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SALTON SEA NATIONAL WILDLIFE REFUGE

AND

WATERFOWL DEVELOPMENT AREA

XXXXXXXXXXXXXXXXXXXX

NARRATIVE REPORT

JANUARY, FEBRUARY, MARCH, APRIL

1956

XXXXXXXXXXXXXXXXXXXX

UNITED STATES DEPARTMENT OF INTERIOR  
FISH AND WILDLIFE SERVICE  
BRAWLEY, CALIFORNIA

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REFUGEE PERSONNELRegular Personnel

EDWARD J. O'NEILL . . . . .	Refuge Manager
WILLIAM NUSS . . . . .	Refuge Manager (Asst.)
JOSEPH L. CUDDY . . . . .	Clerk-typist
CLYDE W. STEWART . . . . .	Supervisor, Farm Operations
HENRY STEER . . . . .	Mechanic, Heavy duty

JOSE' BARROS . . . . .	Tractor Operator
LEO E. COX . . . . .	Tractor Operator
CARL W. FORD . . . . .	Tractor Operator
ALFRED W. MC FARLAND . . . . .	Tractor Operator
CHESLEY WILLIAMS . . . . .	Tractor Operator
PAUL E. WILLIAMS . . . . .	Tractor Operator
MELVIN FORD . . . . .	Oiler
JOHN BARROS . . . . .	Irrigator
SYLVESTER BARROS . . . . .	Irrigator
MANUEL CARDONZO . . . . .	Irrigator
JULIO RIBEIRO . . . . .	Irrigator

Temporary Personnel

None during period.

NARRATIVE REPORTI GENERAL CONDITIONSA. Weather & Conditions

This was perhaps one of the mildest winters on record.

Usual frosts which occur from mid-December to mid-January were absent this year. Frosts of any consequence did not occur until February, ordinarily a frost-free month. February mean or average temperature was  $54.30^{\circ}$ . Average maximum was  $70.40^{\circ}$ .

March and April, though occasioned by a few windy days, were comparatively calm.

Minor earthquakes occurred as usual with no damage encountered. Five shocks occurred during February alone.

Tabulated below is the weather data as compiled by the El Centro Naval Air Station, Seely, California:

<u>MONTH</u>	<u>MAXIMUM</u>	<u>MINIMUM</u>	<u>PRECIPITATION</u>	<u>WINDS+25MPH</u> (Days)
January	$79^{\circ}$	$30^{\circ}$	.15"	8
February	$80^{\circ}$	$29^{\circ}$	.01"	5
March	$95^{\circ}$	$34^{\circ}$		13
April	$97^{\circ}$	$46^{\circ}$		13
Totals . . . . .			.16 "	39

B. Precipitation & Water Conditions

On December 31, 1955 Salton Sea elevation was recorded by I.I.B. as  $-234.35$  compared with  $-234.75$  of one year ago. The sea has risen  $.40$  of a foot during the year.

During January the first month of this period, the sea rose  $.25$  of a foot. The precipitation reported fell on the 28th. Only a trace was noted on the refuge.

Low water storage in Colorado River reservoirs prompted the

Imperial Irrigation District to formulate new policies on irrigation water delivery and orders.

Past policy allowed farmers to order or cancel water within a rather short notice period. As a result peak flows of water varied greatly amounting to considerable waste. Most canals were usually loaded during the week days and orders were canceled or run allowed to flow into the sea over the weekends.

On March 1st it became necessary to make water orders three days prior to the time of delivery. The cost of water was likewise increased 25 cents to the present rate of \$ 2.00 per acre foot plus 25 cents daily delivery fee.

## II WILDLIFE

(By William Nuess, Refuge Manager, Asst.)

### A. Migratory Birds

#### 1. Populations and Behavior

Comparison of Form NR-1 for this period with the corresponding one of 1955 shows no outstanding changes in population.

On January 3, 1956 the annual winter waterfowl inventory was conducted by Chester Leichhardt, U.S. Fish and Wildlife Service, William Anderson, California Fish and Game, Hector Cordenos, Mexican Government Representative, A.W. Elder, Agent, U.S. Fish and Wildlife Service and Patrick Symons, pilot, California Fish and Game.

Mr. Leichhardt did the estimating for the Imperial Valley and Salton Sea, Agent Elder for the Colorado River North, and Mr. Anderson for the Colorado River South. Mr. Cordenos made up the diplomatic end of the party.

It is our belief that for the sake of consistency, as a result of technique, the same personnel should be used when possible in censusing a given area year after year.

Attention is directed to the comparative totals for 1954 and 1955 of Canada Geese and White-fronted Geese. It is assumed that a portion of the White-fronts were not indentified correctly and were mistakenly classified as Canada Geese. This is substantiated by the fact that the most Canada Geese observed on any regular aerial census conducted by refuge personnel for the 1955 - 1956 season was 720 birds.

Tabulated on the following page are the comparative numbers for the years 1954 and 1955.

	I.V and Salton Sea		Colo. R. North		Colo. R. South(Mex.)		TOTALS	
	1954	1955	1954	1955	1954	1955	1954	1955
Snow Goose	8970	9000	204	50	2960	90	12,134	9,110
W.F. Goose	0	80	580				580	80
Canada Goose	930	1030		290	115		1,045	1,320
W. Swan			16	30			16	30
Mallard	60	200	190		20	20	170	220
Gadwall	1		20	210	10	10	31	220
Am. Widgeon	6225	33990	35	10	220	250	63,550	34,250
G-W Teal	250	1140	320	2020	1685	1430	2,255	4,590
Cinn. Teal	100					20	100	20
Shoveler	1250	1860	410	850	2145	6260	3,805	8,970
Pintail	6220	5400	10010	1540	1415	2030	19,645	8,970
Redhead	100	90			20		120	90
Ringneck						10		10
Canvasback	2510	1830	10	20			2,520	1,850
Scup	8020	15400	10			50	8,030	15,400
Goldeneye		400						400
Bufflehead	160	170		10			160	180
Ruddy	8935	5980		10	10		8,945	5,990
Merganser	300	90				20	300	110

## 2. Geese & Swans

The refuge goose population changed its daily habits as a result of pressure exerted by the opening of Unit II to hunting the second half of the 1955 season. This is borne out by the report submitted by the California Department of Fish and Game covering waterfowl hunting on the Salton Sea National Wildlife Refuge, Unit II. (See page ). Out of a total of 421 geese killed during the fifteen hunt days on refuge Unit II, 353 of them were killed in the first five hunt days. The remaining bag of 68 occurred during the last ten hunt days.

It was very clear to any impartial observer what had happened. The geese, accustomed to feeding and loafing on Unit II, suddenly found themselves confronted with an insurmountable barrier; harassment from all quarters. They abandoned the area.

As mentioned in the previous report, it was not until an aerial survey was conducted on December 27th and 28th that the Snow Geese were discovered in large rafts well out on the sea. Through inquiry and observation it was noted they were feeding on four hundred acres of dry barley, a part of the California Department of Fish and Game's unposted Wister Area north of Niland. For some reason this area was closed to hunting which resulted in extensive use of the feed found there. Some visitors were keenly aware of the open federal refuge

and closed state hunting area. Regional Manager John Jansson reported at a local sportsmans meeting that all this was necessary to force the birds into the Wister in order to "establish a flight pattern".

Every morning and evening the birds were there. Through the day they would rest on the sea until even there enough pressure was brought to bear to force them once again to seek a sanctuary. They settled for the middle of Tract 11, Unit I where they would sit huddled together from mid morning until mid afternoon. Throughout the night they sought the vast expanse of the Salton Sea.

Shortly after the end of the 1955 hunting season, the Snow Geese made a feeble attempt to recapture their interest in utilizing Unit II however, they appeared distrustful and at no time were more than 50% of the customary numbers observed on the area.

It seems reasonable to surmise that the Snow Geese, having found an area (Wister) where they could indulge in uninterrupted feeding, will return this fall looking for the same conditions. It is unlikely they will find them however, since from all available information it is evident the Department of Fish and Game intends to open all of this area to hunting.

Based on observations, it is our unequivocal recommendation that if all of the State Wister area is open to hunting during the 1956 season, Unit II of the Salton Sea National Wildlife Refuge should be kept closed.

The total wintering population of Snow Geese was still present March 1st. By the end of the 1st week they were moving northward and by April 1st they had all departed save for 10 individuals seen.

