

SALTON SEA NATIONAL WILDLIFE REFUGE

AND
WATERFOWL DEVELOPMENT AREA

XXXXXXXXXXXXXXXXXXXX

NARRATIVE REPORT

JANUARY, FEBRUARY, MARCH, APRIL

1977

XXXXXXXXXXXXXXXXXXXX

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BRATTLE, CALIFORNIA

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REFUGE PERSONNELRegular Personnel

EDWARD J. O'NEILL	Refuge Manager
ROBERT C. WATSON	Refuge Manager, Asst. (Transferred to River Basins, Salt Lake City, Utah)
FRANK L. BEALS	Clerk-typist (Transferred to Willapa Refuge, Ilwaco, Washington)
JOSEPH L. CUDDY	Clerk-typist (Transferred from Little Pend Oreille Refuge, Colville, Wn.)
CLYDE W. STEWART	Foreman, Farm Operations
MICHAEL J. KARI	Mechanic (Transferred to Stillwater Refuge, Fallon, Nevada)
JOSE BARROS	Tractor Operator
LEO E. COX	Tractor Operator
CARL W. FORD	Tractor Operator
MELVIN FORD	Irrigator
CHESLEY WILLIAMS	Tractor Operator
PAUL E. WILLIAMS	Tractor Operator
ALFRED W. McFARLAND	Tractor Operator
JOHN BARROS	Irrigator
SYLVESTER BARROS	Irrigator
MANUEL GARDONZO	Irrigator
JULIO RIBEIRO	Irrigator

Temporary Personnel

None during period.

NARRATIVE REPORT

I GENERAL CONDITIONS

A. Weather & Conditions

Several days of light rain and very muddy conditions marked the opening of the period.

Most hunters, bent on getting their fill of the seasons hunt, logiced that they had traveled more than 200 miles to get here and the last 10 miles or so beyond the end of the payment wasn't going to stop them. Roads were in the worst condition ever. The one-way traffic insisted on "mushing" north and west toward the edge of the Salton Sea and the opened federal-state shooting areas.

Normally the wet, nuisance condition would have been of short duration had not the traffic been so heavy. As it was, for about two weeks, roads were impassable in the ole family car without chains. Ruts, high ridges, unscheduled turn-outs for the fast careless driver and "slip-offs" as well as deep quagmire puddles were everywhere along the 20-odd miles of slick country roads most used. A dirt road with high center ridge of moist mud is something to experience for the hardy soul used to snow.

Two men from Calipatria brought in a 4-wheel drive military job and reportedly cleaned up with towing charges.

One morning the writer caught this mud-ball from a sidelines disgruntled hunter, masked with mud from head to foot.... "Why don't you damned federals use some of the \$2 duck stamp money and build us decent roads?"

....Humm, The storm period extended into the second week of January with almost daily cloudy, wet conditions. No farming operations were possible on the refuge. Needless to say....the county roads at this writing are still rougher than the Dakota bad-lands.

A total of 1.57 inches of rain was recorded by the end of January. Previous rains of this proportion date back to January of 1941, when 1.77 inches was measured and January 1915 when a total of 2.30 inches was recorded.

Snow was reported to be deep in the nearby Laguna Mountains to the west. The Ridge Route to Bakersfield was blanketed and closed several hours. Southern California rains flooded numerous

intersections in Los Angeles and caused many accidents on rain-slicked streets. Dense smogs left for a while and people began using their eyesight for objects further away than the front bumper. When the storms cleared however, the usual returned and so did the name "anotherin' California".

Down Mexico way at Mexicali more than 5000 people were flooded out of shacks along the New River bottoms when the rain-swollen New River rose about four feet above its banks. Emergency action included temporary housing in warehouses, typhoid shots and truck loads of blankets, food and clothing shipped in by sympathetic Imperial Valleyites.

As the spring season advanced there was a fair display of desert blooming flowers in the surrounding country. Along the miles of highway we noted too that the Kleenex tissue bushes came into full bloom again. On one stretch of road the wildflowers bloomed so thick you could hardly see the familiar discarded bottles, cartons and beer cans.

Strong winds blew in from the west desert throughout February, March and April (increasing as listed), however in our memory it was perhaps the most pleasant weather period on record. Through February the weather was ideal. Bull frogs just couldn't resist and pushed out of the muddy marshes the 13th of March. By the end of February cottonwood trees were in full leaf. In mid-March screwbeans were in bloom in response to the mild run of weather.

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	76°	34°	1.57	0
February	87°	32°	T	9
March	92°	40°	T	14
April	94°	40°		20
Totals.			1.57	43

B. Precipitation And Water Conditions

When the rains came the lack of need for irrigation water through the All American Canal system resulted in a revenue loss of some \$200,000 for the Imperial Irrigation District.

Each succeeding strong wind pushed waves of salty sea water inland several hundred feet and evaporation left our precious land with a sparkling coat of salty crystals.

The Salton Sea continued to show some rise in elevation. Tabulated below is a comparison of present conditions with those of last year:

SALTON SEA ELEVATIONS (Below Sea Level)

	<u>1954</u>	<u>1955</u>	<u>Differences (ft)</u>
Dec.	-235.14	-234.75	/ .39
Jan.	-235.30	-234.50	/ .80
Feb.	-235.00	-234.30	/ .50
Apr.	-234.75	-234.05	/ .70

(total gain... .70)

With some reduction in summer drops, especially cotton, the evaporation of the 1954 summer season held the elevation to -234.75 until gains were again made this December.

On February 16th from the air one could see the sea water lapping against other interests, too. One tile line on the east edge of Elmore Ranch was under water and sea water stood feet away from one sugar beet field. Along the north shore the Greer Ranch buildings were completely surrounded and being pounded apart by high waves.

C. Fires

No fires occurred on the refuge during the period.

III WILDLIFE

A. Migratory Birds

1. Populations And Behavior

The overall waterfowl population remained intact and somewhat stable in numbers until about mid-February when migrational movements began to take place. From a 45,840 population on January 1st there was a drop to 23,750 as of February 19th. One

month later only 12,450 birds, mostly American Widgeon, pintails and shovelers remained. The last of April saw a mere 1175 birds present on the refuge.

(Comparison of population figures for the 1952-53 and 1953-54 winter seasons was included in the previous report)

2. Geese

The total refuge population of Canada geese was almost 50 per cent lower than last year. Over a nine week period commencing January 1st the average weekly population figure showed 553 present. One year ago the average weekly figure for the same period was 803. There is certainly justification for a reduced Canada goose bag limit here. At least the refuge kill might well be reduced or stopped on this species.

A communication from the Wyoming Fish and Game Department concerning color-marked geese observed here disclosed that most of the Canada geese population at Fremont County, Wyoming which normally winter here, failed to leave this year.

During the period refuge personnel reworking lands, patrolling, etc located an additional 5 Canada geese and 58 snow geese which had been crippled or wounded during the hunting season. This brings the known goose kill along the refuge up to 862 in addition to 1199 killed on the managed shooting grounds. Total known kill then was 2061. It is not improbable that 1000 more geese were taken on olubs, Salton Sea, the edge of the desert, etc adjacent to the refuge.

Migration of Canada geese from the Salton Sea country was similar in trend to last years pattern. Dates of notable decline were, mid-February, when the species dropped from 800 to 500. By March 5th only 60 remained here.

Returns of banded Canada geese killed on the refuge (Lee Act lands) show the following points of origin:

<u>Number</u>	<u>Banding Station</u>
8	Pathfinder Reservoir, Wyoming
2	Neponsit Reservoir, Utah
1	Blackfoot Reservoir, Idaho
1	Cypress Lake, Saskatchewan, Canada

Snow Geese as indicated in the previous period held up

comparatively well in relation to previous years. As usual the population peak occurred in mid-January after the shot guns were quieted by the hunting season closure (January 10th).

Feeding flocks of snows became more dispersed and even broke up into small groups after the season. It is remarkable that the snow goose even maintains itself and regularly migrates from this area considering the high degree of hunter, airplane, and photographer harassments that take place. In the main, snow geese taken late in the season turned up a rather large number of previously wounded birds and many that were thin or in poor flesh.

Migrational movement from this area was pronounced and definite about mid-February when the species dropped from 10,000 to 5,000. By mid-March only 100 were here; April 1st, 70 noted. On the February 16th aerial survey Snows were found mainly on the New River delta, Alamo River delta, Wister drain and NE of Mullet Island where patches of cattails were being cut down and consumed.

The post-season platoon of hopelessly crippled which seek the safety (?) of the refuge units seems commonplace any more. It would take a rather lengthy brain-washing process to change our opinion of the fellow who each season takes his place along the boundary lines with shiny magnum and comments, "didn't get the limit but shore made some of them (geese) sick to their stomachs!"

