

NO HUNTING
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DEP.
FIS

SECTION 340
FISH AND GAME CODE

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME

NATIONAL
WILDLIFE
REFUGE

SALTON SEA NATIONAL WILDLIFE REFUGE

AND

WATERFOWL DEVELOPMENT AREA

XXXXXXXXXXXXXXXXXXXX

NARRATIVE REPORT

SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER, 1954

XXXXXXXXXXXXXXXXXXXX

**UNITED STATES DEPARTMENT OF INTERIOR
FISH AND WILDLIFE SERVICE
BRANLEY, CALIFORNIA**

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REFUGEE PERSONNEL

Regular Personnel

EDWARD J. O'NEILL	Refuge Manager
EUGENE KRIDLER	Refuge Manager, Asst.
FRANK L. BEALS	Clerk - typist
CLYDE W. STEWART	Foreman, Farm Operations
MICHAEL J. KARI	Mechanic
JAMES W. HAMILTON	Dragline Operator
JOSE BARROS	Tractor Operator
Lee E. COX	Tractor Operator
W. CARL FORD	Tractor Operator
WILVIN FORD	Tractor Operator (Resigned)
OSWALD WILLIAMS	Tractor Operator
PAUL E. WILLIAMS	Tractor Operator
ALFRED W. McFARLAND	Tractor Operator
JOHN BARROS	Irrigator
SYLVESTER BARROS	Irrigator
MANUEL GARDONZO	Irrigator
BART E. ESTRADA	Irrigator
RIBBEIRO, JULIO	Irrigator
PHILIP RIBBEIRO	Irrigator (Resigned)

Temporary Personnel

JOHN A. HOFFMAN	Irrigator (Resigned)
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IN MEMORIAM

One dusty lantern and a duty-worn shovel have been hung high among the tools stored on the refuge.

It is with a great deal of sincere regret that we report the passing of our friend and fellow employee William L. Lynch (age 64), on October 6, 1953.

Bill, as he was known, faithfully held the position of laborer, and later irrigator, over a period of five years. He is remembered by all of us who worked with him as a responsible, dependable employee.

Bill was noted for his unfailing courtesy, respect and good nature in sweltering desert heat or through the most vexing, tedious assignments. He had lived alone since the death of his invalid mother, at the age of 93. His passing came about after a month of confinement with leukemia.

Once asked if duck troubles are as bad in these times as in the early years, Bill replied, "Nah, these folks today don't know what ducks are. The real difference is that in them days a man was kept busy, real busy at his own business".

All of us at Salton Sea have benefited from his long years of rich experience here at the bottom of the flyway. We shall miss Bill,deeply.

NARRATIVE REPORT

I GENERAL CONDITIONS

A. Weather Conditions

Hot weather persisted until mid-October---the 13th to be exact, before maximum temperatures dropped as low as 90°. On October 18th brisk winds which blew gusts up to 38 miles per hour dumped cool, coastal air into the Valley lowering the temperature to 52° from a high of 94°. Lowest maximum the balance of the month was 81° with a low minimum of 52°.

November was largely a calm, moderate month with temperatures gradually lowering as the weeks passed.

December got under way with a rip-snortin' 48-mile wind on the 5th. The gale brought tons of air-born dust from the west deserts which at times obscured the sun. The winds reached their greatest intensity in mid-afternoon leaving a wake of uprooted trees, dust, dangling TV antennae and unhappy housekeepers.

The storm resulted in cool weather and light snowfall in neighboring mountain areas. Big Bear, Old Baldy, and Mount Wilson had about one inch of snow.

The first frost of the season was recorded December 7th. Light winds of little consequence brought more cool weather over the Christmas holiday, and there were numbers of tractors, outside water-pipes, and car radiators over the country in which the water was frozen solid. Refuge units all supported a thin crust of ice, and the alfalfa in Unit II was badly nipped in spots.

Tabulated below is the weather data compiled by the El Centro Navy Air Station, Seely, California.

<u>MONTH</u>	<u>MAXIMUM</u>	<u>MINIMUM</u>	<u>PRECIPITATION</u>	<u>WINDS OVER 25 MPH (DAYS)</u>
September	112°	60°	0	3
October	102°	52°	.07	7
November	91°	39°	.06	8
December	83°	31°	0	8
			Total 0.13	

B. Precipitation and Water Conditions

November readings indicated a rise in Salton Sea amounting to 1.15 feet during the past year. The Coachella district recorded an approximate rise of one and one-half inch over a two week period.

In December the surface of the sea was recorded at -236.68 feet below normal sea level. The sea now stands almost 18 inches higher than it was a year ago. Any mention of the "good ole days" brings to mind the year 1907 when the elevation was only 196 feet below normal sea level---after the Colorado River had flowed into it for two years.