Our dwindling Canada Goose population reacted similarly to the situation on Unit II. They simply moved out, making use of the Elmore Ranch and Unit I (which were closed to hunters) as stated in the preceeding report. Shortly after the end of the 1955 season the main flock moved back to Unit II, feeding and resting there, occasionally crossing over to the ponds on the State Hazard shooting grounds. They continued using the area in this manner until March 1st when most of them had departed. On March 23rd the last small group of ten was observed on the delta of Trifolium drain No. 1. The next day they were gone. Crippled individuals were seen often thereafter.

There were 325 Snow Geese taken by hunters on the California Fish and Game supervised Unit II from a seasonal peak population of 11,000 (previous report period). This is only a fraction short of a 3% harvest. By comparison there were 60 Canada Geese taken from a like population of 720 which resulted in a deletion of better than 8%. This would appear to be considerable pressure on such a limited Canada Goose population.



Early in February a lone Blue Goose was observed several times among the White-fronted Geese on Unit I.

### 3. Ducks

Some people wishfully expected the so called "truant portion" of the Widgeon population to materialize the second half of the hunting season, but they never did however, the population did increase this report period, reaching a peak of 42,300 observed on the aerial survey of February 2, 1956.

On February 28th a letter was received from Mr. Earl F. Atwood of the Waterfowl Biometry Office, Patuxent Research Refuge in Laurel, Maryland requesting "repeat" data with which they intend to measure dispersal movements of banded waterfowl. To the best of our knowledge he could not have called upon a better station to collect such data since there has always been a high incidence of "repeats" in our banding operations. The accompanying graph will lend support to this contention and also substantiate the fact that the Salton Sea National Wildlife Refuge is somewhat of a "homing pigeons" paradise.

On March 10, twelve Fulvous tree ducks were seen on the State Finney-Ramer area. Twenty-six of our "Large footed" friends were banded by refuge personnel during the remainder of that month and fifty more in April. A spring banding record for the species.

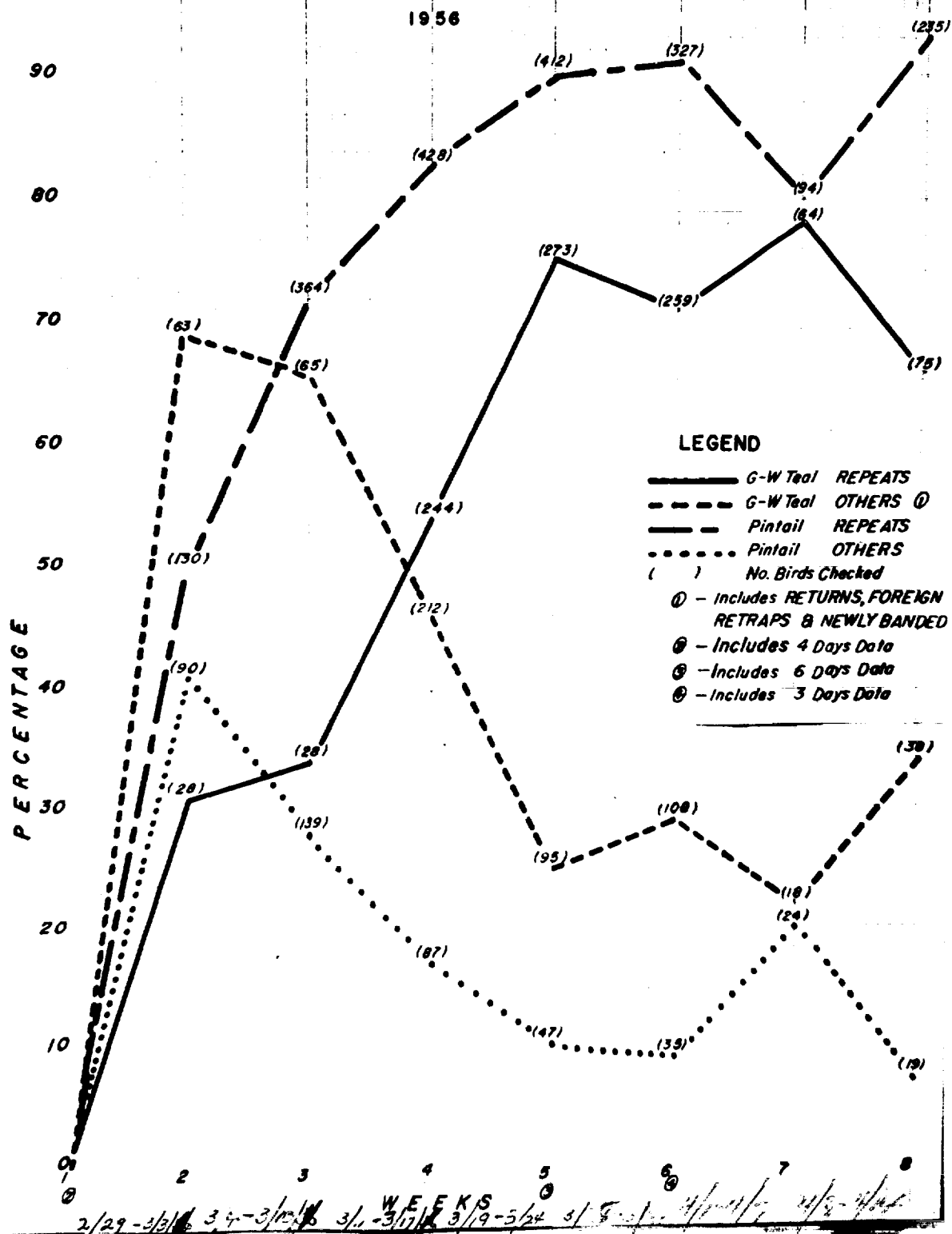
A partial albino Ruddy Duck was seen on Salton Sea near Red Hill April 26 on an aerial census survey.

A few bands which were placed on ducks only a year ago were found quite deleted and replaced. It would be that the metal erosion factor and related losses of bands come in for a certain amount of influence thus.

Even though the overall refuge population of Green-winged Teal was down we were successful in banding this species. The tabulations below compare this years banding success with that of last year.

SPECIES	January 1955-1956	February 1955-1956	March 1955-1956	April 1955-1956	Total 1955-1956
Pintail	1652-1280	1000-1960	0-305	0-29	2652-3574
G-W Teal	190-1344	908-1929	352-505	0-40	1450-3818
Am. Widgeon	344-1038	670-1011	207-15	0-16	1221-2080
Coot	92-435	11-361	60-7		163-803
Cinn. Teal	1-3	107-108	396-12	0-7	504-130
Fulvous		11-0	10-26	0-50	21-76
Redhead				0-1	0-1
Ruddy		8-0	0-2		8-2
Shoveler	3-0	15-13	1-2		19-15

# INCIDENCE OF REPEATS VS OTHERS POST-WINTERING DUCK POPULATIONS TRAPPED AT SALTON SEA



# BAND RECOVERIES - 1955 & 1956

	Belgian Blue			Cinnamon Seal			Coat			C-4 Seal			Silent J. Duck			Platell			Redhead			Ruddy			Mallard			TOTAL		
	T	A	L	T	A	L	T	A	L	T	A	L	T	A	L	T	A	L	T	A	L	T	A	L	T	A	L	T	A	L
Arizona	2	2								1						4	3	7												
California	3404	138	29	37	66					5	20	60	80	1	1	172	65	437	1	3	4	2						2		1
Idaho	1	2	3															1												1
Nevada	1	6	7									2	2				4	4												
Montana		3	3									1	1	2			1	2	3											1
Oregon	1	1										2	2				3	1	4											
Utah	4	29	33								2	10	12				8	35	43											
Washington		1	1														1	1	2											
Wyoming		1	1																											
Canada	5	7	10									2	2				9	11	20											
Mexico	1	3	4	1	2	3				1		2	2	2	2	4	8	25	33	1	1									1
Texas						1	1										2	17	19											
Colorado																														
Minnesota																		1	1											

45\* 158 203 30 40 70      7 23 80 105 3 2 5 209\* 365\* 574 1 4 5 2      2 1 2 3  
 TOTALS-  
 \*Foreign Recoveries included  
 (See Sheet no. 2 for G. Total)  
 SHEET NO. 1

# BAND RECOVERIES - 1955 & 1956 (Cont'd)

	Foreign Recoveries			U.S. Recoveries			TOTAL			TOTAL			TOTAL			TOTAL			TOTAL		
	L	F	M	L	F	M	L	F	M	L	F	M	L	F	M	L	F	M	L	F	M
Alaska																					
Arkansas																					
Louisiana																					
N. Dakota																					
N. Mexico																					
Oklahoma																					
S. Dakota																					
U.S.S.R.																					
California																					
Montana																					
TOTALS	2	2	5*																		

4 9 13

SPECIES(Cont.)	January 1955-1956	February 1955-1956	March 1955-1956	April 1955-1956	Total 1955-1956
B-W Teal		1-0	2-1		3-1
Snow Goose	2-3				2-3
	2284-4103	2731-5382	1028-875	0-143	6043-10,503

#### 4. Diseases

No known diseases occurred during the period. A number of Widgeon ducks were noted dead on the Johnson farm due east of Unit I. Johnson notified Biologist C.H. Lostetter who submitted the ducks to the University Lab. at Berkley, California. Rumor has it the ducks died of fowl cholera, however this has never been verified.