Period returns and recoveries on crippled snow geese banded previously are as follows:

<u>Number</u>	<u>Banding Station</u>
1	Tule Lake NW Refuge, Calif.
1	Salton Sea NW Refuge, Calif.
1 (at Baja, Calif. Mexico)	Salton Sea NW Refuge, Calif.

A lone Blue goose showed up in late December and spent the early days of January among the snows on the refuge. Many hunters noticed the specimen and remarked on the odd "brant" but by some stroke of fate they failed to bag the conspicuous geese which each day accompanied the flights of snows into Unit II.

White-fronted Geese were quite consistent in migrational pattern with previous years. An individual retrieved as a cripple and banded here December 21, 1953 was killed during the season near Gustine, Merced County, California.

A few Ross' Geese were observed in the flocks of snow geese again this year. A female Ross' was noted in a hunters bag near Tract 18, Unit I January 9th. A week later a pair of wings of a specimen which had been killed and skinned were found along the refuge boundary.

3. Ducks

American Widgeon or baldpates, were approximately 50% lower in numbers most of this winter season. The refuge population however was rather consistent with the trend of previous years the overall population figures do not reflect this.

Peak populations occurred in mid-January when an estimated 17,300 were using the refuge. On January 20 Refuge Manager Bob Watson, Pilot-Biologist Ray Glahn and the writer using the Service plane N-720 estimated 19,800 for the entire Valley. At this time our own Game Management men and State Fish and Game men "estimated" about 75,000 in the Valley. The figure added considerable to the depredations committee propaganda and represents only an arm-chair estimate. On February 16th we found 10,000 widgeon along the SW shores of the sea east of Elmore Ranch. At the time 2600 were on the State Unit "A" and 3000 on the State Raymer Lake.

Pintails using the refuge areas showed almost a 50% higher population figure than for the same period last year. The monthly aerial census flights covering the entire Valley when compared with last years surveys confirm the slight uptrend. This however is not the situation for the entire area.

Other species of ducks were unchanged in status since the previous period. The Green-winged teal and Shoveler remained steady in numbers. The wintering population appears inadequate considering the high degree of kill for these low-population species.

Eleven Fulvous-tree ducks were taken in duck traps by State personnel working on the refuge February 11th.

European Widgeon were spotted with American widgeon again this spring.

Feathers, feet and one wing of a male Greater Scaup that had been picked were found by Bob Watson near Salton Sea in January.

In February we noted the Canvasback, L. Scaup, Ruddy Duck and common Goldeneye were all predominantly males, about 7 to 1.

Blue-winged teal were taken in the duck traps again this year. February 21st was the first date of capture.

In late February Agent A. W. Elder reported checking only Cinnamon Teal and Shovelers being imported from Baja, California Mexico by American tourist hunters.

The following represents birds banded during the period:

<u>SPECIES</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MARCH</u>	<u>APRIL</u>	<u>TOTALS</u>
L. Snow goose	2	----	-----	-----	2
Am. Widgeon	344	670	207	-----	1221
Pintail	1652	1000	-----	-----	2652
G-W Teal	190	908	352	-----	1450
Blue-W Teal	-----	1	2	-----	3
Cinn. Teal	1	107	396	-----	504
Shoveler	3	15	1	-----	19
L. Scaup	1	-----	-----	-----	1
Ruddy Duck	-----	8	-----	-----	8
Fulvous-tree Duck---	-----	11	10	-----	21
Goot	92	11	60	-----	163
	-----	-----	-----	-----	-----
TOTALS	2285	2731	1028		6044

The following pages of tabulations are a summary of band recoveries received during the period:

BAND RECOVERIES - 1954 & 1955

	WASHINGTON			CLARK COUNTY			COOK			GREEN RIVER			MAYNARD			PACIFIC			MAYNARD			SPRINGFIELD		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
ARIZONA	7		7																					
CALIFORNIA	3	95	12	1	2	3			9	17	66	83	1			1	154	311	465	2		2		2
IDAHO	3	4	7							1		1					3		3					
IOWA		1	1															1	1					
LOUISIANA																	1	5	6					
NEVADA	3	4	7								1	1					3	9	12					
NEW MEXICO	1		1															2	2					
NORTH DAKOTA																		2	2					
OREGON										1		1					1	2	3					
TEXAS																	4	16	20					
UTAH	7	55	12							4	7	11					12	28	40			1		1
WASHINGTON	1		1							1	1	2												
SOUTH DAKOTA																	4	4						
OKLAHOMA																	2	2						
WYOMING																	1	1						
MISSISSIPPI																						1		1

BAND RECOVERIES -- 1954 & 1955
(Cont'd.)

	Murrelets			Clam-Tail			Coot			Green-winged Teal			Pulmona			Pintail			Redhead			Scaup		
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
BRITISH COLUMBIA																								
ALASKA	1		1																					
CANADA	4	3	7				1			1	1	1				10	12	22						
MEXICO	1	1	1	1						1	1	1	1	1	1	8	56	14						
HAWAII																1	1	2						
TOTALS	15	15	20	2	2	4	10	24	77	101	1	1	1	2	203	146	219		2	2		3	3	3

SHEET #1 of 10

TOTALS

The baiting activities on clubs and private shooting areas seems to present a definite attraction for certain duck species. Main benefactor of the relaxed regulations seems to be the club or private lands shooter. The activity encouraged concentrations of birds out in the Valley cropland areas and while the feed was inadequate birds did hang around.

On the Barohard-Ehlers club 12 to 18 men hunting a total of 10 days reportedly bagged 1475 birds or, 9.33 birds per man. On the Horcefly club the average bag was just over 5 birds per man according to Mr. Charles Venderahe, owner.

It is of interest to note from the kill reports that shovelers and teal (non-crop-consuming) species, play a marked role in filling the club shooters' bag as is the case on the State's shooting grounds. No matter where or how the hunting is handled, except out on Salton Sea, widgeon and pintail are not taken in relation to their comparative abundance.

On the following pages is tabulated the flooded acreages scattered over the Valley showing use by waterfowl. On some 1415 acres of flooded tracts varying in size from 3 acres to 200 acres a total of 20,620 ducks and a few geese were noted on one aerial census. The occurrences shown point up the degree of dispersal into the interior agricultural areas through the medium of baiting.

**ACREAGES BEING FLOODED AS HUNTING AREAS AND/OR LACUNED SHOOTING INCIDENCE OF
WATERFOWL USE (Data from Aerial Surveys); assisted by
Ray Gilman)**

DATE: January 19, 1955

<u>Area</u>	<u>Acres (Est)</u>	<u>Waterfowl Use</u>	<u>Remarks</u>
Kingsley Club South of Pomice Hill, Vail 4 1/2	160	150 pintails 120 coots	Area 2/3 drained at times; duck & goose decoys still out; previously baited under permit No. 86 and 89;
Hubbell Ranch (club) SE of Unit II, Vail 3;	80	60 pintails 30 coots 50 shovelers 10 G.W. Teal	1/2 drained; goose decoys still out; previously baited under permit No. 64;
United Gun Club East of State Hazard Area	80	300 Widgeon 150 Shoveler 50 G.W. Teal 100 coot	1/2 drained; previously baited under permit No. 60;
Calipatria Land Co. SE of Calipatria	15	4500 pintail 50 shoveler 300 G.W. Teal 100 coot	Fully flooded; previously baited under permit No. 63;
Walker Club SE of Calipatria	80	3000 pintail 2500 coots 1200 G.W. Teal 150 shoveler 20 ruddy duck	Fully flooded; previously baited under permit No. 52; now being baited for live-trapping by Calif. Fish and Game;
Borchard-Elmore Club 12 mi. SE of Brawley	200	1200 widgeon 150 G.W. Teal 100 coot	Fully flooded; drainage started; previously baited under permit No. 59;

DATE: January 19, 1955 (Cont'd.)

Area	Acres (Est.)	Waterfowl Use	Remarks
Alamo Duck Club SE of Calipatria	80	350 pintails 120 shoveler 40 G.W. Teal	Area Fully flooded; Area previously baited under permit No. 66;
XBO Club	100	200 coots	Fully flooded; area previously baited under permit No. 75;
Westmorland Development Co. E. of Refuge Unit I	80	150 pintails 300 coots 30 G.W. Teal	Area flooded; drainage started; previously baited under permit No. 80;
S & K Club MR Heise's Station	30	50 shoveler 200 G.W. Teal	Area partly flooded--drainage started; previously baited under permit No. 83;
Sub-Totals.....	905 (Acres)	15,750 (Ducks)	

12 other areas scattered over the Valley comprising of 510 acres had the following species of waterfowl:
(5 of these areas had been baited during the season, apparently without permits)

510
60 canada geese
80 ruddy duck
700 G.W. Teal
10 mallard
1100 pintail
680 coot
1700 Am widgeon
60 shoveler

Grand Totals..... 1415 20,120

4. Diseases

No known diseases occurred during the period.

