

REFUGE COPY

SALTON SEA NATIONAL WILDLIFE REFUGE

&

WATERFOWL DEVELOPMENT AREAS

NARRATIVE REPORT

1949 Complete



XXXXXXXXXXXXXXXXXXXX

Salton Sea National Wildlife Refuge

&

Waterfowl Development Area

XXXXXXXXXXXXXXXXXXXX

NARRATIVE REPORT

January, February, March and April 1949

XXXXXXXXXXXXXXXXXXXX

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 M. Stewart.....Tractor Operator
Alfred N. MacFarland...Tractor Operator

TEMPORARY PERSONNEL

Lee Fairly.....Laborer
~~Robert Gash.....Carpenter~~
Ernest M. Puryear.....Carpenter

Cover.....Desert Poppy

NARRATIVE REPORT

1. GENERAL CONDITIONS

A. Weather, Etc.

The first week of the period witnessed a real drop in temperature as all impoundment units became covered with one-fourth inch of ice on January 3rd. Many acres of winter tomatoes and cantaloupes in the valley were reseeded in hopes of cooperation from the weatherman for a late-winter early-spring harvest in time to meet the early market demands.

The extra amount of precipitation received during the previous period gave rise to the most remarkable desert bloom seen in these parts during the past quarter century. Desert sand lilies, verbanias, evening primrose, and others burst into almost every conceivable color in nature's spectrum. Flowering plants, in contrast to the barren stretches of desert, formed a continuous carpet of color from Palm Springs, California to Yuma, Arizona. Simple in makeup perhaps, but the roadside "rainbow" brought many thousands of dollars to merchants in the area as curious tourists and sight-seers toured the desert country. Through arroyo-badlands, over otherwise shifting, barren sand dunes the conspicuous species of this painted desert appeared everywhere interrupted only here and there by some road, highway or branch of the All-American Canal. At night the odor from vast acres of sweet-scented blossoms drifted to valley towns on evening breezes from the west.

A tremendous increase in the smaller rodent species also became evident as more and more were killed by fast traffic on the highways. Hordes of sphinx caterpillars, feeding on the desert flowers, brought fears to some that crops might be invaded. Along the east mesa two farming areas, seven miles wide and four miles deep and on the west mesa an area three miles wide and two deep were reported invaded and severely stripped before airplanes and insecticides were employed. For everywhere across the desert caterpillars were on the march. In one instance filming of a motion picture was interrupted. Toward the end of April the caterpillars went into the pupae or cocoon stages be-

fore the spring flower food supply was exhausted. This to the sighs of relief on the part of the farmers with crops adjacent to the desert.

From neighboring San Diego County came word of the best livestock pasture conditions in several years.

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

| MONTH | MAXIMUM | MINIMUM | PRECIPITATION |
|----------|---------|------------|---------------|
| January | 70.0 | 26.0 | 1.10 |
| February | 82.0 | 34.0 | Tr |
| March | 85.0 | 44.0 | 0.09 |
| April | 104.0 | 49.0 | Tr |
| | | Trace----- | 1.19 |

Generally, growing conditions over the period proved desirable throughout the surrounding valley for agricultural crops. The melon crop, planted last November and December amounted to some 15,000 acres valued at well over \$7,000,000.

The Imperial Irrigation Districts yearly crop report released March 15th showed the following salient figures:

GENERAL FARMING INFORMATION

| | |
|-------------------------------------|---------|
| Number of farms in valley | 4776 |
| Percentage of farms owner operated | 57% |
| Percentage of farms tenant operated | 43% |
| Average size valley farms (acres) | 105 |
| Irrigation District acreage | 884,990 |

PRINCIPAL IMPERIAL VALLEY CROPS - MARCH, 1949

| | | |
|--------------|---------|-------|
| Flax | 130,779 | acres |
| Alfalfa | 127,790 | " |
| Barley | 60,000 | " |
| Sugar Beets | 18,847 | " |
| Lettuce | 13,521 | " |
| Watermelons | 15,100 | " |
| Wheat | 10,943 | " |
| Carrots | 7,399 | " |
| Cantaloupes | 3,652 | " |
| Tomatoes | 2,968 | " |
| Peas | 1,427 | " |
| Squash | 1,376 | " |
| Hubam Clover | 1,361 | " |
| Cabbage | 1,058 | " |