A Fulvous tree duck taken in the live trap during April showed symptoms of some apparent skin infection. At time of examination skin of both feet and lower legs had sloughed off and the flesh composing foot lobes was likewise disintegrating. After being held several hours in a dry retaining pen feet became stiff and unplyable like rawhide.

#### 5. Shorebirds, Gulls & Terns

No notable change in status.

Gull-billed Terns were first noted March 20th, when a small group could be heard flying off shore near tract 11, Unit I. The species was common April 7th.

Caspian Terns were first noted April 7th.

Bonaparte gulls were first observed April 8th.

A single Black tern was seen at Sunbeam Lake, Seely, California April 21st. A few days later the species was common.

Wilson Snipe; 1 seen March 9; 2 March 15; 6 observed March 19th.

Nesting Killdeers were discovered by tractor operator Leo Fox April 21st at Unit II. On April 28th three young about 3 days old were observed.

Five Black-necked stilts were still here February 12th. The species was observed throughout the period this year.

6. Marsh & Water Birds

Sandhill cranes were heard near Unit I the evening of February 17th.

Both the Common and Snowy egrets were scarce or low in population throughout the winter months. Snowy egrets started to show up in April. About a dozen was seen at Unit I April 14.

7. Food & Cover

No change noted in natural conditions.

B. Upland Game Birds

Five pheasants were seen loafing west of sub-headquarters on April 13. There were two males and three females.

C. Other Birds

Mourning doves were noted here and there in apparent pairs as early as January 16. About that time concentrations started breaking up. The wintering population was very low this year. Aerial census work January 17th disclosed a number of dove groups or flocks scattered over the Valley. On January 20th doves were heard calling for the first time this season. By January 22nd calling or cooing was common. There was a marked population increase in the vicinity of the refuge January 28.

Although no concerted efforts along those lines were made Jose' Barres found the first dove nest of the season on March 15.

Turkey vultures became numerous or common after January 24th on which date we first noted a population increase or influx of an estimated 300 individuals near Unit I. About 1000 were here February 6th.

Whimbrels showed up about 200 strong January 28th. They were seen almost daily. Some 40 were seen April 1.

Robins are becoming "citizens" of the locality. On February 6 several were seen at Camp Dunlap, Niland. Almost daily the species was seen near Westmorland.

Baltimore Orioles were first noted March 14.

Flickers were seen here as late as March 22nd.

Western Kingbirds and Rufous humming birds appeared March 23.

Roadrunners started nesting the latter part of March.

Some 22 Marsh hawks were observed congregated at a field SE of headquarters February 15th.

Ground doves were observed again when 3 were seen along Trifolium 10 canal east of Unit I.

Mountain Bluebirds were common February 26th.

Tree swallows were common by March 5; abundant by April 5th.

A spotted Towhee (male) was observed near gate 258 Trifolium 13 canal March 7.

The first Night Hawk of the season was seen March 26. The species was common by April 5.

Mr. Morkle, operator of an upholstery concern at Brawley reported seeing an albino English Sparrow.

Swainson's hawks returned. Four were here April 5.

Black-throated gray warblers were first noted here April 11.

Hermit and Fileolated warblers were common about April 27 to 30th.

. . . .END. . . .

D. Fur Animals, Predators, Etc.

No change in status noted. A single beaver was killed by I.I.D. dragline operations near the mouth of the Alamo River.

E. Predaceous Birds

Ravens were seen February 11 flying rather high overhead. Again on February 27 and March 7 two ravens were seen.

A lone Golden Eagle was observed March 10.

A Great Horned Owl was seen on March 23.

F. Fish

Along the Colorado river it is now necessary for fisherman to possess a \$ 2.00 Colorado River Special Use Stamp in order to fish off shore. These stamps are issued to Nevada, Arizona and California license holders only, even though the fishermen might hold a non-resident license.

The State's Imperial refuge (Finney-Ramer) is now open to public

fishing for large mouth bass, catfish and Sacramento perch. Reports indicate good fishing and many of the local people have found a new, convenient place for recreation.

#### G. Waterfowl Depredations

Waterfowl depredations consisting of puddled agricultural fields and grazing alfalfa crops occurred similar to and in about the same proportion as the past few years.

The Elmore Company, south-west of Salton Sea, claimed heavy losses this year. Seybert farms east of refuge Unit I and also in the Wiest district received damages. Numerous small acreage owners complained of varying losses during the winter months in the Brawley - Westmorland district.

The special depredations order on Coots and Widgeon was received with apparent indifference by about two-thirds of the local farmers. Some believed the hunters averted more serious damages and prevented widgeon from feeding in their fields, while others consider the hunter an added nuisance.

An estimated 500 acres were damaged by puddling pintails and approximately 1500 acres of alfalfa grazed by widgeon.

Ample food for geese on State and Federal areas made it unnecessary for them to enter farm crops.

The coot was no problem locally to the best of our knowledge. The special order ended April 15th.

The state's Pinney-Ramner Imperial refuge was herded again this year. Each time the population of widgeon reached 3,000 they were driven off with flares and Very pistols.

Hunting pressure seemed to add to the established habit of ranging freely over the surrounding country.

The Department of Fish and Game again manned the Brawley "clearing house" for widgeon hunters. The local chamber of commerce office was used. Daily between 2 and 10 PM hunters could check in for information on permits, where to shoot, etc.

Hunters who disposed of their Federal duck stamps or who didn't have occasion to purchase one during season got a surprise when the special order was issued. It seems the Post Office Department closed their 1955 sales about January 1st leaving no stamps available.

At the January 16 depredations meeting Regional Supervisor of Game Management Chet Leichhardt spoke up to the group and advised



that he could not recommend a special depredation order on widgeon until he could see justification and that during the past several days, accompanied by Warden Jim Reynolds, Baxter Loveland, etc he had not been shown any recent, serious damage.

For our money this took more gumption than we have ever seen from anyone in the Service. The group tried hard to convince Mr. Leichhardt otherwise but he held to his convictions. (A most welcome change from the usual "neither hot nor cold" attitude).

It is of interest to note the degree of effort put into the same meeting by Department of Fish and Game. Pilot Pat Symons made trips to Los Angeles and San Diego to taxi Commissioners Kelly and Knox to Brawley to attend the meeting to help obtain a special season.

Shot Leichhardt was accused, by Chairman Loveland, at a later date of stating that the ducks were more important than the farmers crops or his rights. A lot of gossip was passed around but not one out of three Service employees present at the meeting heard such a comment nor anything suggestive of same.

The San Diego Union newspaper for January 22 quotes Loveland; "I just can't understand it. We have 34,000 widgeon out on the sea and we know they're coming in some night to eat our alfalfa and lettuce. Right now we can't show any "severe depredation" of recent date but the threat is there. Quite possibly we can suffer a disastrous loss before we can get the Fish and Wildlife Service moving!"

Reports reached us that certain farmers at Niland were charging \$ 2.00 to \$ 5.00 to widgeon hunters who entered their lands.

First news of this years depredations order on Widgeon came to us rather quietly in a newspaper item carried by the local news. Under date line of February 10, "Representative John Phillips today wired the Imperial County Farm Bureau that the game depredation order had been signed and was effective immediately--officials credited signing of the order to the game depredation committee of the Farm Bureau.

It is significant to note that about the same number of livestock were brought into the Valley as last year, their demands were not stepped up. Grazing fees underwent no change. Notwithstanding, two dehydration mills closed because of lack of demand for alfalfa meal. With mild winter temperatures there was certainly no alfalfa shortage. I.I.D. and County Agriculture officers report a substantial acreage increase. Despite these

known facts, a depredations order was apparently more urgent than last years undertaking.

It is interesting to note that at one of the recent depredations meetings sportsman representative Bob Jefferson commented that it seemed unnecessary for the new State Wister area to produce alfalfa since the depredation order was taking care of the problem.