On February 15th the writer noted an unusually large number (300) of flightless coots on Salton Sea adjacent to Unit I. Three of these were picked up from the boat with ease as they tried in vain to dive. All were very emaciated (no flesh along the keel), excreta was ink-black and watery. The general symptoms were suggestive of algae poisoning. The birds, though barely able to walk or stand up-right, were taken to the headquarters lawn and left with several others which had claimed "squatters rights" there. In a few days all but one recovered.

On February 16th a few apparently sick pelicans were noted at the delta of New River. From the air they appeared unable to fly off with others of the flock and seemed in a very weakened condition.

5. Shorebirds, Gulls, and Terns

Shorebirds in general migrated through and from this area about the same as one year ago.

Gull-billed Terns started to arrive in numbers about March 30th. First note of the season was two seen on March 29th.

A lone Common Snipe was observed several times along Vail 7 Canal near Tract 27, Unit I. Latest observation was March 5th.

Whimbrel were noted to be fairly common in mid-April. The last week of April they became more abundant and remained relatively common on the refuge until the end of the period.

Mountain Plovers were last observed on the refuge February 10th.

Mr. Arnold Small, district editor for the Audubon Field Notes, reports seeing Knots and Ruddy Turnstones this spring near Mullet Island but declined to give us the specific dates for the record.

6. Marsh And Water Birds

No notable change in status.

Sandhill Cranes continue to show definite down trend in numbers of the former flocks which wintered here. Three (3) were observed January 9th. Next note of the species was February 18th when 2 were seen near the State's Wister Area. Final observation of the season was March 19 when 5 were seen on refuge Unit II. This does

not look good in view of the fact that the flock once numbered well up in the hundreds.

Snowy and Common Egrets, Cormorants, Great Blue Herons and Black-crowned Night Herons all nested in substantially the same sites and under similar conditions.

On March 29th we flew over the colony and found egrets starting to construct nests. Great Blues had nests with one and two eggs.

7. Food and Cover

Natural conditions appear unchanged.

Local vegetative growths and seed production, though negligible, appear to be about normal or at least similar to previous years. Widgeon grass and Southern Maid responded to rising spring temperatures through February and March to produce fair growths in drains and canals for coots and Cinnamon teal.

There is a species of aquatic back-swimmer insect, which we believe the widgeons use extensively in the winter, that seems on the increase. This season the insect appeared more abundant than ever before along the south east shores and bays of the sea.

It is noteworthy that the Spinaerium clams are now distributed throughout all parts of the Imperial Irrigation District canal system.

B. Upland Game Birds

No change in status noted. Population of quail appear barely self-sustaining.

C. Other Birds

Mourning Doves started calling for the first time this year on February 2nd. Migration of the species was most prominent in late February and early March.

On February 9th a pair of shrikes were noted constructing a nest near headquarters. Last year on March 11th young of the species were found in a nest.

Bank Swallows were recorded February 16th at Tract 11, Unit I. On June 7th a dead bank swallow was found along the New River near the Johnson place southwest of Calipatria.

First note of Western Kingbirds for the season was March 19th.

On April 4th the first Bullock's Oriole of the season was observed. About two weeks later than last year.

A lone kingfisher was seen April 21st.

A number of pipits absent from the list the previous period, were seen here April 24th. On the same day, young Mocking birds, able to fly were observed at Unit II.

A lone Raven showed up April 25th. The species is common in the higher edges of the Valley but rather rare in the lower portion of Imperial Valley.

Two Western Tanagers put in the first appearance April 28th.

Robins were rather scarce again this season. Observations of the species were confined to Vendel's station along Highway 99. Departure occurred about the last part of February.

The little Brewer's Sparrows which have made subheadquarters "headquarters" for several years now were completely absent this season.

The usual migrations of Ash-throated Fly-catchers, House Wrens, Lark Sparrows, House Finches, several warblers (Cerulean, Pilosoted, Audubon, Yellow, Black-throated Gray, etc) occurred through the month of April.

The San Diego Audubon Society each spring is conducting a bird count in San Diego and Imperial Counties. Districts are broken down as follows: 1) Coastal areas inland as far as the 2000 foot level; 2) Palomar, Laguna and Cuyamaca Mountains above 2000 feet; 3) Borrego and Anza Desert State Parks; 4) Imperial Valley from the Salton Sea Nat'l Wildlife Refuge to El Centro; 5) Colorado River Valley from the Imperial Nat'l Wildlife Refuge to Winterhaven.

Some 50 observers compiled data simultaneously as outlined. The local counts were conducted by Mrs. K. B. Fisher, (Holtville-El Centro); Burt L. Monroe, Jr. and the writer. Mr. Monroe and Gale Monson (U.S. F & W at Yuma) covered the Imperial Refuge, Bard and Winterhaven areas).

The survey disclosed 34,418 individual birds of 249 species; 46 species with nesting activity; 7 colonies; 16 nests with young birds.

The Salton Sea area was 2nd highest in numbers with 7815 individuals of 219 species seen. The coastal areas, with some 40-odd observers out, netted 22,841 individuals of 228 species for the list.

D. Fur Animals, Predators, etc.

No notable change in status noted.

A pair of coyotes was observed at Tract 4, Unit II on February 5th. (This species has become so rare here that occurrences have become noteworthy). On March 29 Pilot-biologist Ray Glahn and the writer observed a single coyote along the west shore of Salton Sea just north of the AEC installations.

In February reports came to us that Imperial Irrigation District employees at Calipatria had captured a badger in a drain ditch, placed a wire on one foot and were cavorting the streets. The species is not too common in this area and some people inquired of us what the animal was.

In mid-March Tractor Operator Paul Williams, working contours near Rock Hill, Unit II, uncovered 4 newly-born Jack Rabbits.

E. Fish

On February 16th it was noted that fish were still dying and floating shoreward on the Sea. From Mullet Island north and around the shoreline to the southwest edge of the sea small floating fish could be seen. Areas of most prominence were near Wister drain, the salt mine, Salton Sea Beach and about 3 miles of the northwest shoreline.

F. Waterfowl Depredations

Depredations of agricultural crops by wild waterfowl species was not as pronounced as in previous years due mainly to the lower population.

The American Widgeon or baldpate was definitely down in numbers as mentioned in the previous report. Although refuge counts held rather steady and consistent the overall Valley or Salton Sea population was definitely off in numbers.

Newspapers carried a lesser amount of the usual propaganda by local "bigs". One article had this to say: "Imperial Valley farmers' annual widgeon war was under way today as the fresh water ducks that have caused up to \$500,000 crop damage in previous years swarmed into pre-harvested alfalfa, lettuce and other green field stands.

"To help fight the birds, the U.S. Fish and Wildlife Service set up a no-bag-limit season starting after January 10. Farmers and sportsmen can hunt widgeon 24 hours a day. The Salton Sea refuges (federal) provide safety for the widgeon, which hits crops at night."

On January 10th Baxter Loveland, chairman of the depredations committee urged attendance of the public at a meeting in Brawley stating, "Last year at this time there were about 10,000 widgeon ducks in the Valley. This year surveys indicate there are about 71,000 birds in the area."....."

On January 11th a Brawley News item had this to say, "After surveying another field of alfalfa damaged badly by widgeon ducks, state game warden James Reynolds today urged farmers to inspect their fields immediately and report any damage to the Brawley Chamber of Commerce....." ".....Birds have been hitting fields especially hard in a strip of land north and east of Westmorland. On Tuesday night thousands of birds descended on a field of young alfalfa about six miles north of Brawley".

"Reynolds said that one 160 acre field farmed in the West area by Jack Benson and John Stitler was almost completely destroyed recently by the widgeon."

In the Imperial County Farm Bureau Monthly for December, 1954 in large print was the following: "WIDGEON ARRIVE IN DESTROYING JOB—FARMERS BEWARE! THE WIDGEONS ARE HERE! All Imperial County Farmers growing green feed, Alfalfa, Lettuce, Barley, Wheat, Etc... are being warned this week by Baxter C. Loveland, Chairman of the Game Depredations Committee of the Imperial County Farm Bureau that the vanguard of the wintering band of widgeons has arrived in the Valley and is hard at work. Two Alfalfa ranches have been hurt severely when the crop was about ten inches high, following the second irrigation....."

