50

Coots None

Total waterfowl usage during period 10,00

Peak waterfowl numbers 2000

Areas used by concentrations Units 1 and 2 and river areas

Principal nesting areas this season —

Reported by Salton Sea Refuge

INSTRUCTIONS

(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) First Seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak Concentration: 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 in the reporting period.

(5) Young Produced: 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.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

2338

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Salton Sea Months of May to August 1949 50

(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. Water and Marsh Birds:										
Western Grebe			6 9	5/6	4/12					
Black crowned Night Heron			15 (11)	5/21	5/2					
Glossy Ibis			13 400	6/11	(4/12					
Wood Ibis			500 300	7/2	8/20					
Florida Gallinule			18 50	5/21	(5/2					
Clapper Rail			7 3	5/21	4/12					
II. Shorebirds, Gulls and Terns:										
Least Sandpiper			6 (300)	6/11	8/25					
Long-billed Curlew			500 (950)	5/6	4/30					
Wilson's Phalarope			30 (600)	6/11	7/29					
Willet			1 (30)	5/28	(4/16)					
Avocet			30 20	5/21	(7/14)					
Lesser Yellowlegs			4 (60)	7/9	7/9					
Black-necked Stilt			2000 (1600	5/21	(6/2		8 nests	16	30	
Laughing Gull			(20) 8	5/21	6/15			5		
Caspian Tern			30 10	5/28	6/15					
Gull-billed Tern			400 (20)	5/28	see (6/15)			20		
Sooty Tern			6 (300)	6/26	(8/14)					
Godwit			80	5/6						
Long-billed Dowitcher			21 4000	5/21	8/20					
								2		

50

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove	previous	period	2000	Sept			4
White-winged dove	"	"	50	"			14
IV. Predaceous Birds:							
Golden eagle							
Duck hawk							
Horned owl							
Magpie							
Raven							
Crow							

Reported by.....

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 Gruiiformes)
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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Salton Sea Months of May to August, 1949

(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 specifically requested. List introductions here.
Pheasant	Tamarix, Atriplex etc		unknown (very few)						50	(150 [illegible] Released [illegible] 1949 [illegible]
Valley Quail	" "		" "						100 (400)	

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.

WR-8a

REFUGE GRAIN REPORT

Refuge: Salton Sea Refuge, California Months of: May thru August 1949

(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 USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Barley	1000	0	1000	0	0	0	0	1000	500	500	0
Wild Millet	1200	0	1200	0	0	0	0	1200	1200	0	0
Sesbania	0	1200	1200	0	0	0	0	1200	1200	0	0

(8) Shipping point: Westmorland, Calif

(9) Grain is stored at: Refuge headquarters