Aerial Surveys of Widgeon during the period

<u>Date</u>	<u>Observers</u>	<u>Population</u>
1/17/56	Glahn, Muess, O'Neill	28,540
2/4/56	Lostetter, Switzer, O'Neill	26,290
2/23/56	O'Neill	42,300
3/2/56	Muess, Elder, O'Neill	23,360
3/10/56	Lostetter, Elder, O'Neill	38,270
4/26/56	Glahn, Muess, O'Neill	60

III REFUGE DEVELOPMENTS AND MAINTENANCE

A. Physical Developments

1. Cultivated Crops

Unit I

Previous farming and development of refuge tracts were continued.

Barley crops were planted at tracts 4 and 26 to develop grain for 1956 use.

Drainage of water areas was not started until mid-February.

As mature or grain-barley crops were used by waterfowl the various tracts were renovated and reirrigated thus increasing the acreage of green barley through volunteer crop by 180 acres.

All contour areas proposed for wild millet - cattails next fall and winter were plowed including the following tracts:

Tract 3- - - - -	80 Acres
Tract 7-8- - - - -	100 "
Tract A-1- - - - -	160 "
Tract B-2- - - - -	160 "
Tract C- - - - -	160 "

TOTAL

660 Acres

## Unit II

As the hunting season came to a close the work of renovating tracts of utilized mature barley was completed and the fields irrigated to obtain volunteer growths on 250 acres.

Tracts 8, 7, 14, 5, and 6 (Approximately 400 acres) were plowed and contoured for wild millet - cattail crops.

Tracts 3 and 6 were contoured and leached 60 days to drive down excess surface salts. The fact that lands adjacent to Unit II were recently purchased by John Elmore Jr. might somewhat effect future operations due to local influence and type of farming enterprise.

## Unit A

Since this area was formerly under the control of California Fish and Game a dense growth of tamarix and other undesirable vegetation has taken over.

Improvements were made by removing all old contours, high mounds of soil and brush.

During the period the job of reclamation was about 50 percent accomplished.

In this area it is necessary to clean and maintain a one-half mile stretch of the I.I.D.'s Poe canal in order to obtain water delivery.

Two parcels of land, the south half of the NE $\frac{1}{4}$  of Section 29 and the southwest  $\frac{1}{4}$  of Section 28 do not have access to irrigation water. It is possible some arrangement can be made with I.I.D. or private landowners to obtain a right-of-way for water. To date very little encouragement has been given.

## Comments on Crop Use

The graph on page 24 is intended to illustrate agricultural crops available to waterfowl during the wintering season.

Crops and waterfowl are shown to illustrate availability of some 2560 acres of food with reference to peak populations, hunting activities, and the season.

Unit II hunting activities are mainly responsible for the pronounced drop in Unit I foods (see graph) after mid-October. This is most evident with regard to goose utilization. The Unit II availability line (see graph) upswing in November reflects crop planting progress and favorable growing weather for green crops.

February declines are due to combined cold growing weather and peak refuge populations. (Mainly dark geese and ducks).

The effectiveness of refuge crops and habitat as a whole was poor when compared with previous years. Main contributing factors were; (1) The combined 200 acres of inviolate barley crop lands on the State Wister Area and (2) the simultaneous (increased) hunting pressures on both refuge units which have undergone progressive acreage reduction.

As pointed out by Mr. Parrish (page 16) and Mr. Nuess (page 5) the snow geese moved to the Wister area to feed on grains. Isolation and hunting restrictions there favored the geese and until the utilization was complete on the Wister they by-passed the federal refuge units.

Some 100 acres of cattail - millet crop at Unit II, produced at the estimate cost of (\$ 3500), was not utilized as expected once the hunters moved out for the season. This is the first winter cattail crop to be passed up by the geese. Graphs in the January - April 1955 Narrative illustrate what the crop can contribute to other species when opened up and made available by Snow and White-fronted geese. This year, in contrast, only green-winged and cinnamon teal seemed to be attracted to this dense fresh water area. We believe it is important to allow the snow and white-fronted geese a chance to progressively use the crop if other species are to be attracted to it.

Tract 6 of Unit II with a barley crop in the early stages of maturity became the main feeding area for snow geese during late February and March. Several thousand snows with pintails moved in twice daily and fed on the tall ripening barley until the entire field had been covered. Our notes show that 100 geese were using the field as late as March 26. A mere 10 were still present there April 1st.

#### Other Developments

Usual tasks of road and structure maintenance were continued. Irrigation ditches, checks, etc were taken care of as per procedure in past years. Tractor loading ramps at headquarters and sub-headquarters, constructed of salvaged telephone poles and piles drifted in from salton sea, were completed during the period.

A dragline contractor was hired to clean one mile of service ditch along the south side of Tract B Unit I.

#### IV ECONOMIC USES OF THE REFUGE

No activities under this heading.

## V PUBLIC RELATIONS

A. Recreational Uses

A number of unidentified small groups and individuals visited both Units I and II during the period. Unit II being largely open to travel is difficult to tab. accurately.

On January 15 a group of 50 San Diego Audubon Society members toured refuge units and received a short talk on management phases.

One week later a group of about 65 Audubon Society members from the Los Angeles club toured the refuge and participated in an informal question and answer discussion following a 15 minute talk on refuge management and accomplishments.

On February 5 Refuge Manager Nuess conducted a tour for Thermal, California, Boy Scouts. A talk on refuge operations and management was given and questions answered for Wildlife Management Merit Badge requirements.

Eighty members of the Polomar Club visited and toured refuge units under the guidance of Mr. Nuess on February 26.

On January 29 Clerk Joseph Cuddy conducted Mr. & Mrs. Ray M. Mason, Botavina, New York, Readers Digest illustrator over refuge Unit I.

Dr. William Davis, (DDT research pioneer) and wife toured refuge Unit I April 9.

Mr. & Mrs. Mills Stewart, New York Audubon Society, toured refuge Unit I and photographed shorebirds on April 9.

A total of 180 visitors toured Unit I during the period. An estimated 300 visitors toured part of Unit II bringing the total to 480.

Refuge Visitors

<u>Name</u>	<u>Date</u>	<u>Identification</u>	<u>Purpose</u>
Mr. R. Switzer	Several	U.S. Game Management Agent	Contact
Mr. R.O. Sjostrom	2/15	Asst. Reg. Supv. Gm. Management	Contact
Mr. A.W. Elder	Several	U.S. Game Management Agent, Los Angeles, Cal.	
Mr. Ray Glahn	Several	Pilot-Biologist, Willows, California	Census & photo work

Refuge Visitors (cont'd)

<u>Name</u>	<u>Date</u>	<u>Identification</u>	<u>Purpose</u>
Mr. K.F. MacDonald	2/15-17/56	Regional Supervisor	Inspection of
		Portland, Oregon	lands
Mr. J.T. Barnaby	" "	Asst. Reg. Director	
		Portland, Oregon	"
Mr. William Anderson	Numerous	Biologist-Cal. F & G	Banding
		Department	Waterfowl

Refuge Participation

Refuge tours, depredations meetings, local agricultural seminar group meetings, etc were attended as in past seasons.

Imperial Irrigation District Board meetings were attended to renew land leases and add to present refuge holdings.

The I.I.D. drainage division was contacted several times to solve water drainage and access problems in Units A and I.

Hunting

REPORT OF PUBLIC SHOOTING ON LEA ACT LANDS OF SALTON SEA  
NATIONAL WILDLIFE REFUGE 1955-56  
(By John Parrish-Calif. Fish & Game Dept.)

INTRODUCTION:

Unit II of the Salton Sea National Wildlife Refuge was again opened to public shooting throughout the second half of the 1955-56 waterfowl season. In as much as most of unit II was farmed to field crops it was deemed advisable to open the unit only during the second half with the intention to provide goose shooting.

AREA OPEN TO HUNTING:

With the exception of the 40 acre field which encompasses the refuge manager's residence, the entire Unit II was open to public shooting..

POSTING:

Posting of the area was accomplished in the same manner that it was the previous year. The outside perimeter of the area was posted with 12" x 18" Department of Fish and Game Cooperative hunting signs which were tied over the existing Fish and Wildlife refuge signs. These signs indicated that hunting was allowed by written permission only and also acknowledged cooperation with the Fish and Wildlife Service. In addition the 40 acres of closed area was posted with similar red "Closed Zone" signs.

## REGISTRATION OF HUNTERS:

All registration took place in the office at the Hazard Headquarters area. Registration fee was \$ 2.00 per hunter, juniors were free. At the time of registration the hunter was assigned to one of eight fields by lottery. A maximum quota of 60 adult shooters were dispersed throughout the unit. Each permittee was then given a map and dispatched to one of the three parking lots located within the area. A Fish and Game employee stationed at the parking lot gave final instructions and directions and saw that each hunter got to his assigned field. The same employee remained on the area to patrol and check the hunters as they came out.