Latest damage claim is a \$450,000 suit filed in federal court by the owners of Desert Beach, the inundated resort on the north shore of the sea. Total litigation in the high-water issue now amounts to about a million dollars.

Gusts of wind in late December pushed the sea water up to the very edge of the green barley crop in Tracts 18 - 19, Unit I.

Drainage problems centered around both the Westmorland Development Company and the Reseda and San Fernando Gun Clubs, which adjoin Unit I along the east boundary, impaired operations somewhat and, in the case of the Westmorland club, drain waters are inundating Tract 7 of Unit I. It is now necessary for the clubs to discharge drain water through the refuge or construct their own drains. In instances where the flow of water is carefully handled little or no runoff occurs. However, this season, despite our pleas to members an unprecedented amount of water came into Unit I to be trapped above the dike bordering the sea.

The diversion of Trifolium No. 1 drain allowing water to run along the waste storm dike of Tracts 5 - 6 Unit I (as accomplished the previous period to dry the lower drain for dredging), twice caused considerable cutting and erosion. The District checked the erosion by rip-rapping Sorowbean limbs in the path of the water.

The Vail Ranch twice flooded the access road to Tracts 18 - 19 of Unit I thereby marooning equipment and causing considerable inconvenience and delay in planting. Landowner Garret also allowed drain water to flood the east portion of Tract 13 Unit I and during cotton harvest, without authorization, attempted to utilize the service ditch as a reservoir for water to wash mechanical cottonpickers.

In Unit II it was necessary to call upon the District in a couple of instances to retrieve irrigation water "borrowed" by the Hubble outfit.

C. Fires

No fires occurred on the refuge during the period.

II WILDLIFE

A. Migratory Birds

1. Population and Behavior

In general the waterfowl picture was not what had been pictured by hunting enthusiasts along the flyway. The predicted strong flight of late-hatched pintails never did materialize, judging from our live-trapping-banding operations and from a cross section of the birds we checked in the hunter bags.

Geese fared well but the overall population saw little evidence of increase over the census figures of last year.

ANAL. IN U.

COMPARISON OF WINTER INVENTORY TABULATIONS

<u>SPECIES OBSERVED</u>	<u>1952-53</u>	<u>1953-54</u>
Ducks		
Mallards	10	240
Cackall		20
Am. Widgeon	75,230	71,330
Green-winged Teal	1,030	5,980
Shoveller	21,200	9,180
Pintail	16,110	37,530
Redhead	90	10
Canvasback	1,810	3,810
Scamp	29,600	18,010
Cinn. Teal		10
Goldeneye	10	60
Bufflehead	260	150
Ruddy Duck	17,680	9,210
Merganser		40
Surf Scoter		10
Unidentified	22,050	4,260
Geese		
Snow	20,830	13,750
Canada	4,150	1,490
White-fronted	100	100
TOTAL DUCKS	185,500 219,368	160,880 212,412
TOTAL GEESE	25,080	15,340
TOTAL COOTS	48,210	36,180

Canada geese, here in numbers similar to last winter, dwindled in population after two weeks of constant bombardment in Unit II. The species remained to the extent of about 300 birds but the bulk of the flock was unaccounted for on the refuge through the end of the period. Since most of the Canadas recorded on the inventory flight were recorded within 30 miles of the International Boundary in Mexico it may be assumed that hunting pressure on the refuge drove the birds out of the valley.

2. Geese and Swans

Geese were first noted on September 18th when 7 White-fronted Geese showed up on the refuge. By the last of September some 200 were present. The buildup continued and by mid-November there was an estimated 1,300 present. This is the highest population of White-fronts ever recorded at Salton Sea. Most of the flock apparently moved on, and by the last of November only 300 were seen. The numbers declined rapidly after the second half of the hunting season opening. The December 21th census disclosed only 130 here. During the winter inventory flight into Mexico a lone White-front was observed with the Snow Geese at the delta of the Colorado River. This is the first time the species has been seen in that specific locality where the only visible food is salt grass Distichlis spicata (?).

Canada geese were first recorded October 16th when 90 were seen on the refuge. Numbers increased; 310 by the last of October and 2,470 the last of November. In December the numbers "chopped off" to 300 individuals.

Snow geese appeared the last of September. A group of 20 were seen October 1st, and by the 18th, 70 were present. The buildup was most pronounced in late October and again in mid-November. High count for the refuge was made December 21th when 9,200 were recorded.

Cackling geese were recorded again. A single cackler was seen on the refuge November 22nd. A number were killed during the hunting season on federal and State areas from November 1st on. Considering the very low numbers observed, it would appear that the species might be particularly vulnerable to the shotgun in these parts.