B. Water Conditions

The New River continues in its diverted passage through the north portion of Unit I. Imperial Irrigation District engineers are watching Canal 13 which traverses Unit I as a gauge to just how long the stream will remain in the present channel. Should Canal 13 become blocked from the backwaters of the New River, it may call for returning the waters to the original channel. Such a condition will avail a good opportunity to reclaim and develop the north portion of Unit I. In the meantime, the diversion and resultant backwaters, although cramping our farming style somewhat, have created a most attractive resting area for many species of waterfowl inhabiting Salton Sea and not to mention the fishing which takes place along the west dike.

C. Fires

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

II WILDLIFE

A. Migratory Birds

1. Populations And Behavior

The first days of the period saw some 24,000 ducks, 8300 geese and a score of marsh and shorebirds present. (See NR 1 - 1A attached). By January 22nd it was estimated that ducks on the development units had increased to about 27,000 and three species of geese had dropped in to an estimated total of 30,400 geese. In late January snow geese vanished to be found a week later near the north end of Salton Sea feeding on green bulrush growths. The last of January saw 8,000 geese and about 18,000 ducks. Apparently all of the geese departed during March, however, two snow geese did show up on April 20th.

As early as March 11th courtship among Cinnamon Teal was observed. Soon after, March 24th we noticed spoonbills in courtship flights.

2. Bird Banding

The banding project of the previous period was cont-

inued as every "free" hour was devoted to capturing more of the duck species. Mr Fred Gallup, banding cooperator, Escondido, California added to our efforts by constructing two traps and banding a number of ducks, blackbirds, rails and gallinules.

3. Shorebirds, Gulls and Terns

As in the past Salton Sea again received a gratifying group representation of shorebirds much to the delight of the enthusiasts and visitors. On February 3rd a near feathered-stranger dropped in....a lone Marbled Godwit. By March 25th more than 30 of these long-billed "oilcans" were here. Their favorite haunt seems to be the southwest shores of the Salton Sea. On the refuge improved areas the Black-necked Stilt took first place as the most abundant nesting shorebird. Along the southwest shores of Salton Sea we estimated at least 1200 pairs were present in late April.

Ring-billed Gulls were the most numerous on the area since it's development program started. For the first time we could answer the question of where the large flocks of gulls spent each night, for they were perfectly contented this season to rest on the flooded north portion of Unit I. This species often stirs the pulse of many a nimrod at the first light of dawn each day when large crescent-shaped flights move along the shore line and out over the valley floor to spend the day in the irrigated fields.

Sooty Terns showed up this season on April 27th according to our observations and remained here, fairly common, throughout the period.

Caspian and Gull-billed Terns arrived the second week of April and at first took up residence in the irrigated portions of the west half of the valley where they fed on available insect life.

4. Marsh and Other Water Birds

The week of April 4th afforded interesting bird observations as many beautifully plumed American and Brewster's Egrets moved into concentrated groups over the valley where ever running irrigation water provided food in the form of scurrying, dry land insects.

Black-crowned Night Herons, Great Blues and Brewster's

Egrets were observed nesting in trees after mid-April along the San Filipe draw west of Salton Sea and along the Alamo River just west of the State's Imperial Refuge near Calipatria.

An exclusive colony of some 46 nesting pairs of Cormorants inhabited trees on the flooded section of Unit I and lesser colonies became established later on the Elmore Ranch waste drain during the month of May.

Although American Egrets were common throughout the irrigated sections of the valley, we failed to satisfy our suspicions that they did actually nest here this year. In early April we observed one individual attempting to take over a Cormorant nest in the refuge colony by adding materials to the nest. The intruder was soon ousted.