Following the close of the regular hunting season (January 10) 150 to 200 Canada and White-fronted geese moved into the W.E. Beatty (Sinclair) place twice daily. In a short time the snow geese (10,000) also took to the green barley crop where they made rather heavy inroads of the potential livestock feed. At first we used flares and herded the geese out of the area back into Unit I, however, with airplane activities, oot and widgeon hunters nearby and the rather poor quality of feed present following two months of heavy utilization of the refuge the geese soon returned. The flock became so persistent that the landowner finally gave up herding. They grazed over a full section of land. On one occasion we attempted to boost this flock of snows with the Service plane but for the first time to our knowledge, the flying machine proved ineffective. Each time we moved in and raised them they merely circled and settled like so many gulls behind a plow. With grenades or ground assistance it might have been different.

All of the lands in the north and of the Valley which received goose damages just after the regular season were found to have abandoned goose decoys in them.

The State Fish and Game Department men again operated the checking station-information bureau at the local chamber of commerce for hunter information and guidance. Some 12 individual farmers names and ranches were listed as having had alfalfa damages during the period. To this we added several more unreported areas observed during regular monthly aerial waterfowl surveys. Last year 25 farmers called in.

As was the case last year most farmers ignored the urgings of the fish and game men and depredations committee leader Loveland to report all damages. It seems that more enjoyment was had in just inviting select friends or business associates out to enjoy a special season which is granted nowhere else in the U.S.

State Fish and Game men estimated 2000 widgeon killed by hunters during the special season as compared with 4000 last year.

At the January 10th meeting nearly 600 acres of crop damages was reported. Most damages were reported as having started in December. Almost one-fourth of the damages were attributed to geese during the month of December. No mention was made relative to merits or demerits of the hunting club baiting program.

At the same meeting Mr. Ade Zajance, depredations biologist, demonstrated a "Save-A-Crop" goosecrow carbide exploder which is available for \$ 75.00. A similar exploder, manufactured in Japan and available for \$ 40.00 each was also presented.

No depredation meetings were held during the balance of the period.

This year for the first time we observed coots on local crop-lands. About 100 fed on the Fred Johnson place south of Unit I from December 20th on. In the corner of the land tract some 10 acres were being leached and the coots took up a rather permanent residence there among the cattails with twice daily trips out into the alfalfa. An estimated 5 acres was kept grazed or devoid of leaves until the area was drained....in april.

Throughout the Valley we observed that club baiting definitely drew the puddler ducks. Also, coots took to these baited areas and after the season they missed the hand-out and some took to the surrounding crops of green feed. This is a new occurrence and appears to be a direct result of the baiting program.

On the Charles Vonderahe place east of Brawley on Nettle Canal, Gate 10, where hunting and baiting were carried out we observed 6000 widgeon resting on the area December 17th. Adjacent to this 160 acre water area some 120 acres of alfalfa had been damaged in two fields.

Agents Ed. Carter (Washington) and Ray Lawhorn (Oregon) spent most of the season in Imperial Valley on law enforcement and depredations checks.

III REFUGE DEVELOPMENTS AND MAINTENANCE

A. Physical Developments

1. Cultivated Crops

UNIT I

All crops and cropping activities of the previous period were continued. Toward the end of the period some 400 acres of land was being prepared for sudangrass-red top sorghum crops.

Tract 2-B was plowed under because of poor crop success.

UNIT II

Following the close of the season (Jan 10) and the termination of refuge hunting on Lea Aot Lands, the work was stepped up on replanting and volunteer cropping of the Unit II fields which had been hunted.

Late wintering geese and early maturing barley do mix! Some 340 acres was stripped of heads leaving a first class straw crop. Some replanting was delayed as late as the last week of February. As the season progressed some areas showed signs of weed invasion and yellow virus-carrying aphids.

Tracts 7-14 and 1-5 were farmed until the barley crop matured. The stand at Tract 4 was rather light and broken with numerous thin or bare spots which will be disced later.

The small acreage (4 acres) of alfalfa seeded in Tract 7-14 for winter widgeon bait died as a result of heavy yellow clover aphid infestation. This pest took many, many acres of young alfalfa throughout the Valley.

Comments On Crop Use

To support agricultural crop uses the accompanying graphs are intended to illustrate the availability of crops with the seasonal advance and the degree of use by various waterfowl in terms of "use hours".

Crop yield estimates were computed to pounds for more accurate data and ease of conversion to higher or lower units of measurements.

It is estimated that the wild millet seed crop, when mature will yield only about 100 pounds per acre, however this

crop is seldom allowed to mature. Pintails and blackbirds generally manage to strip most of the crops while still in the "milk" stage. It would be difficult to compute green seed weight and for this reason we have used the dry seed weight obtained from actual samples a few years ago. There is also a degree of green leaf use by widgeon and coot some seasons which has not been accounted for in the graphs.

Green cattails are estimated to weigh about 2 tons per acre considering the rhizome-basal stem portions consumed. Not only ducks and geese benefit from this crop as shown in the graphs. By the time the geese start cutting the crop there is a teeming population of insects and fish present in the sheltered waters. As the cutting advances, white pelicans, egrets, herons and other wading species move in. The manner in which white-fronted geese consumed cattails in early November would indicate that the crop might be a preferred item.

Hunting influenced cattail consumption somewhat due to the fact that Unit I, where the crop existed, was closed to hunting. There has never been an adequate acreage of cattails on the refuge to satisfy the demand. Following the hunting season geese generally move to the river deltas and the natural growths of cattails.

Green barley crops easily ran one ton per acre of forage considering the long period of regrowth and grazing. As soon as club baiting adjacent to the refuge was discontinued coots moved back into refuge green-barley crops.

The graph on green barley shows a drop in productivity after December, although the overall acreage increased. This is due to two factors: (1) total cultivation was not possible on Unit II until the hunters ceased to occupy the area; (2) Productivity drop was the result of cooler weather and intensified close-cropping by geese.

Dry barley crops are always rather light due to poor soils and the long period of time between maturity and utilization.

This season pintails stopped using refuge barley grain the first part of December. Coincidental with baiting in the open water on the Horsefly Club the pintails abandoned refuge barley on-the-stem. As soon as the hunting season and baiting ended the birds returned to the refuge crops.

In projecting the potential feeding factor for each species the following pre-determined averages were used: Geese spend an average of about 6 accumulative hours per day actually grazing or consuming feeds. (On Green feeds Canada Geese averaged 5 hours according to observations made three years ago. Snow

geese averaged 7 hours). Ducks were computed on the basis of comparative weight. On dry feed ducks spent an average of about 3 hours depending on availability, harassment, etc.

Other Developments

The usual maintenance and development activities on farmed areas were continued as well as the regular work on refuge roads, buildings, etc.

IV ECONOMIC USES OF THE REFUGE

No activities under this heading.

V PUBLIC RELATIONS

A. Recreational Uses

On January 22-23 some 70 members of the Los Angeles County National Audubon Society visited and toured the refuge units.

Numerous other visitors of which we have no way of checking on drove through the refuge Units and enjoyed the flocks of birds.

Refuge Visitors

<u>Name</u>	<u>Date</u>	<u>Identification</u>	<u>Purpose</u>
Howard Sargeant	2/6-7	R.O. 1-USFWS	Croping program, etc
Roy Challberg	2/8-9	Moody Inst. of Science	Photography
Dumbavie Butcher	2/19	Melbourne Australia F & G Comm.	Tour
Ray Glahn	2/16	U.S.F&W-Pilot	Aerial Survey
A.W. Elder	several	U.S.F&W-Agent	Law Enforcement
Ray Lawhorn	"	" "	" "
Ed. Carter	"	" "	" "
Wm. Anderson	"	Calif. P&G Biologist	Duck banding

Refuge Participation

The usual depredations committee, agricultural seminar group, regional refuge conference, etc. meetings were attended.

The refuge Ford dump truck was loaned to the station at Yuma for a small construction job.

Some 20 specimens of shorebirds and waterfowl which had been gathered and prepared over a two year period were turned over to Assistant Professor M. Dale Arzey, Long Beach State College in January.

Publicity

Except for the usual depredations balleyhoo only notoriety for the refuge was received in the St. Louis Post-Dispatch for January 23rd which carried a full page spread with color photographs of the Salton Sea egret colony.

Violations

Most of the airplane harassment of the geese on the refuge, as reported the previous period, continued until the 10th of January when the season closed.

Two of the most flagrant violations included the following:

1) Small Beachcraft No. N-426B circled refuge units at less than 500 feet elevation on several occasions causing geese to move out of refuge where boundary hunters were waiting.

2) Small Cub Craft No. N-83163 flew into the Unit I area at 3:00 PM January 9th and made three passes over the snow geese flushing them out of the refuge. This craft was back on January 13th in a low, persistent flight over the geese in the same area from 2:30 PM to 3:45 PM.