Temporary makeshift blinds of arrowweed were constructed on each field prior to the opening of the season in an effort to achieve dispersion of the hunters.

## RESULTS:

From the standpoint of the hunter the hunting success was satisfactory only the first two weeks of the half. After that time the geese seemed to utilize closed units of both State and Federal areas almost exclusively. A total of 812 hunters hunted Lea Aot Lands (Unit II). Some 325 Snow Geese, 60 Canada Geese, 35 White-front Geese, 1 Cackling Goose and 59 ducks were killed during the season.

(Map and Tabulations follow).

....END....

## WATERFOWL HUNTING SEASON REPORT-SECOND HALF-1955-56

AREA	<u>Salton Sea Refuge, Federal Unit II</u>			COUNTY	<u>Imperial</u>
DATE	TOTAL HUNTERS	DUCKS KILLED	GEESE KILLED	TOTAL WATERFOWL KILLED	
12/10/55	67	6	38	44	
12/11/55	69	7	48	55	
12/14/55	63	2	72	74	
12/17/55	64	22	139	161	
12/18/55	68	8	56	64	
12/21/55	75	10	22	32	
12/24/55	44	0	8	8	
12/28/55	68	3	2	5	
12/31/55	32	0	2	2	
1/4/56	38	1	9	10	
1/7/56	57	0	11	11	
1/8/56	59	0	3	3	
1/11/56	40	0	2	2	
1/14/56	31	0	6	6	
1/15/56	37	0	3	3	
	<u>812</u>	<u>59</u>	<u>421</u>	<u>480</u>	

## WATERFOWL HUNTING SEASON REPORT

AREA Salton Sea Nat'l Wildlife Refuge - Second half 1955-56

## SPECIES AND SEX COMPOSITION OF KILL

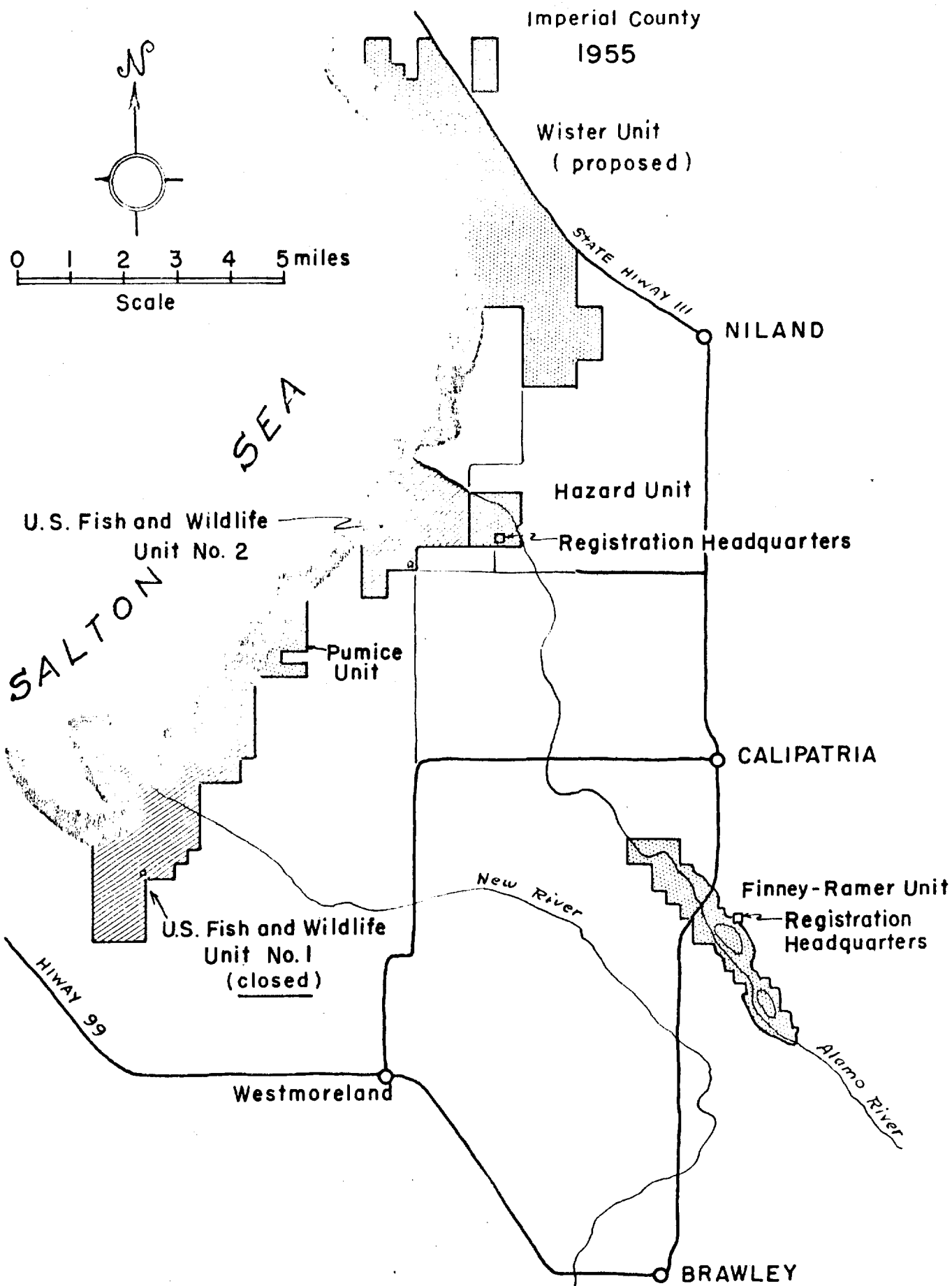
<u>SPECIES</u>	<u>UNCLASS. MALES</u>	<u>UNCLASS. FEMALES</u>	<u>TOTAL</u>
Mallard	0	1	1
Gadwall	0	1	1
Baldpate	4	0	4
Pintail	10	9	19
G.W. Teal	8	13	21
Cinn. Teal	0	1	1
Shoveler	3	8	11
Ruddy	1	0	1
Sub Total-	<u>26</u>	<u>33</u>	<u>59</u>
Canada Goose			60
White-front			35
Cackling Goose			1
Lesser Snow			325
Sub Total-			<u>421</u>
GRAND TOTALS-			<u>480</u>

AREA All Areas under State control

Mallard	17	22	39
Gadwall	33	43	76
Baldpate	1191	792	1983
Pintail	686	641	1327
G.W. Teal	1576	979	2525
Cinn. Teal	105	137	242
Shoveler	1268	1356	2624
Redhead	13	13	26
Canvasback	10	13	23
Scaup	147	162	309
Am. Goldeneye	13	23	36
Bufflehead	12	14	26
Ruddy	525	607	1132
Am. Merganser		1	1
Fulvous Tree duck			67
Ring-neck	7	2	9
Sub Total-			<u>10,475</u>



California Department of Fish and Game  
IMPERIAL WATERFOWL MANAGEMENT AREA



STATE OF CALIFORNIA  
DEPARTMENT OF FISH AND GAME

GROUND RULES - IMPERIAL WATERFOWL MANAGEMENT AREA

1. Conduct your shoot in a sportsmanlike manner. "Skyscraping" and similar unsportsmanlike practices will be sufficient grounds for revoking your permit. The attendant will be the judge of your behavior.
2. Be at your designated area at least one hour before shooting time. Be in your blind at shooting time. If you have any doubt regarding the rules, regulations, or laws, the attendant will answer all questions.
3. Your gun must be carried unloaded until you are in the shooting area.
4. If you use decoys, they must be set out before shooting time when possible.
5. On days to be immediately followed by another shoot day, all hunters will be required to leave the area at 12 noon. Other days at 2:00 P.M. (Not applicable to Firney-Ramer where hunting is daily from one-half hour before sunrise to sunset.)
6. Do not wear white or conspicuously colored clothing. It is recommended that you wear hip boots.
7. To facilitate entry to the charge areas, it is important to have the correct change.
8. Opening shooting times are designated for all Imperial areas as follows:

<u>Date</u>	<u>Day</u>	<u>Start</u> <u>A. M.</u>	<u>Sunset</u> <u>P. M.</u>	<u>Date</u>	<u>Day</u>	<u>Start</u> <u>A. M.</u>	<u>Sunset</u> <u>P. M.</u>
Oct. 15	Sat.	5:15	5:09	Dec. 10	Sat.	6:04	4:36
16	Sun.	5:18	5:05	11	Sun.	6:05	4:36
19	Wed.	5:20	5:03	14	Wed.	6:07	4:37
22	Sat.	5:21	5:02	17	Sat.	6:10	4:38
23	Sun.	5:22	5:01	18	Sun.	6:11	4:39
26	Wed.	5:25	4:58	21	Wed.	6:12	4:39
29	Sat.	5:27	4:55	24	Sat.	6:13	4:42
30	Sun.	5:28	4:54	28	Wed.	6:15	4:44
Nov. 2	Wed.	5:31	4:51	31	Sat.	6:16	4:46
5	Sat.	5:33	4:48	Jan. 4	Wed.	6:16	4:47
6	Sun.	5:34	4:48	7	Sat.	6:17	4:50
9	Wed.	5:36	4:45	8	Sun.	6:17	4:51
11	Fri.	5:38	4:44	11	Wed.	6:22	4:53
12	Sat.	5:39	4:43	14	Sat.	6:18	4:56
13	Sun.	5:40	4:42	15	Sun.	6:16	4:57
16	Wed.	5:43	4:40				
18	Fri.	5:46	4:39				

9. All hunters must check out at checking station and return permits before leaving.

SPECIES AND SEX COMPOSITION OF KILL  
(Cont'd)

<u>SPECIES</u>	<u>UNCLASS. MALES</u>	<u>UNCLASS. FEMALES</u>	<u>TOTAL</u>
Canada Goose			71
White-front			48
Cackling Goose			1
Lesser Snow			392
Sub Total-			<u>512</u>
Coot			394
GRAND TOTALS-			<u>11,381</u>

....End....

Finney-Ramer area claimed laurels over all Southern California hunting areas during December where it was claimed the bag was 3 ducks per man. The last week of the first half it was reported 56 hunters bagged 266 ducks and one goose for an average of 5 birds.

Large vacancies were reported the second half of the season on all State-managed areas. As an example October 28, Hazard reported 93; Finney-Ramer 86; Wister 126.

Overall waterfowl bag this year was up. Some 5506 hunters on managed areas took 11,375 birds for an average bag of 2.1 per man. Last year 4567 hunters took 8578 birds to average 1.8 per man.

Publicity

Roger T. Peterson and James Fisher's book, "Wild America", Houghton Mifflin Co., a record of a 30,000 mile journey across the country, on page 274 describes a visit to Salton Sea Refuge.

Mr. Peterson goes a bit overboard with, "In California the Fish and Wildlife Service not only plants great acreages----but actually employs "goose cowboys", who, using helicopters, herd the geese from agricultural fields onto the refuges!"

The book has brought considerable favorable comment and to our surprise some of the more wealthy birders actually have undertaken to retrace the writers travels.

Violations

<u>Name</u>	<u>Offense</u>	<u>Disposition</u>
Mr. Donald R. Adams	Hunting on the refuge	Fine \$ 35.00
Mr. Harley B. Martin	" " " "	\$25.00 Fine (suspended)
Mr. Yo Wong	" " " "	Fine \$ 35.00
Mr. Dow Ming Woo	" " " "	" \$ 35.00
Mr. Fred M. Conley	" " " "	" \$ 35.00
Mr. W.R. Pents	" " " "	" \$ 35.00
Mr. Joseph Ferrara Jr.	" " " "	" \$ 35.00
Mr. Robert Ferrara	" " " "	" \$ 35.00
Mr. B.W. Nelson	" " " "	" \$ 35.00
Mr. Powell E. Lonon	" " " "	No action

## OTHER ITEMS

The State Assembly interim committee on fish and game met in the Farm Bureau building at El Centro during the period to discuss the following:

- (1) Salton Sea fish experimental program
- (2) Trout feeding in hatcheries
- (3) Chukar, pheasant and quail programs
- (4) Waterfowl management and refuge areas
- (5) Acquisition and development of lands along the Colorado river near Parker dam for fish, hunting and recreational purposes.

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The Los Angeles Times Newspaper, February 6, 1956 carried the following release: "Film producer Walt Disney was presented the Conservation Award today in recognition of his True Life Adventure Series of motion pictures.

"A letter of presentation was sent to Disney by Interior Department Director McKay which stated: 'These pictures, several of which were filmed wholly or in part in National Parks, have set standards of excellence, etc, etc.....' They have advanced the programs of ideals of the National Park Service....." (No mention of the U.S. Fish and Wildlife Service and the part refuges contributed to the motion pictures).

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There's a story going around that one individual whom we apprehended earlier showed up at court, pled guilty and was fined \$ 25.00.

He plunked down 25 cents and asked if the judge wouldn't please allow the same leniency granted him by the income tax collectors. Hoped he could pay by the quarter!.....

Mr. Bruce Jackson, 15 year old youth from 1210 Weatherby Avenue Los Angeles was treated locally for lacerations on the left side of the head suffered when his duck hunting gun blew up.

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On February 15th Agents Switzer (Elamath Falls, Oregon), Rae Sjostrom (Regional Office) and State Warden Reynolds apprehended James Chaffin on his property near the Wister where he had just shot a snow goose.

Reynolds, first to reach the violator was greeted with flying fists and an attempted clubbing over the head with the shotgun.

Chaffin, among other things, begged to be arrested for, "protecting his crops". He was accommodated and hailed before the U.S. Commissioner, much to his surprise (how could a state warden prosecute in federal court, he wondered).

Local U.S. Commissioner Whitelaw showed slight inclinations of favoritism so the case was taken to Federal court in San Diego where Chaffin paid something like \$ 50.00 for violating a mere International Treaty.

Next, the Farm Bureau got into the picture by entering a bill for legislation which would stop an officer from taking a man away from his running irrigation water. Also, the legislation would provide that a farmer could protect himself against any fish or fowl which entered his property.

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During January Seth Gordon of California Department of Fish and Game asked the Imperial Irrigation District to allow the Department free use of water in canals passing through State management areas. I.I.D. was also asked to allow a water spillage, free of charge, to provide for leaching, ponding, and rice cultivation.

The request was reported backed by local farmers and sportsmen to prevent crop depredations.

On February 7th President Evan T. Hewes of Imperial Irrigation District advised that the district farmers "already provide a tremendous amount of free range for support of waterfowl in this area".

"To ask them in addition to have water free of cost from the Colorado river is a most inequitable request and an additional subsidy for this enterprise."

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During the winter months the flow of water in the Colorado river got so low that many of the lagoons from Parker, Arizona downstream started to dry up, leaving bass, catfish, crappie and bluegills stranded.

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The San Diego Union Newspaper quoted California Fish and Game Commissioner Harley E. Knox of San Diego in an address before the National Waterfowl Flyway Counsel at New Orleans; "I'm afraid I'm <sup>in</sup> the minority on the commission but I do feel that we may abandon the practice (of duck baiting in California) so as not to be of further embarrassment to Mr. Farley's office..."

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A review of News From The Bird-Banders Vol. 31, No. 2 discloses that throughout the western states the number of birds banded at all stations placed Salton Sea Refuge in second place with 12,139 birds of 14 species. California Fish and Game Department took first place with 28,004 birds of 19 species. Eleven western federal refuges reported a combined total of only 1,414 birds banded during the year.

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Evan T. Hewes of I.Y.D. has requested the Bureau of Reclamation complete surveys on approximately 82,000 acres of agricultural lands north of Highway 80 on the West Mesa which might be put into cultivation.

About one half the land is privately owned and the Defense Department is requesting 37,000 acres be withdrawn for parachute testing.

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Following one of the bird lover's tours of the refuge which was accompanied by several younger, disinterested youths, we picked up a bird list which had been dropped in one of the parking areas. Since it contains several new species we thought it should be made part of the record. The list follows:

"BIRDS SEEN ON TRIP TO SALTON SEA REFUGE

Aufted dowager  
Red-eyed Crosspatch  
double-breasted seersucker  
electric crane  
Vested interests  
Bleary-eyed hangover

BIRDS SEEN ON TRIP TO SALTON SEA REFUGE (cont'd)

extra-marital lark  
bed thrasher"