5. Food and Cover

Throughout the early part of the period some supplementary feeding of sacked barley was carried on within the refuge in cooperation with the Services depredation program. January 24th marked the latest date of artificial hand-feeding of barley. During the 41 non-hunting previous days slightly less than 1200 bushels of Tulelake barley was dumped on the ground in a futile effort to feed the wintering birds. Despite the ballyhoo from various sources it is doubtful if the alfalfa depredations can ever be controlled by feeding grains in the manner prescribed, this due mainly to season and feeding habits of the species responsible. Many days of feeding sacked barley were omitted due to the fact that often as long as a week the birds scarcely returned to consume the feed.

On January 20th permission was obtained from the drainage engineers of the District and three truck loads of cull lettuce heads were hauled north of Brawley and dumped into the New River. The experiment was performed to determine the actual use which might be made of the food by Baldpate concentrations using the refuge area now flooded by New River. The movement of the lettuce was followed down New River in one of the California State Fish and Game boats.

Lettuce heads, leaves and all held remarkably well to the center of the river stream, traveling at the rate of 2 miles per hour. The culls weathered the trip well and as hoped, came to rest on the quiet waters of Unit I within the refuge some 4 hours after being dumped 8 miles upstream.

Owing to shallow water, deep muck and thick growths of cattails it was impossible to make a thorough investigation of the lettuce use. On the following day coots were seen in two groups around lodged, floating heads. Later we observed, near the river outlet, White-fronted Geese utilizing the food. Although a good concentration of Baldpates was present none were observed using the lettuce.

Subsequent to our trial dumping of lettuce we learned from one farmer that a number of years ago Mr. Bert Wardwell had a few loads dumped on dry ground with varying degrees of success up until such time as the heads wilted.

6. Diseases

During April Mr. Fred Gallup, banding cooperator, picked up two sick Baird Sandpipers from the mud flats bordering New River in Unit I. A thorough search failed to disclose more than half-dozen more sick and dead birds although we did note that several acted strange when approached along the marsh. No specimens were submitted due to the short duration of the affliction and the relative insignificant losses involved.

B. Upland Game Birds

1. Populations and Behavior

No apparent change since the previous report period.

A single Band-tailed pigeon, our first record, appeared to the south of headquarters (March 31st) where it remained for two days resting in Screwbean tree growths.

English Sparrows attempting for the first time to nest and become established in our new storage building and palm trees beat a rapid retreat when resident shrikes and flycatchers apparently objected to their presence.

2. Food and Cover

No apparent change since the previous report period.

C. Big Game Animals

There are no big game animals on this area.

D. Fur Animals, Predators, Rodents Etc.

There has been no apparent change since the previous report.

For the first time we have observed Cottontails utilizing Sour Clover in Section 34 of Unit I. The tender growth, about 1½ inches high, was found grazed over a rather extensive patch where it flourished adjacent to a good Atriplex escape cover. The plant appears to occupy somewhat of a "skunk" position in the floral world hereabouts having almost a negative use due to its unpalatability.

E. Fish

In late April schools of carp were to be seen everywhere on the flooded portion of Unit I as spawning got underway. Since the river diversion and the resultant aquatic habitat are only temporary it is considered that the carp are conflicting with the waterfowl only to a slight degree.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Developments

A red letter day occurred January 24th when we bundled up all of the various office paraphernalia and whisked them off to the new office building out on the refuge. So in addition to farewell to the very mediocre, coolerless building in Westmorland and hello to the new office structure at home base, it was also goodbye to the "piling" system as we got underway on a regulation filing system in real filing cabinets.

A total of 9 days were lost on the area due to inclement weather. Out of the 9 days, 3½ days were upset by winds and the balance of time was lost through rainy, wet conditions.

The exterior and interior of the new office building received the first coats of paint during the period.

The east and west patrol roads of Unit I were bulldozed and cleared of brush during January.

An oil house was provided by installing aluminum roofing, celotex-masonite walls, cupboards, oil drum racks and a masonite floor. By thus remodeling a D-7 tractor crate we provided the refuge with a fair oil house building.

A platform type grain storage shed was under construction during the early part of the period.