The U.S. Border Patrol Cessna Craft circled low over the refuge on many occasions.

The State's 170 Cessna Craft was a nuisance to snow geese on the refuge. During the special widgeon season, with patrols over the refuge units and along shorelines in search of hunters violating the depredations order. The supposedly unavoidable close patrol disturbed the birds considerably.

Apprehensions by refuge personnel for violations of State and Federal conservation laws which took place this season are as follows:

<u>NAME</u>	<u>VIOLATION</u>	<u>FINE</u>
Lowell A. Samuels Glendora, California	Poss. firearms on refuge	35.00

<u>NAME</u>	<u>VIOLATION</u>	<u>FINE</u>
Wayne P. Rockwood Glendora, Calif.	Poss. firearms on refuge	35.00
Charles A. McGinnis Ontario, Calif.	" " " "	35.00
Charles F. West L.A., Calif.	" " " "	35.00
R. B. Hester Covina, Calif.	" " " "	35.00
Raymond L. Hudson El Monte, Calif.	" " " "	35.00
R. F. Schrader L.A., Calif.	" " " "	35.00
Robert L. McClain Norwalk, Calif.	" " " "	25.00
Wanda H. Walker Lakeside, Calif.	" " " "	25.00
Elmer M. Walker Lakeside, Calif.	" " " "	25.00
Eugene D. Edwards Colton, California	" " " "	35.00

Apprehensions for violations of Special Crop Depredation Order:

Donald N. Saltmarsh Tujunga, Calif.	Hunting on Non-Agric. Lands	35.00
Donald D. Saltmarsh Tujunga, Calif.	" " " "	35.00
Howard Eugene Nicholson Pasadena, Calif.	" Geese " "	25.00

Apprehensions pending or no action taken:

Jack D. Chapman San Diego, Calif.	Poss. Firearms on refuge	-
Wayne G. Drake South Gate, Calif.	" " " "	-

<u>NAME</u>	<u>VIOLATION</u>	<u>FINE</u>
Danny Wilkes, Jr. Escondido, Calif.	Poss. firearms on refuge	-
Daniel L. Wilkes Escondido, Calif.	" " " "	-
Jack L. Hudson Escondido, Calif.	" " " "	-
Leonard Trow San Diego, Calif.	" " " "	-
Jasper M. Funderburk El Centro, California	" " "	-
Harold Leon Wise Venice, Calif.	" " " "	-
Fred Martin Huntington Park, Calif.	Persuading Game on refuge	-
Elmer Bentley Brawley, Calif.	" " " "	-
Sammy J. Barnes Riverside, Calif.	Shooting before official time	-
H. F. Barnes Indio, Calif.	" " " " "	-
Robert Fillmore Westmorland, Calif.	Shooting from road	-
Herman D. Bauerle Arcadia, Calif.	Shooting w/in 150' of refuge residence	-
Frank Pollock Westmorland, Calif.	Late hunting; loaded gun in car	-
John Joseph Hackett, Jr. Riverside, Calif.	Poss. firearms on refuge	-
Gloyd Howard Minor, Jr. L.A., Calif.	" " " "	-
Harold Jay Davis San Diego, California	" " " "	-

<u>NAME</u>	<u>VIOLATION</u>	<u>FINE</u>
Jay Alexander Tenelde Paramount, Calif.	Pos. firearms on refuge	-
Rennie Broesder Compton, Calif.	" " " "	-
Lew Book WO. L.A., Calif.	" " " "	-
Dee Gene Low Redondo Beach, Calif.	" " " "	-
HB Jack Fong L.A., Calif.	" " " "	-
HB Guey Moon L.A., Calif.	" " " "	-
F.F. Decker Lemita, Calif.	" " " "	-
Elmer Stanton Westmorland, Calif.	" " " "	-
Alvin Hutcheson El Centro, Calif.	" " " "	-
George Busch El Centro, Calif.	" " " "	-
Leonard H. Adams Rosemead, Calif.	" " " "	-

VI OTHER ITEMS

A. Items of Interest

On February 16th George and Gladys J. Charbonneau of Calimesa charged the Imperial Irrigation District with "wilfully and unlawfully allowing waste waters to flow into the Salton Sea, causing a rise in water level and resultant inundation of the complainant's property".

. . . . 0

Mr. Gary Riggins of Wilson Seed Co., Brawley is importing young gosling geese for growers in the Calipatria area for weeding cotton crops.

The geese have been used extensively in the Blythe and San Joaquin areas. Growers claim geese can cut their weeding costs 50 per cent.

Some of the drawbacks to date have been the tendency of intense summer temperatures to kill certain geese species. A few farmers have objected to soil puddling just after irrigation. Another objection involves the danger from dogs roaming the countryside. Geese also are rather persistent about staying along the irrigation canals and ditches and should have a full-time herder. One cotton farmer last year lost 50 geese within an hour to dogs.

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On January 7th Salton Sea's turbulent waters indirectly led to the death of a Los Angeles hunter, Mr. Arthur E. Cobine, age 60.

Just off Mullet Island a sudden wind swept wave swamped the boat carrying the victim and another man and two teen-aged boys. All wore life preservers and managed to make shore. Minutes later Cobine died of a heart attack.

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In January Mr. Harry Pons presented Imperial County with an elaborate plan to subdivide some 37 acres of land on the Salton Sea shoreline for a residential development. Subdivision is tentatively named Desert Shores and will be located in the vicinity of Bombay Beach.

County health officer A.W. Matthis objected that supervisors should not approve the subdivision on the basis of sanitary facilities. Drinking water cannot be obtained and sewage cannot be disposed of at the site.

The County supervisors approved the subdivision.

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Word was received via the grapevine that the officials of the State Salton Sea Park, Mecca want to extend the beach along 12 miles of shore. They also are interested in destroying the barnacles which reportedly cut the feet of bathers.

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Mr. Ade Zajanos, Game Management Biologist, enthusiastic about his new Japanese carbide exploder desired to have full knowledge of its operations, etc. On the chimney or stack was inscribed in Japanese a rather imposing line of writing which intrigued him to

(24)

no end. The first two Japanese individuals approached were unable to decipher it for him. This only proved that it must contain important, technical details. Spurred on Ade finally found a lady in the local drug store. Properly translated the inscription read,....."THIS SIDE UP".

. . . . 0

Mr. Chester Lamb, one time resident of Imperial Valley visited the refuge during the period. Mr. Lamb is an ardent bird collector from south of the border. He has worked for 25 years building up the Occidental College collections. From his home at Irapuate, Mexico Mr. Lamb still makes extensive collecting excursions with his Mexican aid.

Mr. Lamb is credited with having collected three new species (White Jay and two Parrots) and more than 40 new subspecies.

Lamb once assisted the Service's Dave Spencer and others in waterfowl work in Mexico. He remarked that Lake Cuitzeo has been much reduced due to drainage and farming activities. It is only a fair waterfowl area anymore. He was very much impressed with the goose population at Salton Sea and recalled being here when Salton Sea was dry and the only geese wintering here were the Snows in lesser numbers.

Mr. Lamb's son is related to the proprietor of Vendell's Service Station.

. . . . 0

Mr. Glen Johnson, local farmer, tells of how one dark night he found a couple of Widgeon hunters with a trailer house parked well into one corner of his alfalfa field. When he approached one hunter called out and stopped him from entering the field. They asked if he had permission to hunt there and if not...."would he get the hell out of here".

. . . . 0

SEEN IN THE LOCAL NEWSPAPERS,.....

"Shooting on the state's Imperial waterfowl management area in the pastweek has produced an average of two geese per hunter on the Salton Sea national refuge unit....."(1/6/55-Brawley).

"Would-be widgeon hunters are warned that you'd better first check with the F & G Dept, here or in Brawley before waisting time going to Imperial Valley despite the bright moon.

"Over the weekend, 2 hunters went 110 miles, in jumps of 3 to 4 miles each looking for feeding widgeon. They didn't find them... And this duo had a F & G man along to point out best potential spots!" (2/8/55 L.A. Times)

"EUREKA! HUNTERS CAN SEE NOSES....." Widgeon shooters (?) in Imperial Valley have had a tough time seeing the ends of their noses. Things are different since the full moon blossomed forth. Now they can see the ends of their noses.

"As a matter of fact, that's about all they had to look at. Some discovered the fascinating pastime of watching Jack Frost paint the ends a vivid purplish hue with his icy brush.

"Widgeon? That's a nasty word here.

"One may simulate the sport right at home. Stand in a tub full of mud, put your head in the deep freeze and turn off the lights. You have about as much chance of seeing Friend Baldpate as the boys hunting around Westmorland.

"Better than 375 hardy souls hopefully checked through the Brawley office Saturday and Sunday on their way to the happy hunting grounds. A bag of about 20 birds was reported.