Ross' geese appeared absent throughout the period until December 19th when 3 were seen. State men reported one, and possibly two shot on hunting areas. Refuge Manager Kridler retrieved a wounded specimen on December 14th. It was banded and placed in the enclosure at Headquarters and several days later it was able to take wing and leave. In late December we observed a group of 9 extra small-looking white geese, but before field glasses could be employed, they flushed and more positive identification never revealed whether they were Ross' geese or not.

A single Blue goose was discovered among the snow geese on December 25th. Later it was found that two more specimens were in the flock.

3. Ducks

Mallard and Gadwall occurrences on the refuge were not outstanding compared with previous records.

American Widgeon started migration into this area in late September. The buildup as usual was very steady and consistent reflecting the fact that the Valley population is apparently a rather static one. Aerial census flights by Glahn and Kridler October 20 - 21 disclosed 3,900 in the Valley. Prominent buildup occurred the first week of November with a substantial increase in mid-December. Courtship activities were common from mid-October on. The winter inventory census shows a total population similar to that recorded one year ago. Main concentration of birds was found north of Mullet Island in the vicinity of Wister about 2 miles out into the sea.

The few band returns received thus far include: Saskatchewan, Alberta, Utah, and Montana.

The fall migration of Pintails was similar to last years influx; however, the decline or thinning of the species during November and early December was more pronounced. Total numbers as well as sex and age distribution could be called "poor". A buildup or peak refuge population figure was obtained October 29th when an estimated 10,000 were present. Aerial census flights disclosed only 11,400 in the Valley November 18 - 19th. Main areas of habitat included the refuge wild millet, mature barley, and, most important of all, leach fields throughout the Valley. The significance of leach-flooded areas is brought out in the tabulation of populations and acres.

Estimated Acres Being Flooded And Leached In Imperial Valley Showing Use By Pintails

<u>MONTH</u>	<u>ACRES FLOODED</u>		<u>TOTAL</u>	<u>PINTAILS OBSERVED</u>	<u>TOTAL PINTAILS IN VALLEY</u>
	<u>OLD</u>	<u>NEW</u>			
August 26	2,740	340	3,080	3,895	7,000
September 24	890	160	1,050	4,770	13,500
October 21	580	360	940	2,010	6,900
November 18	---	---	1,100	1,850	11,420
December 9	---	---	1,840	1,550	5,950

(Includes rice fields also; distinction between OLD and NEW determined by vegetation establishment. New leach areas were found the most attractive to pintails).

During the fall-winter period refuge personnel successfully trapped and banded 3,857 pintails. State personnel operating on Unit I of the refuge during September and October banded 2,460 pintails.

Some of the outstanding returns received this season include North Dakota, Lower Mexico, Texas, and Iowa.

Over a two year period (1951 - 1952), banding records show the fall season adult-to-immature pintail ratio indicates a heavy influx or predominance of immature birds. This fall, however, the trend was completely reversed. Adults outnumbered immature birds alarmingly. (See attached chart for trend details).

ADULT-IMMATURE AND MALE-FEMALE RATIOS OF

PINTAILS Banded AT SALTON SEA REFUGEE, 1948-53, INCL.

Years*	Male	Female	Total	Ratio	AM	IM	AF	IF	TOTAL A	TOTAL I	TOTAL	RATIO
1948-49	3	13	16	18:82	:	:	:	:	:	:	:	:
1949-50	150	272	422	36:64	37	69	95	97	130	166	296	44:56
1950-51	107	245	352	30:70	0	5	0	28	0	33	33	0:100
1951-52	4,278	2,519	6,797	62:38	523	1,764	222	762	745	2,526	3,271	23:77
1952-53	3,222	2,017	5,239	62:38	313	1,636	230	897	543	2,533	3,076	18:82
1953-54**	4,619	1,992	6,611	70:30	2,579	1,812	1,111	732	3,690	2,544	6,234	59:41
TOTALS	12,312	7,061	19,376	64:36	3,452	5,280	1,656	2,516	5,108	7,802	12,910	40:60