In mid-February a 24 X 40 foot aluminum Butler-built building was received and hauled to refuge headquarters for erection.

Continuing the landscape job a number of pomegranite shrubs were dug, balled and moved from Westmorland, California to headquarters. Cottonwoods, Sienna and Athel trees and a desert thorn hedge were introduced to the barren alkali flat otherwise known as headquarters.

B. Cultivated Crops

With the completion of the south section of the grain storage shed in mid-March all of the stored grains were moved from storage in Westmorland, California to refuge headquarters.

On January 3rd the contoured tracts 3, 6, and 7 impoundment boards were removed, the water levels dropped and the annual drying process started. Some two or three months will be required before the lands can support the weight of a tractor.

The progress map attached indicates the changes that have been effected on the various tracts since the previous period. Constant heavy tractor operations under all types of conditions, except snow, were required of the men to change this picture. Without the utmost effort on the part of the men, both laborers and operators, only a small fraction of the undertaking could have been accomplished.

Almost as rapidly as crops were utilized, the men would retill, level, plant, construct ditches, irrigate and get a new crop on the way for green, goose grazing, and more important, next years food supply.

During the past year only 220 acres of rice was reported to have been raised in the valley. Harvest commenced in November and was completed in early January. Average yield was 2300 pounds per acre on good soils.

Rice farming appears to be a forgotten crop, being now raised only incidental to land leaching by water impoundment. Agriculturists acclaim its value as a good alkali remover when established on impounded lands. The rice itself however, appears to be unsuitably brittle at times for proper polishing due to its nature to shatter when processed.

Below is shown the decline in valley rice acreages:

| <u>Year</u> | <u>Rice Acreages</u> |
|-------------|----------------------|
| 1941 | 48,000 |
| 1942 | 7,200 |
| 1943 | 12,750 |
| 1944 | 4,700 |
| 1945 | 3,500 |
| 1946 | 3,200 |
| 1947 | 420 |
| 1948 | 220 |

In 1943 individuals estimated that waterfowl damages in rice reached the figure of \$160,000. On the conservative side was the figure of \$25,000. Meanwhile, there have been opinions voiced pro and con with regards to why rice no longer figures in the valleys big cropping program. Some blame the ducks, others the poor quality of rice. Marketing prices too are blamed, along with soaring irrigation water costs.

G. Collections

No collections or seed or transfer of propagules were carried out during the period.

IV PUBLIC RELATIONS

A. Visitors

The usual number of interested visitors toured the refuge area and enjoyed the sight of waterfowl concentrations during the period.

Official Visitors:

| <u>NAME</u> | <u>DATE</u> | <u>ORGANIZATION</u> | <u>PURPOSE</u> | |
|-------------|-------------|-------------------------|----------------|--------|
| D. Woodward | | FWS - Lands | Tour | Refuge |
| E. Horn | | FWS - Game Mgt | " | " |
| Curtis | 1/3 | Calif State Fish & Game | " | " |
| S. Gordon | | and Game Board | " | " |
| J. Reynolds | | " Warden | " | " |
| J. Reynolds | 1/7 | Calif Warden | " | " |
| J. Mears | " | Outdoor writer | " | " |