"Nineteen were found to have died of old age and one young drake giving some hunters a ribald duck laugh over his shoulder ran into a telephone pole.

"The only depredation reported over the weekend was all perpetrated on the hunters. Their appearance left something to be desired as they hardly looked like the gentlemen shooters in Esquire.

"The game wardens were the only ones that kept warm during the two-day skirmish. This they accomplished by feverishly writing citations for the frustrated nimrods caught red-handed shooting illegal ducks, geese and sea gulls." (2/12/55 Brawley).

"Bud Anslyn, 627 Garrett Court, got a "Dutch" triple (three birds with one shot) when he and fish and game warden Jim Reynolds went widgeon hunting last week."

The innumerable warnings of the previous period that hunters were not permitted to enter the refuge to retrieve game, were always spiked with the explanation that periodically the freshly killed birds would be gathered and turned over to the local hospital. This wasn't just idle talk, no sir.....We did gather the geese and turned a rather large number of them over.....

On January 15th Brawley News Editor Ray Barnes wrote in his "Barnes Storming" column....."The past week or so has been especially trying for a fat boy.

"It has been trying, that is, for a fat boy who has been attempting to keep his weight at a fairly stable level or perhaps to trim it down a wee bit.

"Reason for the disturbing situation has been that the Banquet Circuit is in full swing.

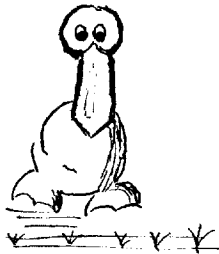
"Washed potatoes, rich entrees, and calory-heavy desserts have been flying in all directions.

"Never have I received so many invitations (sometimes they are almost command performances) to partake in weight-producing delicacies.

"First off there was a dinner thrown by the friendly railroad, the Southern Pacific. The steaks were delicious and absolutely devastating to one with a minimum of will power. That must have added at least three pounds.


"Closely following this was a dinner for new and old members of the hospital directors, featuring delicious roast goose.....

(Conscientious Refuge Manager's NOTE-----YIKES!).



Respectfully submitted,

Approved: _____

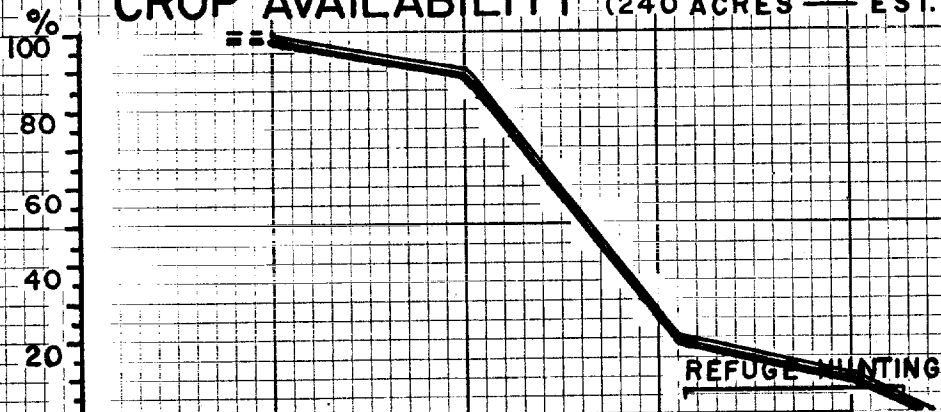

Edward J. O'Neill
Refuge Manager

Credit is due to Refuge Manager (Asst.) Robert Watson and Clerk Frank Beals for assistance and many hours of gratis time applied in gathering the data shown in the crop utilization graphs; to Agent A. W. Elder for Baiting Permit Numbers; to Clerk Joseph Cuddy for assistance in overall editing and compiling the waterfowl migration charts.

SUDANGRASS + RED-TOP CANE

SALTON SEA
1954-55 SEASON

CROP AVAILABILITY (240 ACRES — EST. 400,000 lbs.)



CROP UTILIZATION

500,000

300,000

100,000

HOURS

	HOURS
SNOW GOOSE	640,790
WHITE-FRONTED	61,870
CANADA GOOSE	2,800
PINTAIL	35,000
	<hr/>
	740,460

OCT

NOV

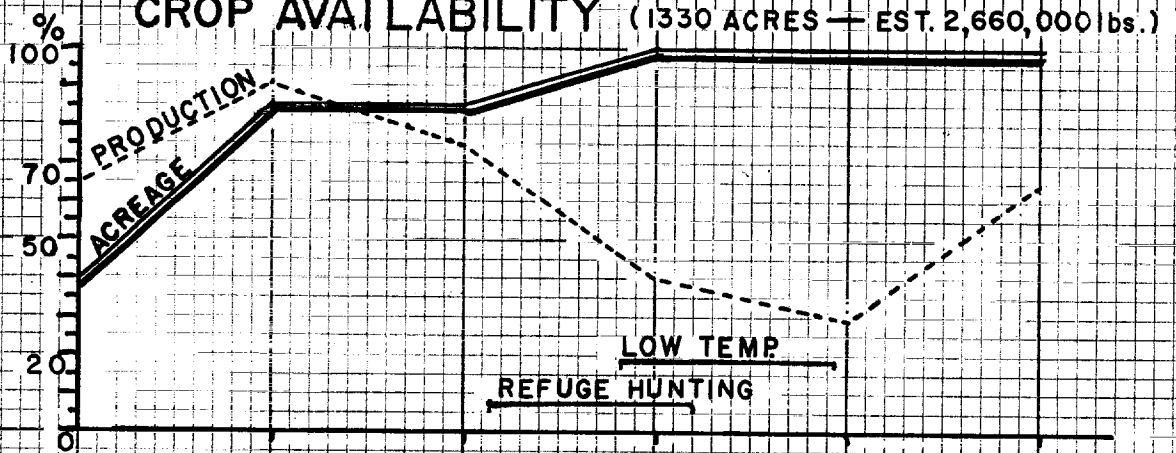
DEC

JAN

GREEN BARLEY

SALTON SEA
1954-55 SEASON

CROP AVAILABILITY (1330 ACRES — EST. 2,660,000 lbs.)



CROP UTILIZATION

2,000,000

1,000,000

100,000

50,000

HOURS

OCT

NOV

DEC

JAN

FEB

MAR

CANADA GOOSE	186,270
W-FRONTED "	139,460
SNOW "	3,518,870
AM. COOT	79,350
	<u>3,923,950</u>

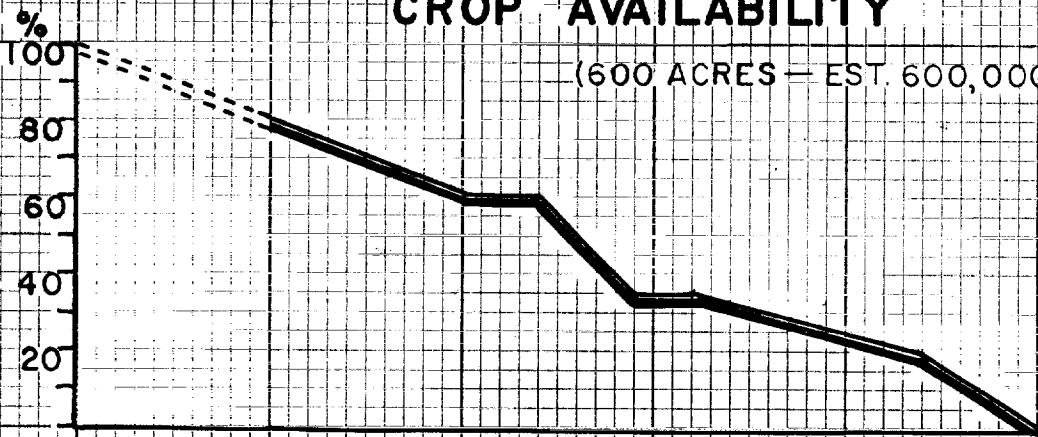
HOURS

MATURE BARLEY

SALTON SEA
1954-55 SEASON

CROP AVAILABILITY

(600 ACRES — EST. 600,000 lbs.)