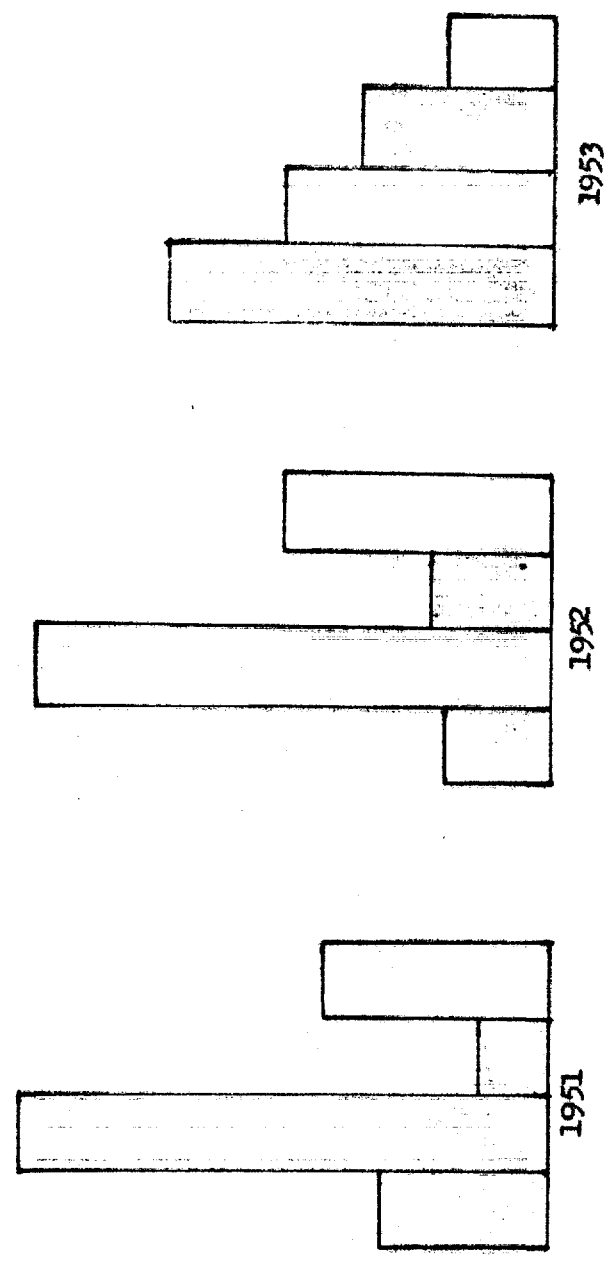
* Years run from July 1 to June 30

** 1953-54 figures to December 31, 1953 only

Adult male —
 Adult female —
 Immature male —
 Immature female —

100
 90
 80
 70
 60
 50
 40
 30
 20
 10
 0

Percent



Distribution of age and sex of pintails banded at Salton Sea during fall banding for years 1951-53, incl.

SUMMARY OF BIRDS Banded AT SAIGON SEA REFUGEE, 1947-53, INCL.

Species	1947	1948	1949	1950	1951	1952	1953	Total
Gull-billed Tern			100	4				104
Caspian Tern			15	2				17
White Pelican			164	199	100	200		663
Mallard			50			4	13	67
Gadwall							1	1
Widgeon			25	23	6	267	2,013	2,334
Green-winged Teal		407	2	271	142	1,956	1,656	4,434
Blue-winged Teal						2		2
Cinnamon Teal		42			70	404	98	614
Shoveler					2	77	6	85
Pintail	16	199	553	234	3,458	6,805	9,811	21,076
Redhead						57	66	123
Carvasback						11	2	13
Lesser Scaup						5	7	12
Ring-necked Duck							1	1
Ruddy Duck				1		9	25	35
Pulvous Tree Duck				14	148	33	12	209
Mallard-Pintail Hybrid			2			1		1
Lesser Snow Goose							12	12
Ross's Goose							1	1
White-fronted Goose							1	1
Canada Goose					3	1		4
White-faced Glossy Ibis							2	2
Common Egret							6	6
Great Blue Heron							2	2
Snowy Egret						1	2	3
Black-crowned Night Heron							5	5
Sora			1	1	2			4
Florida Callinule		8	2	5			1	8
Coot			121	236	58	101	537	1,061

(Continued on next page)

SUMMARY OF BIRDS Banded AT SAIGON SEA REFUGE, 1947-53, INCL. (Cont'd.)

Species	1947	1948	1949	1950	1951	1952	1953	Total
Northern Phalarope							8	8
Wilson's Phalarope							2	2
Long-billed Dowitcher							4	4
Stilt Sandpiper							1	1
Mourning Dove			2	9		9	332	352
Burrowing Owl							1	1
Roadrunner							2	2
Yellow-headed Blackbird			14				3	17
Red-winged Blackbird			9				49	58
Western Meadowlark							5	5
Loggerhead Shrike							2	2
TOTALS	16	656	1,060	999	3,989	9,943	14,689	31,352

A female pintail with freakish colored feet was trapped in early September. The outer lobe of both feet were pink and both appeared identical in marking and pigmentation.

Green-winged Teal populations behaved similar to previous years but the population figures indicate a substantial drop in local numbers compared to one year ago. Banding returns continue to come in which strongly indicate the species is a "homing pigeon". The kill of this species and the shoveller is outstanding in proportion to all species present. The sterile, flooded state shooting grounds does not contribute to the harvest of pintails and widgeon.