| <u>NAME</u> | <u>DATE</u> | <u>ORGANIZATION</u> | <u>PURPOSE</u> |
|-----------------------|-------------|-------------------------------|------------------------|
| J. Reynolds Conner | 1/8 | Calif Warden " " (Reserve) | Law enforcement " " |
| J. Reynolds | 1/18 | Calif Warden | Court cases |
| J. Reynolds | 1/24 | " " (Reserve) | Tour Refuge |
| C. Petty | " | " " (Reserve) | " " |
| C. Lostetter | " | FWS - Depredations | " " |
| A. Elder | " | " Game Agent | " " |
| L. Rubke | 2/9 | Calif State Refuge Mgr | " " |
| A. Hensley | " | " " Game Supt | " " |
| D. Tillotson | " | " " Biologist | " " |
| L. Springer | 2/9 | FWS - Pittman-Robinson | " " |
| G. Bucheister | 2/9 | Audubon Soc., Nat Vice P. | " " |
| Mr & Mrs Comby | " | " " Sou'n Rep | " " |
| B. Hundley | 2/22-23 | FWS - R.O. Admin. Officer | Inspection |
| W. Igleheart | 2/23 | Brawley News - Writer | Tour Refuge |
| D. Woodward | 2/24 | FWS - Lands | Leases etc. |
| H. Willis | 3/3-18 | FWS - Engineering | Surveying etc. |
| W. Anderson | 3/10 | FWS - R. O. Refuges | Inspection |
| G. Lostetter | 3/10 | FWS - Depredations | Tour Refuge |
| C. Miller | 3/18 | Farm Contract Jobber | " " |
| L. Rubke | " | Calif State Refuge Mgr | " " |
| O. Wright | 3/26 | Calif State Warden | " " |
| W. Blewett | " | " " " | " " |
| W. Blewett | 4/1 | Calif State Warden | Visit headquarters |
| J. Ashley | " | FWS - Pittman-Robinson | " " |
| O. Wilson | 4/6 | Imp Irrig District-Lands | Tour Refuge |
| Mr & Mrs J. Comby | 4/18 | Audubon Soc, sou. rep | " " |

B. Refuge Parcipitation Activities.


- January 1-3: Joint meeting Imperial Irrigation District, State Fish and Game and Service on lease of lands to both agencies amounting to 12,000 acres for the State and 12,000 acres for the Service, lying below the -230 contour and arranged in alternating parcels of land along the shore of Salton Sea.
- January 4: Meeting of State and Federal officers at each organizations headquarters with Seth Gordon and group of advisors on Wildlife Conservation Board.
- January 5: Meeting with the above group at Brawley Rotary Meeting.
- January 11: Meeting with State Wildlife Conservation Board group on waterfowl, etc with local sportsmen, agricultutists, etc at Hotel Dunlack, Brawley, California.

C. Violations

On January 24th three fishermen were apprehended on Salton Sea for illegal mullet fishing with 2000 foot scoop nets. The estimated catch was 30 tons of mullet most of which was released by the arresting State Wardens from Riverside County.

Many of the cases mentioned in the previous report processed in the local Justice of the Peace Courts as State Violations. Fifteen cases tried thus far have netted the local county and the State of California Game Department more than \$600.00 as a result of our enforcement efforts. But what of the hunters, the pseudo-sportsmen, the victims of the fines? In general we created a few friends, but lets hope the word spreads far and wide that hunting henceforth at Salton Sea calls for certain restrictions on the behavior of the human beasts too.

SubmittedOctober 13, 1950


Edward J. O'Neill
Refuge Manager

Approved: _____

WATERFOWL

Refuge Salt Lake Months of January to April 1945

| (1) Species Common Name | (2) | | (3) | | (4) | | (5) | | (6) Total Estimated for Period |
|--|---|--|--|--|---------------------|-------------------------------|----------------------------------|--------------------|---|
| | First Seen Number | Date | Peak Concentration Number | Date | Last Seen Number | Date | Young Produced Broods Seen | Estimated Total | |
| I. Swans: Whistling swan | | | | | | | | | |
| II. Geese: Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose | previous period " " | " " " | 80 300 8200 | 2/6/49 2/6/49 1/1/49 | 12 40 5 | 3/5/49 3/5/49 4/23/49 | | | 120 400 9000 |
| III. Ducks: Mallard Black duck Gadwall Baldpate Pintail Green-winged teal Blue-winged teal Cinnamon teal Shoveller Wood duck Redhead Ring-necked duck Canvas-back Scaup Golden-eye Buffle-head Ruddy duck | " " " " " 10 previous period " " " " " " " 2 2 previous period " | " " " " " 2/25/49 " " " " " " " " 1/14/49 1/14/49 1/14/49 1/14/49 1/29/49 " | 210 1300 11000 19000 41000 10 1340 5000 30 180 200 2 20 800 4000 | 1/14/49 1/8/49 2/11/49 1/14/49 2/11/49 2/25/49 3/19/49 2/19/49 1/14/49 1/1/49 1/14/49 1/14/49 1/14/49 3/5/49 1/29/49 | 2 180 5 | 4/30/49 2/19/49 3/29/49 | | | 300 2500 30000 60000 5000 30 8000 12000 1200 5500 8000 2 108 10000 6000 |
| IV. Coots: | " | " | 4000 | 1/29/49 | | | | | 6000 |