- - - - -0- - - - -

Respectfully submitted,



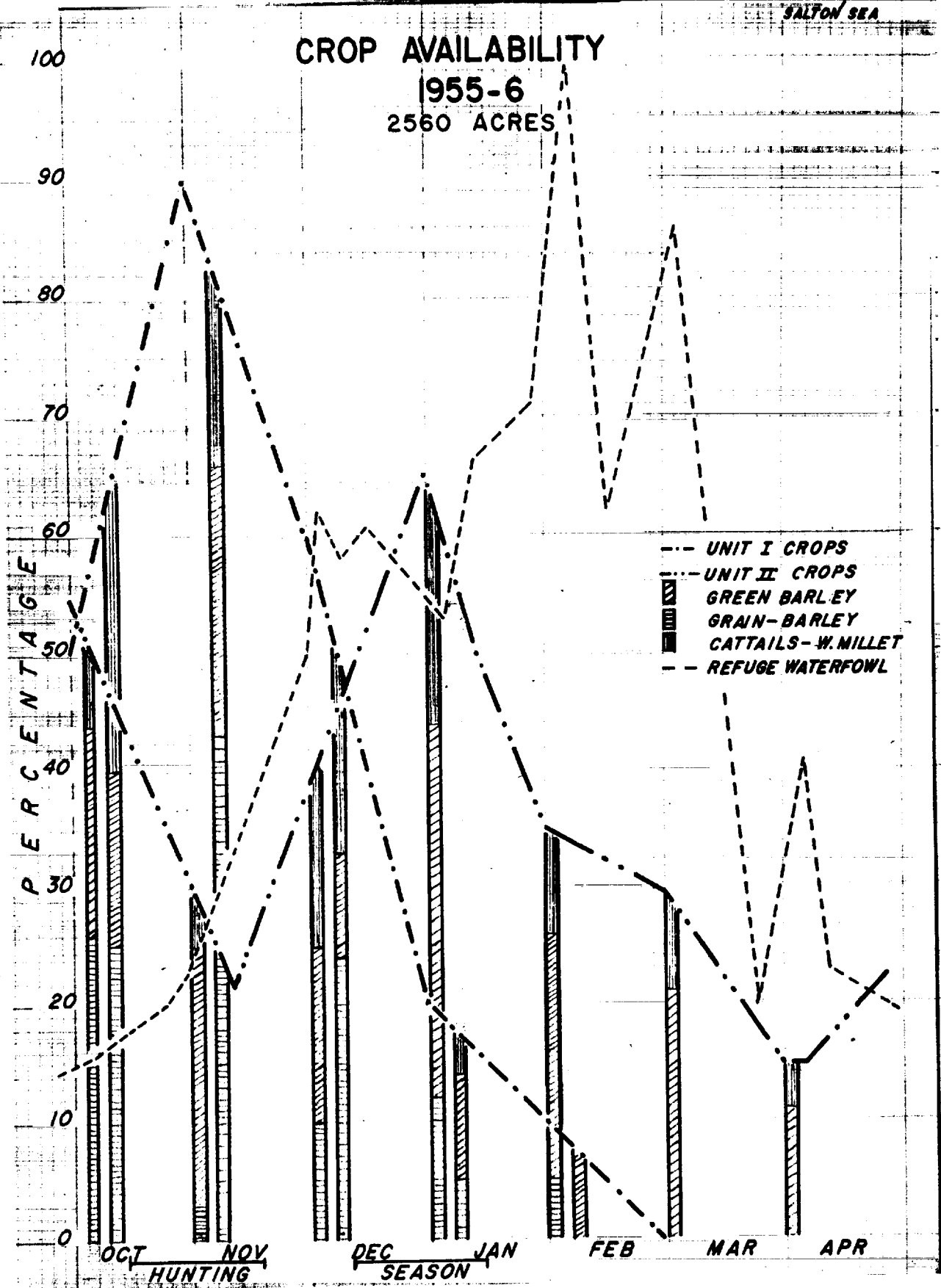
Edward J. O'Neill  
Refuge Manager

Approved: \_\_\_\_\_

\_\_\_\_\_

CREDIT DEPARTMENT: Credit is due Messrs Muess and Parrish for writing two separate sections and to Mr. Cuddy for compiling Banding Tabulations, and typing this report.

# CROP AVAILABILITY 1955-6 2560 ACRES





WATERFOWL

REFUGE Saltun Sea National Wildlife Refuge MONTHS OF January TO April, 19 56

(1) Species	(2) Weeks of reporting period									
	1/1/56	1/13/56	1/27/56	2/3/56	2/10/56	2/17/56	2/24/56	3/2/56	3/9/56	3/16/56
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	150	60	530	365	120	395	650	170	50	120
Cackling	11						2			
Brant										
White-fronted										
Snow	10,000	7300	200	120	270	30	10	50		5000
Blue			10,000	5100	3000	3000	2500	5000	9000	
Other					1					
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail	5300	6300	17,300	10,725	16,320	5300	3900	11,500	10,600	10,100
Green-winged teal	1100	1500	50	2330	11,600	10,600	9800	10,000	11,000	2050
Blue-winged teal	2000	2500	3250	4725	6300	1000	2400	3000	1400	1100
Cinnamon teal	25	25								
Shoveler	2500	3000	530	2710	2025	1900	1075	100	100	10
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:	5000	6000	5000	1250	7000	2000	900	3500	5000	12500

3 -1750a

Cont. NR-1

(Rev. March 1953)

# WATERFOWL (Continuation Sheet)

REFUGE

State of California Wildlife Refuge

MONTHS OF

January

TO

April, 1956

(1) Species	(2) Weeks of reporting period										(3) Estimated : waterfowl : days use : seen : total	(4) : Production : Broods: Estimated : seen : total
	3/12-14/56	3/15-17/56	3/20-22/56	3/23-25/56	3/28-30/56	4/1-3/56	4/6-8/56	4/13-15/56	4/20-22/56	4/26-28/56		
Swans:												
Whistling												
Trumpeter												
Geese:												
Canada	10										22,687	
Cackling	2										105	
Brant											4,907	
White-fronted	1										423,300	
Snow	200		200								7	
Blue												
Other												
Ducks:												
Mallard	10		15								1,190	
Black												
Gadwall											175	
Baldpate	1000	150	125						35		730,380	
Pintail	150	300	300						50		330,870	
Green-winged teal	1500	350	300					250	100		291,400	
Blue-winged teal												
Cinnamon teal	10	20	100						100		5,000	
Shoveler	300	475	550					400	500		155,510	
Wood												
Redhead												
Ring-necked												
Carvasback	100		50						25		25,600	
Scaup	200		10						25		8,190	
Goldeneye												
Bufflehead	25	10	10								1,120	
Ruddy	5500	4000	10,750					7000	5200		513,970	
Other			50								525	
Fulvous tree duck												
Coot:	5200	2500	2725	6000	25	1600	1010				142,295	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	151,206	10,730	
Ducks	2,063,010	12,575	
Coots	112,295	7,000	

# SUMMARY

Principal feeding areas Winters - Salton Sea

Dabbling ~~Refuge Units & Agricultural lands~~ Winters - Salton Sea  
Principal nesting areas Winters - Salton Sea

Reported by

Edward J. O'Neill, Refuge Manager

## 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).

3-1751

Form NR-1A  
(Nov. 1945)MIGRATORY BIRDS  
(other than waterfowl)Refuge: Anna P. Williams Wildlife Refuge Months of January to April 1956

(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
<u>I. Water and Marsh Birds:</u>									
Common Egret	Previous	period	240	4/26					
Snowy Egret	"	"	25	3/12					
S. Cr. Wt. Heron	"	"							
Western Grebe	"	"	4665	4/26					
Barred Grebe	"	"	12700						
Pied-billed Grebe	"	"							
Florida Gallinule	"	"							
Sora Rail	"	"							
Cormorant	"	"	330	4/26					
White Pelican	"	"	375	3/30					
Glossy Ibis	"	"							
<u>II. Shorebirds, Gulls and Terns:</u>									
Black-necked stilt	Previous	period	150	3/25					
American Avocet	"	"	11450	4/26					
Marbled Godwit	"	"	200	1/17					
L-B Curlew	"	"	10	4/20					
Willet	"	"	25	3/9					
Brewster	"	"	Common						
Least Sandpiper	"	"	Common						
Western Sandpiper	"	"	Common						
Ring-billed Gull	"	"							
Bonaparte Gull	"	"							
Gull-billed Tern	"	4/6/56	8000	3/22					
Caspian Tern	"	4/1/56	25	4/13					
Black Tern	1	4/21/56	10	3/25					

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove  IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	Previous period. " " " "				No Estimate
Reported by <u>Edward J. O'Neill, Refuge Manager</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.

## UPLAND GAME BIRDS

 Refuge ~~at~~ San Juan National Wildlife Refuge Months of January to April, 1946

(1) Species Common Name	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
	Cover types, total acreage of habitat	Acres per Bird	Number Breds Obs'd.	Estimated Total		Hunting	For Re- stocking	For Research		
	No notable change in status.									Pertinent information not specifically requested. List introductions here.