The Shoveller appears to have taken a considerable decline in numbers judging from our refuge and Valley population figures.

One Wood Duck was checked through Fish and Game's hazard a run the week of October 15th.

The Surf Scoters observed on Balton Sea during the inventory flight are a new visitor to this area.

4. Disease

No sickness or disease noted among waterfowl species.

5. Food And Conditions

Growth of southern maid were dense and still producing in drain ditches as late as December 10th. Geese and green-winged teal were responsible for complete utilization shortly after that date.

Snow geese, white-fronts and pintails utilized the grain crop of barley in Tract 27, Unit I during November and December. Even after digging the stubble and burning the jungle of Russian thistles off, geese spent most of the ensuing 30 days on the tract picking up barley grain.

Between hunting seasons snow geese cut down and consumed large amounts of green cattails on Unit I and around the mouth of New River. In the morning dry barley grain was on the menu. During the day until late afternoon green cattails were served as a main course and barley grain was returned to by snows where they remained until sundown or until disturbed.

Hunting activities forced most of the geese off of Unit II and out into agricultural areas. During the first season geese were "stacked" in at Unit I, the only place of sanctuary, and their presence resulted in complete elimination of the green barley crops through over-utilization.

A few thousand geese stayed on the John Elmore place along New River, just east of Trifolium 8 canal, where pits and blinds were provided for private use by the land owner. The ranch became a mecca for geese and on open days the geese made non-stop flights from Unit II to this posted area. Geese badly puddled some of the crop and irate hunters along the property line declared it was more exclusive and detrimental to hunting than the refuge. As soon as the season closed the picture changed, geese were promptly driven off and the refuge again became the only place they were welcome.

In all refuge operations we have never seen the geese range so far over the Valley to feed on green crops where farmers had never seen them before.

Crop depredations in alfalfa occurred pretty well on "schedule" and after much the same pattern of former years.

6. Water, Marsh and Wading Birds

During the September 21st aerial census 20 dead White Pelicans were counted on the refuge, the river deltas and along the Salton Sea. No cause of death was ascertained or theorized.

On October 25th Messrs Kridler and Glahn estimated 1,500 white pelicans concentrated on the refuge and New River delta. There may be a connection between migration or shifting from this area and the regular hunting seasons. It has been noted that the birds invariably remain until the duck season opens.

A lone Brown Pelican was seen on Unit I of the refuge November 18th.

Sandhill cranes were seen on the refuge throughout the period. The wintering flock remains only a small replica of former flocks which wintered here. Four was the most seen this year. During the winter inventory 10 were seen in Mexico a few miles south of Mexicali.

7. Shorebirds, Gulls and Terns

There was a slight indication that perhaps the White-faced (Jaeger)

Ibis, which has diminished in population for several years now, might be staging a comeback. On December 26th a flock of 4,200 were seen at the delta of New River which is a favorite roosting area. Low flying habits resulted in death of at least a dozen of the birds as they slowly flew over boats and hunter's blinds.

Again on the 26th of December an estimated flock of 4,900 Long-billed Curlews was observed along the edge of the sea. When flushed by hunters a number were shot out over the water area.

A Red phalarope, a new species on our refuge list, entered one of the duck traps on September 6th and subsequently died. The specimen was preserved by Mr. Wm. Anderson of Cal. Fish & Game and will be offered to one of the permanent collections of local species.

On October 19th Mr. Wm. Pollard of Cal. Fish & Game found a Black Rail near Pumice Hill adjacent to the Salton Sea. This is the first note of the salt marsh species since January 5, 1947.

November 20th 6 Stilt Sandpipers were seen at Unit II.

Black-necked Stilts spent the entire period here though in drastically reduced numbers compared with the summer populations with which we're accustomed. On November 30th two were seen; December 9th, one; December 19th, eight, and the last week of December four were noted.

The usual population of shorebirds were present with little or no apparent change in status.

Black-bellied Plover and Northern Phalaropes were observed during September.

Ring-billed Gull populations appeared much reduced over previous winters. There appears to be no explanation. During the winter inventory it was noted that a large number of the species were inhabiting the northern portion of Salton Sea.

A few California gulls were seen in early December.

Caspian and Forsters Terns wintered in small numbers and were seen along the southeast shores of the sea almost every week this period.

G. Food And Conditions

Same as previously reported.

B. Upland Game Birds

Pheasant and quail populations appeared low in numbers. Brood counts were made on and adjacent to refuge habitats as in previous years.

Local state men released 5,700 hatchery-reared pheasants during June, July and August of the previous period. In November, 3,150 additional birds were released just prior to the open season for hunting. A Brawley newspaper carried an article advising hunters of the exact location of all releases.