3-1750
(July 1946)

(over)

Form NR-1

SUMMARIES

Total Production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 230,152

Peak waterfowl numbers 92,672

Areas used by concentrations Units I and II 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.

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

MIGRATORY BIRDS

(other than waterfowl)

Refuge Saltton Sea Months of January to April 1947

| (1) Species Common Name | (2) First Seen | | (3) Peak Numbers | | (4) Last Seen | | (5) Production | | (6) Total Estimated Number |
|---|-------------------|------|---------------------|---------|------------------|------|--------------------|---------------------|-------------------------------------|
| | Number | Date | Number | Date | Number | Date | Number Colonies | Total # Nests | Total Young |
| I. Water and Marsh Birds: | | | | | | | | | |
| Black-crowned Night Heron | | | | | | | | | |
| Glossy Ibis | | | 40 | 3/13/49 | | | | | |
| American Egret | | | 400 | 3/13/49 | | | | | |
| Brewster's Egret | | | 200 | 3/13/49 | | | | | |
| Great Blue Heron | | | 230 | 3/26/49 | | | | | |
| | | | 11 | 3/13/49 | | | | | |
| II. Shorebirds, Gulls and Terns: | | | | | | | | | |
| Long billed Curlew | | | 60 | 4/1/49 | | | | | |
| Black-necked Stilt | | | 320 | 3/26/49 | | | | | |
| Western Willet | | | 60 | 3/13/49 | | | | | |
| Avocet | | | 50 | 3/13/49 | | | | | |
| Lesser Yellowlegs | | | 200 | 4/1/49 | | | | | |
| Greater Yellowlegs | | | 30 | 3/19/49 | | | | | |
| Ring-billed Gull | | | 3000 | 3/19/49 | | | | | |
| Long-billed Dowitcher | | | 4000 | 3/26/49 | | | | | |
| Least Sandpiper | | | 5000 | 3/26/49 | | | | | |
| Western Sandpiper | | | 2000 | 3/19/49 | | | | | |
| Western Snipe | | | 4 | 3/19/49 | | | | | |

(over)

WILSON

| (1) | (2) | (3) | (4) | (5) | (6) |
|--|-----------------|-------------|-------|-----|------|
| III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove | Previous period | 500 January | -- -- | | 2000 |
| IV. <u>Predaceous Birds:</u> 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 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.

UPLAND GAME BIRDS

 Refuge Salton Sea Months of January to April, 1949

| (1) Species Common Name | (2) Density Cover types, total acreage of habitat | Acres per Bird | (3) Young Produced | | (4) Sex Ratio | (5) Removals | | | (6) Total | (7) Remarks |
|-----------------------------------|--|----------------------|----------------------------|--------------------|---------------------|-----------------|---------------------|-----------------|--------------|--|
| | | | Number broods obs'd. | Estimated Total | | Hunting | For Re- stocking | For Research | | |
| Phoebe | <u>Summit, Atriplex,</u> <u>etc.</u> | | | | | | | | 50 | Pertinent information not specifically requested. List introductions here. |
| Valley Quail | " " | | | | | | | | 200 | |
| | | | | | | | | | | The most of the pheasants planted have disappeared. |

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.

SMALL MAMMALS

Refuge Salem Res Year ending April 30, 1950

| (1) Species Common Name | (2) Density | | (3) Removals | | | | | (4) Disposition of Furs | | | | (5) Total Popula tion |
|--|---|------------------------|-----------------|----------------|-----------------------|---------------------|-------------------|----------------------------|------------------------------|-----------------|-------------------|--------------------------------|
| | 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 | Share Trappers | Refuge Share | | |
| There are no small mammals of economic importance as fur-bearing or requiring control measures during this period. | | | | | | | | | | | | |
| * List removals by Predator Animal Hunter | | | | | | | | | | | | |

REMARKS:

Reported by _____

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 unprime-ness 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.