CROP UTILIZATION

300,000

200,000

100,000

50,000

HOURS

OCT

NOV

DEC

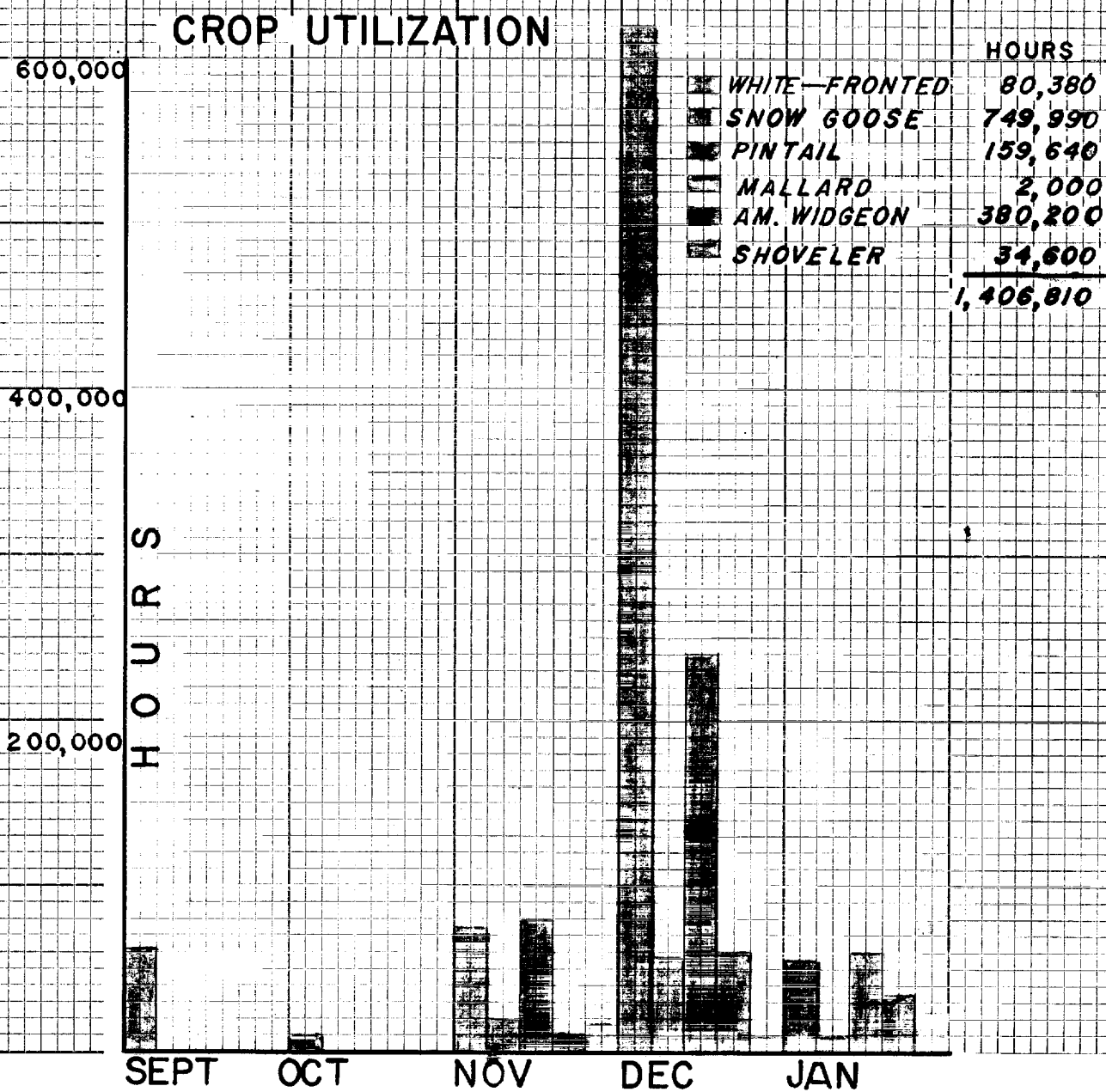
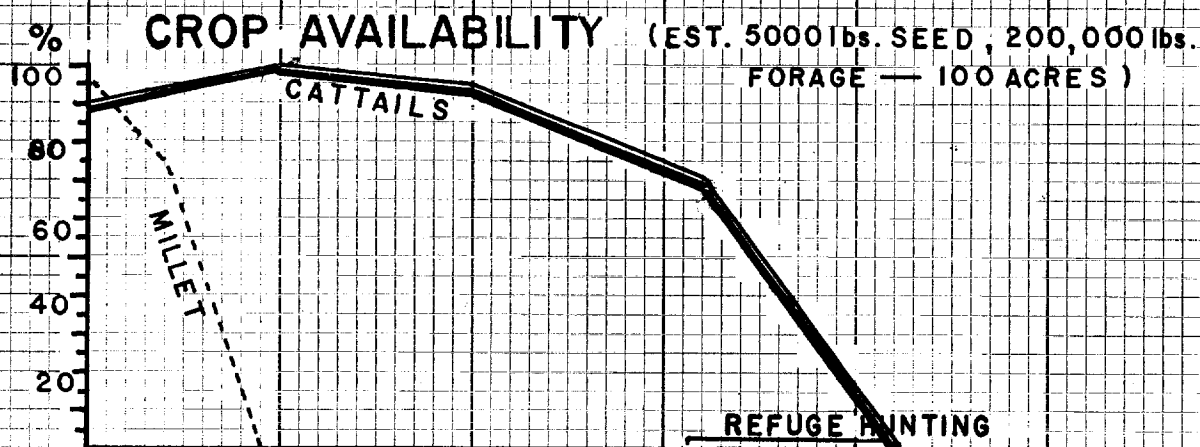
JAN

FEB

SNOW GOOSE	22,090
WHITE-FRONTED	120,490
CANADA GOOSE	431,180
PINTAIL	77,200
MALLARD	500
	<hr/>
	651,460

CATTAILS + WILD MILLET

SALTON SEA
1954-55 SEASON



	HOURS
WHITE-FRONTED	80,380
SNOW GOOSE	749,990
PINTAIL	159,640
MALLARD	2,000
AM. WIDGEON	380,200
SHOVELER	34,600
	<u>1,406,810</u>

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Salt Pond San Francisco Months of Jan. 1 / to Apr. 30, 1955

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total Estimated Number
Common Name	Number	Date	Number	Date	Number	Date	Total # Nests	Total Young	
I. Water and Marsh Birds:									
Pied-billed Grebe	Previous period	"	22	2/16					20
Western Grebe	"	"	21,700	2/16					50
Belted Grebe	"	"							
Peregrine's Tern	"	"							
Black Tern	"	"							
Caspian Tern	"	"							
Comoros	"	"	300	1/20					
White Pelican	"	"	700	1/20					
White-faced Glossy Ibis	"	"	3	1/20					
Least Bittern	"	"	10	1/28					
Am. Bittern	1	2/11	1	1/20					
Am. Green Heron			50	1/20					
Snowy egret	Previous period	"	256	2/16					
Common egret	"	"	35	2/23					
Great Blue Heron	"	"							
II. Shorebirds, Gulls and Terns:									
California	Previous period	"	120	1/20					
Am. Avocet	"	"							
Blue-necked Stilt	"	"							
Long-billed Curlew	"	"	50	1/20					
Hudsonian Curlew	"	"	20	1/20					
Least Sandpiper	"	"	Common						
Western Sandpiper	"	"	Common						
Marbled Godwit	"	"	90	1/20					
Ring-billed gull	"	"							
Gull-billed Tern	2	3/29							
Caspian Tern	1	3/29							10,000

(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 Edward J. O'Reilly					

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 ref. during the period concerned.

UPLAND GAME BIRDS

Refuge ~~State Game Refuge~~ Months of ~~January~~ to ~~April~~, 19~~45~~

(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 broods obs'd.	Estimated Total		Hunting	For Re- stocking	For Research		
Quail's Quail	200 Acres	Est. 5	0	0	Unknown	0	0	0	0	Pertinent information not specifically requested. List introductions here.

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.