We declared one year ago that it would be impossible to duplicate the traffic on country roads around Unit II, B U T we were wrong...! On opening day we counted 267 hunter's cars along three miles of road between Units I and II.

In one field, especially heavily stocked with out-of-town ninrods, the weeds stood tall rendering visibility about zero. One guy with a couple of youngsters along for retrievers was having a picnic. The dialogue ran about thus.....pheasant jumps, guns boom in unison, and ole mother earth's breast is ripped open with stray lead. As the last reverberations die down in the morning crispness there comes an anxious query. "Son,sonny!where are you? Can't see

a blame thing in here #*/...#*...!" "Here I am Daddy, right here", comes a half terrified and delayed answer. BOOM, BOOM, BA-LOOEY.... (I'm here to tell you Du Pont would have been proud of the way the lads were hammering on his cash register)...."Where's little sister Daddy?... ...Golly, wasn't that close. You cut the weeds off just above my little head! Etc, etc".

On another occasion three cars loaded with hunters drove up to a road intersection---about 500 feet from where a large group of Mexican immigrants were busy picking cotton. As the unsuspecting Mexicans watched the hunters pile out and assemble their guns they became terrified. In seconds the place was literally devoid of cottonpickers. It was later determined that they actually believed a revolution was on!

The 10 day hunt netted only fair success to the rank and file. Hunters who didn't have their guns loaded and sights framed over one of the semi-domesticated ringnecks come sun-up lost out on the "fun".

With the season open simultaneously on rabbits, cottontails, quail, and pheasants; hunters had only their necks to watch out for this year.

Mourning Doves came in for some heavy hunting during September when the month-long season opened. It was impossible to detect any fall influx of birds this season due to the high degree of flock dispersal. Most birds took to the edge of the desert until the whole thing blew over.

Again this year we heard of a number of heat exhaustion cases among the dove hunters. In the Chocolate Mountains, between Chuckawalla Wall and Ogilby about 50 miles east of Brawley two hunters spent a tired, hungry day and night trying to extract their truck from a dry, sandy wash. Meanwhile the civil air patrol and sheriff's office searched the entire area without success. The interesting part of the story is that the older man, John Young, is 73 and the younger, Jim Connelly, is 52.

Alton Scott, assistant superintendent of schools at South Pasadena required medical attention September 3rd when shot in the back by another dove hunter. Eleven pellets were removed from his legs and back. Three more hunters were killed enroute to the Valley in a small plane which crashed near Costa Mesa.

A substantial increase, believed to be a migrational influx of doves was noted the 10th of November when hundreds of doves congregated on suitable fields in and around Unit II.

About a dozen returns were received on the Mourning Doves banded previously. All were taken locally. No returns have ever been obtained on nestlings banded.

White-winged Doves promptly made their migrational exit in late September presumably in answer to a great amount of hunting pressure.

A Mexican Ground Dove was found dead at subheadquarters October 18th which may represent a slight extension of former range.

C. Other Birds

1. Lewis Woodpeckers were seen twice. On November 1 and again December 19th.
2. Twenty Swainson's Hawks, in migration, were seen October 21st during an aerial census.
3. Mountain Bluebirds moved into the Valley November 20th and then disappeared. Nine days later a few returned and later departed again. The last day of the period the species returned and stayed. This is quite a diversion from the normal trend.
4. Red-shafted Flickers were first observed November 4th which is later than normal.
5. Robins were recorded as early as November 12th.
6. White-crowned Sparrows showed up October 9th and in a matter of two weeks were abundant.
7. Food and Conditions

No noted change.

D. Fur Animals, Predators, Etc.

Coyotes were seen three times during the period. There appears to be very little change in status of any of the mammals except for the gradual elimination of habitat. With the advance of agriculture and its almost complete elimination of cover at the back door and the sea at the front door the very existence of species like the raccoon and bobcat is becoming complicated.

E. Fish

The fall run of mullet up the rivers was more active and marked with larger numbers of fish than in the past half-dozen years.

In mid-October the fish were actively running in the Alamo river. "Fishermen" were milling around the delta area with snag-hook lines and pole and large dip nets.

By early November the run was very active and between hunters and fishermen it became almost impossible to get to the delta of the Alamo except 'afoot. By that time fish were active on the New River also, but to our knowledge no one bothered to catch them. We asked two campers on the delta how many fish they would estimate were taken from the Alamo. From the estimated reply of 200 per day, we calculated the public could have hauled off about 9,000 fish in the approximate 45 days of running.