# INSTRUCTIONS

(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 Salton Sea National Wildlife Refuge Year ending April 30, 1956

(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	Permit Number	Trappers Share	Refuge Share	Total Refuge Furs Shipped	Furs Donated		Furs Destroyed
Bobcat														
Raccoon														
Cottontail														
Jackrabbit														
Beaver			No notable change in status. (No control work being done on any)											
Muskrat														
Skunk														
Coyote														
* List removals by Predator Animal Hunter														

REMARKS:



## 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.

## REFUGEE GRAIN REPORT

Refugee Salton San National Wildlife Refuge Months of January through April, 1956

(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		Seed	Feed	Surplus
Maricut Barley	600	0	600		300		100	X		
Feed Barley	100	0	100			90	50		X	
Quakinggrass	20	0	20				20	X		
omitted previous period.										

(8) Indicate shipping or collection points Units I and II storage buildings(9) Grain is stored at                     (10) Remarks                     

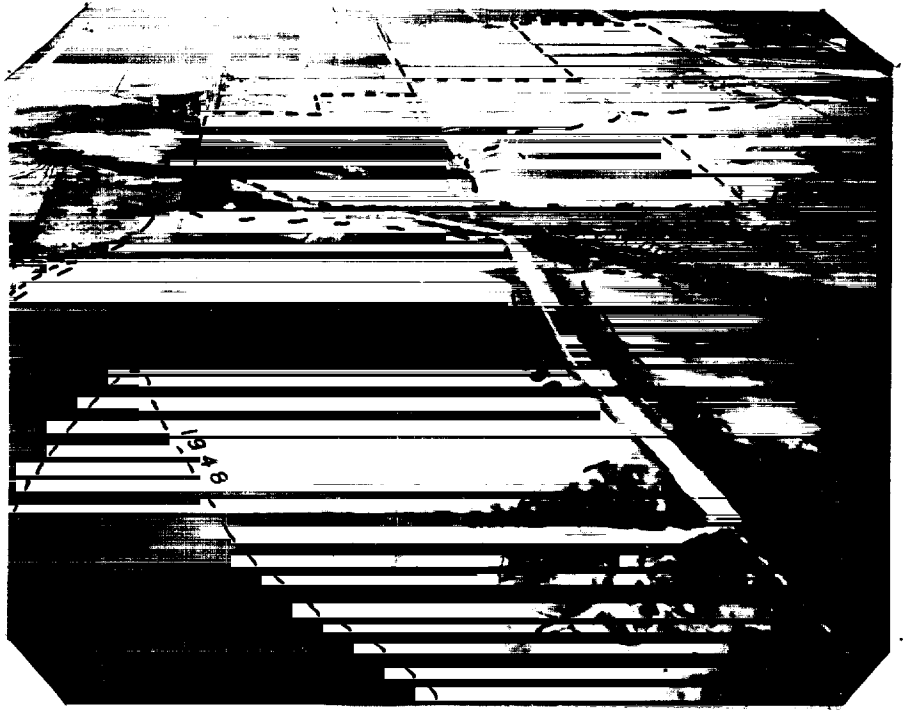
\*See instructions on back.

## REFUGE GRAIN REPORT

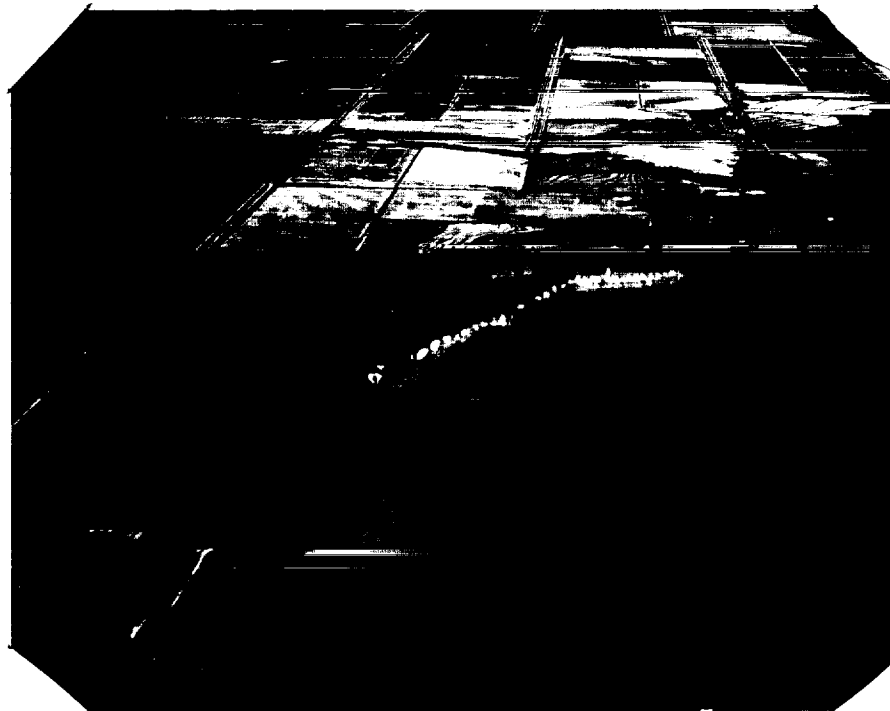
This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

**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.



South view of Unit I showing Salton Sea shoreline change since 1948.



View of North end of Unit I showing shoreline change since 1948.

Snow geese utilizing Tract 6 Unit II barley crop during March.

Messrs Henry Steer and Melvin Ford soaking  
barley seed for experimental planting in  
pre-irrigated, high alkali soils. (Jan. 1956.)



Mulching alkali soils of Tract 4 Unit  
I where pre-soaked barley seed was  
planted. Soil test indicated salinity  
of 21 millimhos.



Mr. Nuess examines results of wet-seed experiment Tract 4, Unit I. Fair crop was produced. Water table is now 3 feet below surface. Salton Sea in background. (April)



The local depredations committee is still working on the widgeon problem.



Salton Sea has risen to the extent that Red Hill, in Unit II, is now an island (Upper right).

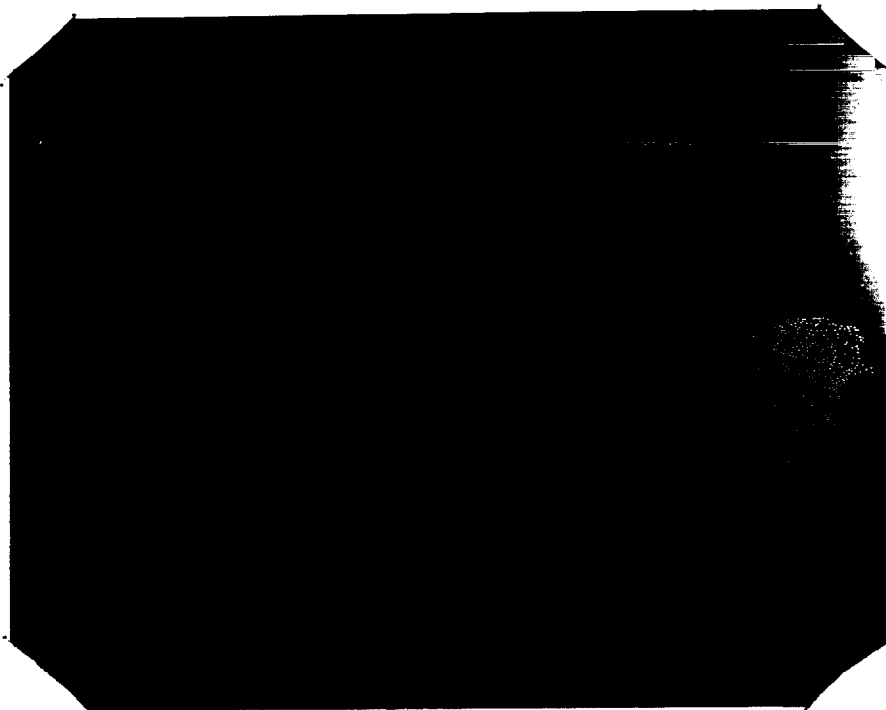


Cattail-millet crop as left unutilized (Tract 8 Unit II). Geese avoided area even after hunters gathered their decoys and called it a season.





Aerial photo of snow geese (6208) on Salton Sea March 21, 1956. Pilot-Biologist Ray Glahn has developed flying technique which made these photos possible.



Aerial photo of snow geese on Salton Sea December 1, 1956. (By count, 10,917).



More greater Scaup wings were found where hunters dressed ducks. Species formerly was considered rare here.



Hybrid widgeon X gadwall or widgeon X Mallard taken in duck trap.



8,894 ducks were trapped and banded during the period.



One of the Fulvous tree ducks which had unknown malady that was destroying flesh of both feet.



Farm foreman Stewart examines barley at Tract 6 Unit II intended for 1956 grain crop.



During March geese moved in & stripped heads from barley crop at Tract 6 Unit II (shown above photo).