HR-8a

REFUGEE GRAIN REPORT

Refuge: Salton Sea, California

Months of: January thru April 1949

| (1) VARIETY | (2) ON HAND BEGINNING OF PERIOD | (3) RECEIVED DURING PERIOD | (4) TOTAL | (5) | | | (6) ON HAND END OF PERIOD | (7) PROPOSED USE | | |
|----------------|--|-------------------------------------|--------------|------------------|--------|------|------------------------------------|---------------------|------|------|
| | | | | TRANS- FERRED | SEEDED | FEED | | SEED | FEED | SUMP |
| Barley | 1443 | 0 | 1443 | 0 | 197 | 246 | 1000 | 500 | 500 | 0 |
| Wild Millet | 2400 | 0 | 2400 | 0 | 1200 | 0 | 1200 | 1200 | 0 | 0 |

(8) Shipping Point: Westmorland, Calif

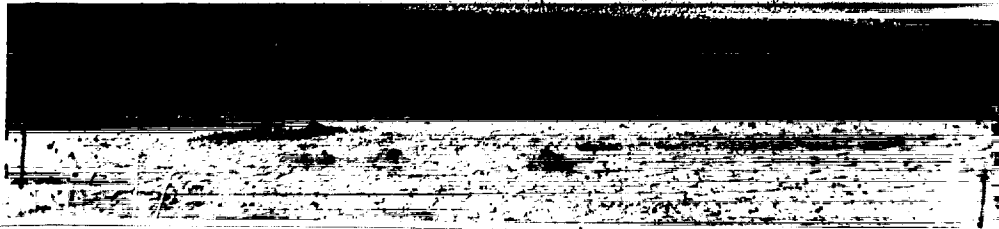
(9) Grain stored at: Headquarters, Salton Sea Refuge

S-14

Sand Verbenas and Evening Primroses of the Desert



"Flowering plants -- formed a continuous carpet of color
from Palm Springs, California to Yuma, Arizona"



"The first days of the period saw some 8300 geese....."
Here Snow Geese flush from a favorite green barley field
by a low flying plane at Unit I, tract 8.

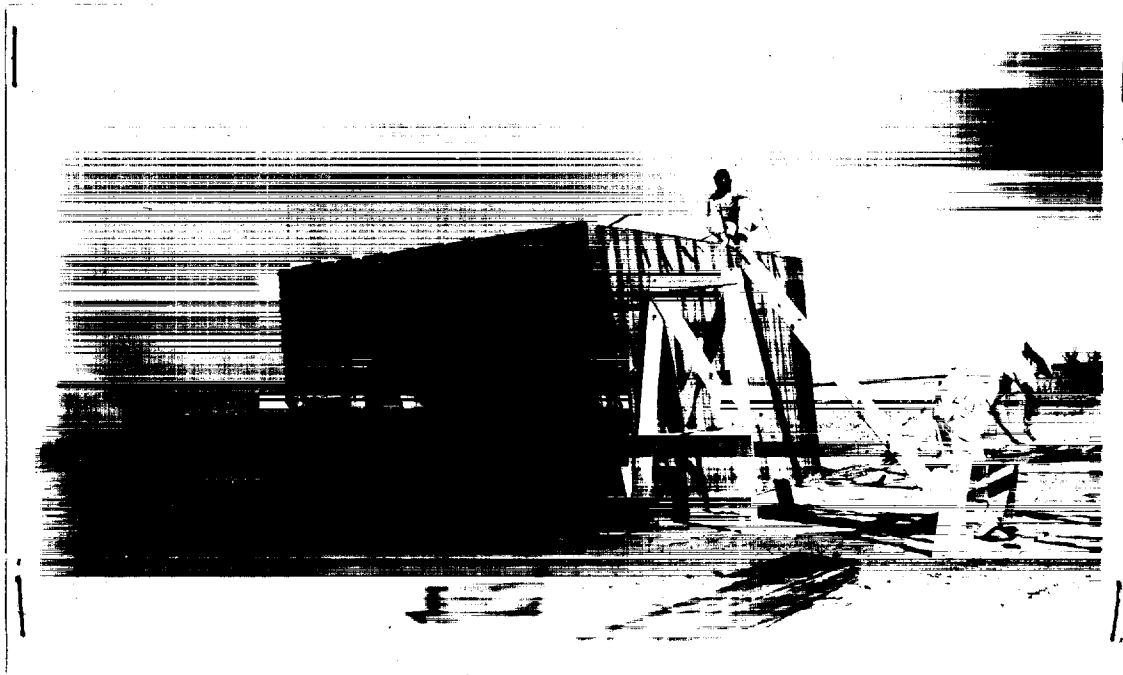
(Photo by G. Lestetter, Jan 1949)