There will be no commercial season at Salton Sea this year to favor the plantings introduced from the Gulf of California according to fish and game department reports.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Cultivated Crops During Period

Unit I

* Acres under lease	3,110
Acres under fallow	420
Acres planted	1,070
Acres producing crops	990
Acres under sump, river, backwaters	1,130
Acres being leached	530

<u>Crops Available (Acres)</u>	<u>Green</u>	<u>Mature (Seed)</u>
Barley	530	110
Cattails	40	---
Wild millet	---	200
Alfalfa	---	---
Volunteer barley	110	---
Totals	680	310 ... (990)

The usual agricultural activities were carried on in a pattern similar to previous years. The application of fertilizer to the green crop has helped tremendously.

In Tract 3 contours were removed, the land leveled and prepared for a barley crop.

Tract 9 countours were reinforced and the area again leached during the period.

The herculean task of flattening dunes and removing trees in Tract 6 Unit I was started with 'dozer and drag scrapers toward the close of the period.

Dragline operations extended into Tracts 3 and 6 to clean heavy growths from service ditches, etc.

The office and oil house at headquarters were repainted.

UNIT II

* Acres under lease	1,400
Acres under fallow	120
Acres planted	980
Acres producing crops	820
Acres under sump, river, backwaters	320
Acres being leached	80

* (Estimated acreage actual lease transaction unknown).

<u>Crops Available (Acres)</u>	<u>Green</u>	<u>Mature</u>
Barley	720	---
Alfalfa	100	---
Totals	820	

Unutilised barley in Unit II was mowed to prevent bolting and maturing before spring.

The alfalfa crop fared poorly after the severe weather test of last spring and it was impractical to consider a seed crop. Ryegrass was seeded in the alfalfa crop to cover barren spots but the alkali proved too severe a test and the cover crop was a failure.

Tracts 4 and 5 were joined into one 160 acre field and with some leveling work effected along the old head ditch the area produced a fair to good crop of barley.

In Tract 14 the Imperial Irrigation District-constructed service or delivery ditch proved inadequate and in respects poorly constructed. It was necessary to employ two carryall scrapers a full week to rebuild the west bank.

The head ditch at Tract 8 was filled and graded to permit irrigation from gate 424 at the southwest corner.

Other farming operations continued as in previous years.

The entire subheadquarters area was graveled with material sorted in by carryall scraper from Red Hill.

The trailer residence was connected to the water supply and electricity. A restroom-shower was constructed in the metal shop for residence use.

A metal-roofed canopy was built over the trailer house and paint applied to this and the subheadquarters oil house.

B. Receipt of Seed and Stock

None received or gathered during the period.

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IV ECONOMIC USE OF THE REFUGE

A. Grazing and Haying

No activity under this heading.

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V PUBLIC RELATIONS

A. Recreational Uses

Activities under this heading are somewhat changed over previous reports due to the almost complete incompatibility of hunters, photographers, and bird watchers.

A group of five amateur naturalists from San Diego visited the refuge and spent most of November 21st studying wildlife, etc, on the area.

Several photographers stopped in at Salton Sea but spent very little time here compared with other years.

Hunting activities are mentioned elsewhere in the report.

Public Uses

Visitor Days

a. Fishing use	None
b. Hunting use	992
c. Miscellaneous use	240
Total,.....	1,232

B. Refuge Visitors

1. Official Visitors

<u>Name</u>	<u>Date</u>	<u>Identification</u>	<u>Purpose</u>
Mr. Ray Glahn	9/24, 10/20 11/19, 12/5	USFWS Pilot-biologist	Waterfowl census.
Mr. Howard Sargent	9/24	" Regional Office	Inspection tour.
Mr. K. F. MacDonald	10/13	" " "	" "
Mr. C. Leischhardt	10/24	" " "	Contact.
Mr. A. W. Elder	10/24, 12/21 12/27	" " Los Angeles	Contact.
Mr. L. Rubke	10/18, 12/3	Calif. F. & G. Refuges	Contact.
Mr. J. Parish	10/18	" " "	Contact.
Albert Farris	11/19	Calif. F. & G. Pheasant Farm	Contact.
Mr. J. Reynolds	12/24	Calif. F. & G. Co. Warden	Tour and contact.
Mr. C. Leischhardt	12/24, 12/27	USFWS Regional Office	Contact.
Mr. Wm. Anderson	Numerous	Calif. F. & G.-Biologist	Bird banding.

C. Refuge Participation

On September 30th a group of farmers, sportsmen and wildlife representatives toured the refuge units and the Cal. Fish and Game areas preparatory to depredations, hunting and general activity recommendations.