WATERFOWL

REFUGE Baldwin Lake Natl Wildlife Refuge MONTHS OF January TO April, 19 55

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada	900		850	920	800	600	500	200	150	60
Cackling	1									
Brant										
White-fronted	1000		900	670	500	400	350	20	10	10
Snow	10500		13200	5000	13000	10000	3000	5000	10000	4000
Blue	1									
Other - Geese	2		4							
<u>Ducks:</u>										
Mallard	30		10	20	50	50	6		10	
Black										
Gadwall	10		10	10	30	20			10	10
Baldpate	10500		17000	10000	11000	2400	7000	4000	5000	3000
Pintail	1000		1000	5000	2500	4000	3600	3200	3500	2200
Green-winged teal	3750		2500	5000	2500	3000	1200	2500	1000	1300
Blue-winged teal	20		10	40	40	50	50	500	1500	400
Cinnamon teal	20		1400	2000	1700	2000	2000	2000	3000	2200
Shoveler										
Wood										
Redhead	100		40	50	60	20	30	10	10	10
Ring-necked										
Canvasback	530		350	50	1000	1000	1200	500	100	10
Scaup	600		200	300	3500	2500	1600	500	1200	1100
Goldeneye	150		20	10	400	500	350	10	10	10
Bufflehead	80		40	10	250	200	200	10	10	10
Ruddy	700		150	200	600	500	500	1500	2000	1500
Other										
<u>Coot:</u>	5300		1000	3500	1000	5000	1000	4000	6000	2600

3 -1750a

Cont. NR-1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)

REFUGE _____ MONTHS OF _____ TO _____, 19____

(1) Species	(2) Weeks of reporting period										(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18				
Swans:	5/4	3/7										
Whistling Trumpeter					2						34,360	
Geese:												
Canada												
Cackling												
Brant											7	
White-fronted											15,253	
Snow	1200	1000		70	30	18	10	5			627,102	
Blue											7	
Other - flocks											12	
Ducks:												
Mallard	10	10		10	10	10	10	2			1,938	
Black												
Gadwall				10	10	10	10	4			15,624	
Baldpate	7300	2300		3000	2500	300	250	60			813,973	
Pintail	3300	1500		500	1200	250	300	130			276,614	
Green-winged teal	1200	500		2000	1000	30	120	50			244,600	
Blue-winged teal	300	500		100	500	40	200	10			700	
Cinnamon teal	3450	1450		1000	2500	1130	1200	200			8,242	
Shoveler											232,974	
Wood												
Redhead	10			10	10	20	10	6			4,110	
Ring-necked												
Canvasback	100			10	10	11		2			48,536	
Scaup	1000			1200	150	52		31			116,416	
Goldeneye	10			4	1	3		1			11,466	
Bufflehead	10			10	6	1					5,608	
Ruddy	2000	1000		2000	900	40	100	300			175,770	
Other - Fulvous Tree Duck					120			16			2,632	
Coot:	5000	2000		1500	1500	300	500	300			110,608	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	0	0	:	Principal feeding areas Advers-Salton Sea; Addlon-
Geese	637,001	12,500	:	mostly in refuge water and agricultural areas; Advers-Salton Sea; Addlon-
Ducks	1,978,000	50,000	:	widened agricultural areas; Advers-Salton Sea; Addlon-
Coots	4,000,000	6,000	:	Principal nesting areas
2714,007				Reported by _____

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).

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Salt Lake Wildlife Refuge Year ending April 30, 1955

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed		
							Permit Number					Trappers Share	
Bobcat Raccoon Coon Weasel	No change in status												

* List removals by Predator Animal Hunter

* 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: 1. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) **SPECIES:**

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) **DENSITY:**

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) **REMOVALS:**

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.

(4) **DISPOSITION OF FUR:**

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) **TOTAL POPULATION:**

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

REFUGE GRAIN REPORT

Refuge Salton Sea Waterfowl Wildlife Refuge, Imperial, California Months of January through April, 1955

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Harlecut Barley	0	300	300	0	250	0	250	50	1		
Feed Barley	400	0	400	0	0	200	200	200	1	1	0 1 1

(8) Indicate shipping or collection points

(9) Grain is stored at Refuge Storage Sheds - Units I and II.

(10) Remarks

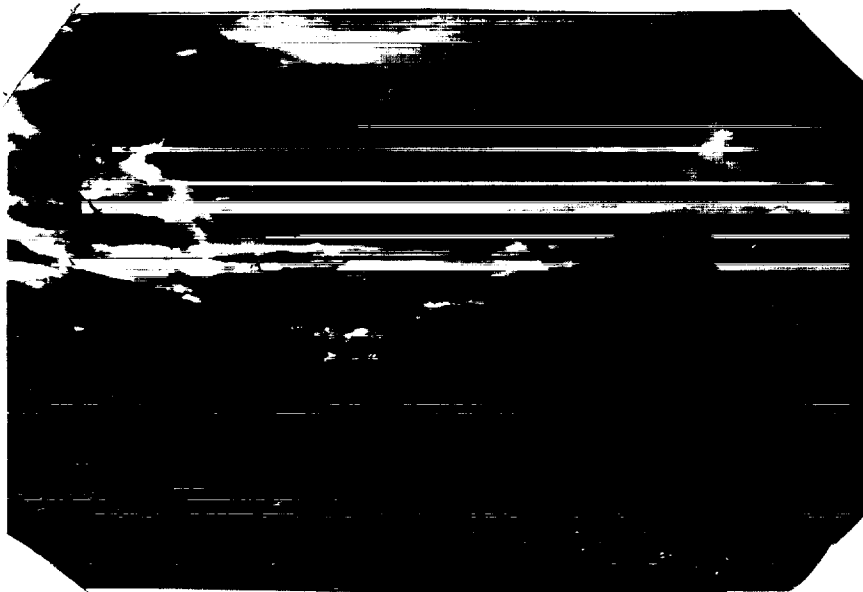
*See instructions on back.

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.



Strong winds frequently pushed high Salton Sea waters inland depositing many tons of salt on former refuge food plots. (March, 1955)



End of pavement. Westmorland-Calipatria road. Hunters unable to travel further camped on the road and walked 5 miles to the shooting areas. (January, 1955)



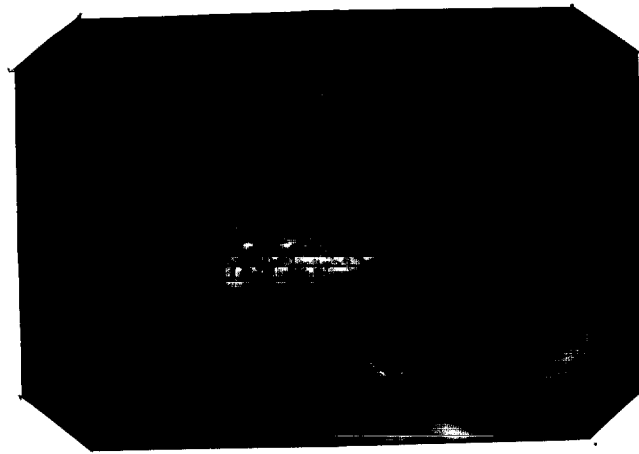
Endless lines of cars and hunters, wallowing in mud, left roads in worst condition ever. (January, 1955)



Hunter's cars parked (?) along refuge Unit I boundary during rainy period. (January, 1955)



Coots spent more than 79,000 unit hours on refuge green crops from November through March. See graphs covering other species and crops.



Partial albino pintail duck taken in live trap.
(Photo by Wm. Anderson Cal.F&G)



Tractor operator C. Ford inspects barley enclosure plot, Tract 4 Unit II. Note high degree of use, by geese, on unprotected crop. (January, 1955).



Tractor Operator P. Williams displays ripening refuge barley crop which hungry geese turned to in February. Only heads and leaves were taken. (February, 1955)



Refuge barley crop stripped of heads and leaves by geese. Potential crop became field of straw. Refuge produces about one-fourth of needs.



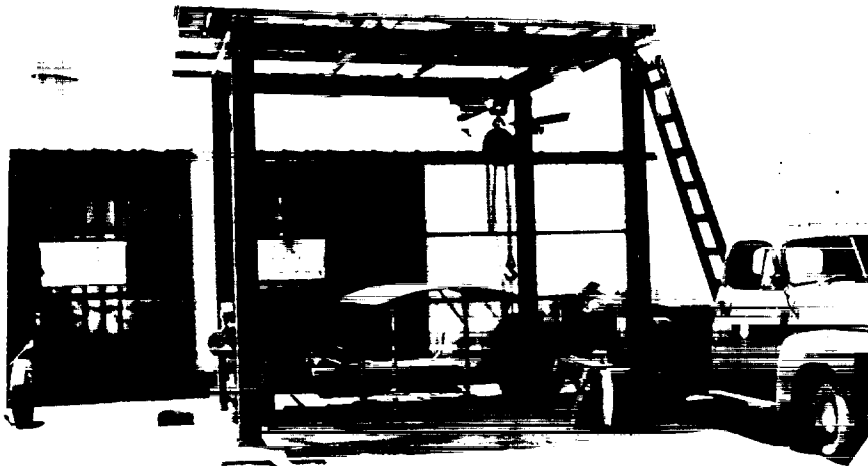
Tractor operator C. Williams plowing sudangrass crop land, Tract 4, Unit I. (January, 1955).



Abandoned goose decoys were found in all crops of serious goose depredations. (February, 1955).



Abandoned goose decoys in W.E. Beaty property within one-half mile of refuge boundary. (February, 1955).



The headquarters shop hoist-ramp and shelter built to accomodate equipment too big for shop was completed.



Visitor Dunbavin Butcher, Fish and Game Official, Melbourne, Australia....."The only apparent justification for wildlife work in this country is to preserve and propigate for sporting interests. A bit of a selfish aspect, don't you know?"