"In the meantime, the diversion and resultant backwaters,....
have created a most attractive resting area....."

Unit I, tract 12, Salton Sea, Feb 1949

"With completion of the platform of the south section
of the grain storage shed in mid March all of the
stored grains were moved to the refuge....."
(Headquarters, March 1949)



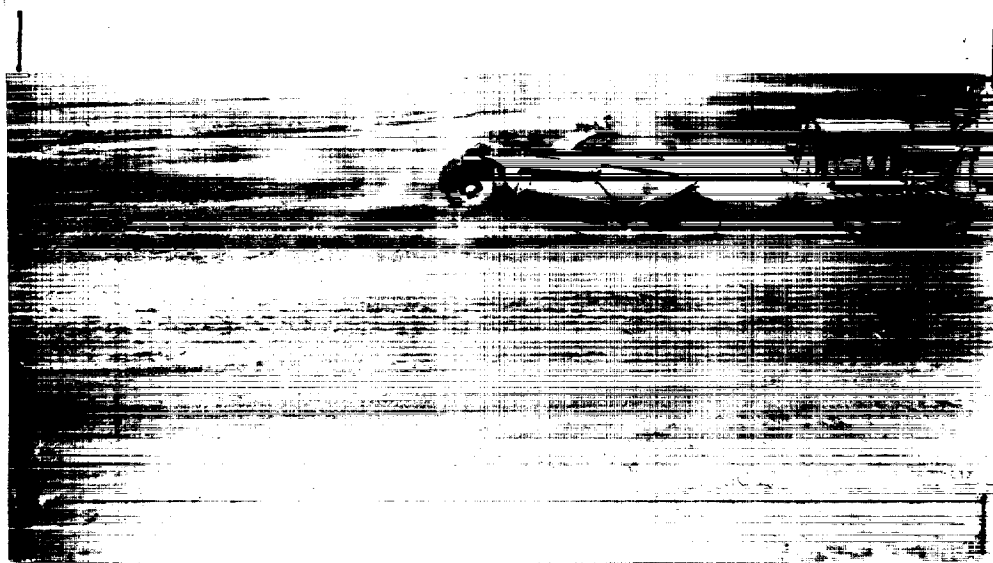
"An oil house was provided by remodeling a used D-7
tractor crate....." Headquarters, Jan 1949.
(Carpenters Gash and McCullough)



"The banding project of the previous period was continued..." An extra good catch of 72 Green-wing and Cinnamon Teal in Illinois River type trap. Salton Sea Refuge, 2/27/49



"Almost as rapidly as crops were utilized men and equipment moved in, retilled, leveled, planted, constructed ditches, irrigated and got the new crop under way...." Unit I, tract 8, Salton Sea. (Oper., Stewart with D-7 and subsoiler, Jan 1949)



BEFORE



After selecting a headquarters site last year in Unit I, the low land was filled and raised more than 10 inches. Hq. fall of 1948 (Oper. Stewart w/D-7 and carry-all scraper).



AFTER

During the period more date palms were brought in and general landscaping work was undertaken.
(January 1949)