Those attending the annual tour included the following:

Mr. J. Ward Casey	Brawley, Assemblyman
Mr. Baxter C. Loveland	Brawley, Farm Bureau
Mr. C. H. Lostetter	Berkeley, US F&W
Mr. Carl B. Miller	Brawley, Sportsman
Mr. John Janssen	Los Angeles, Cal. F&G
Mr. John Laughlin	Riverside, " "
Mr. Stuart Kern	Westmorland, Farmer
Mr. Laurence Rubke	Calipatria, Cal. F&G
Mr. A. Farris	" " "
Mr. L. O. Cartwright	San Diego, Sportsman
Mr. B. Eaton	San Diego, "
Mr. Robert Jefferson	Brawley, "
Mr. J. B. Johnson	Westmorland, "
Mr. Fred Kreller	Los Angeles, US F&W
Mr. Jerry Orf	Brawley, Brawley Farmer (Clerk)

Following the meeting a depredations meeting was held under the chairmanship of Baxter Loveland. During the meeting it was recommended that Unit II of the refuge be opened to hunting under state management.

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December 2nd the writer and refuge clerk Frank Beals attended sessions of the Pacific Southwest Federal Inter-agency Technical Committee. Members of the Imperial Irrigation District presented papers on the history, drainage and water distribution problems of the Imperial Irrigation District.

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The week of December 14 to 18th an American Automobile Association Safety School, sponsored by General Services Administration, was attended.

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Trips were made to Whittier and San Diego to present the service film "Wild Wings", refuge color slides and talk on the function and activities of Salton Sea Refuge.

D. Hunting

The annual waterfowl season and speculation over whether or not the Service would throw a few hundred acres of our very best croplands open to public shooting netted more expert comment, more delight and, more excitement than our combined refuge work and accomplishments since 1947.

Split seasons, October 16 to November 18 and December 8 to January 10 meant two openings and a total of 67 days of dawn-to-dusk hunting. A press dispatch from Sacramento stated...."With the extended season, bonus bag on pintails, widgeon, and dark geese; the opening of more than 30,000 acres of the choicest waterfowl terrain in the State, sportsmen will have everything they could wish for through the efforts of the State Fish and Game Department."

A check was made along Salton Sea to determine hunters bag composition for comparison with inland, Valley hunting spots similar to the flooded state areas. Below is the outline of the waterfowl kill on State-managed shooting grounds.

Species Kill On All State-managed Areas
(Including Unit II USFWS)

Shoveller	3,232	Lesser Snow Goose	1,015
Green-winged Teal	2,877	Canada Goose	472
Pintail	921	White-fronted "	88
Buddy Duck	639	Cackling "	8
Widgeon	535	Total	1,583
Gull, Teal	238		
Gadwall	114		
Scup	29		
Bufflehead	23		
Redhead	20		
Canvasback	17		
Mallard	17		
Fulvous Tree Duck	14		
A. Goldeneye	4		
A. Merganser	1		
Food Duck	1		
Total	8,682		

Cost 210

The following shows species distribution of known *goose kill through January 10, 1954.

Goose Kill - Salton Sea and Vicinity

<u>State-managed areas</u>		<u>Along Refuge Boundary, Etc *</u>	<u>Totals</u>
Snow Geese	1,015	742	1,757
Canada Geese	472	85	557
White-fronted Geese	88	28	116
Cackling Geese	8	---	8
		Grand Total	2,438

*(Birds checked, reliably reported, and dead found).

Refuge Hunting

Inasmuch as the management of hunters on Unit II of the Salton Sea Refuge was turned over to the State we requested Messrs John Parrish and Laurence Rubke to submit a summary report which follows:

Box 636, Calipatria
January 25, 1954

Edward J. O'Neill
Refuge Manager
Salton Sea National Wildlife Refuge

Dear Ed:

Enclosed you will find a summary of the shooting and management by the Department of Fish and Game on Lea Act Lands during the past waterfowl season. I hope this information will fulfill your needs. If any further information is necessary that we might have we will be most happy to give it to you.

We have sent in quite a number of band recovery forms taken from geese killed on the Federal unit and will certainly pass this information on to you when it is returned. It should be of great interest.

Thank you for your cooperation in seeing that a maximum area would be open to public shooting. We appreciated it immensely in the fact that it was a great help in relieving the hunting pressure for the area. I think, also that there were some sportsmen who appreciated it.

We are in the process of policing the area and removing the blinds and signs. I will see that this is done to your satisfaction.

Thanks again for your cooperation.

Sincerely,

/s/ Larry Rubke

c/c John Laughlin

REPORT OF PUBLIC SHOOTING ON LEA ACT LANDS OF SALTON SEA
NATIONAL WILDLIFE REFUGE 1953-54

INTRODUCTION

Prior to the opening of the 1953-54 waterfowl season it was decided that the Lea Act Lands of the Salton Sea National Wildlife Refuge would be open to public shooting, and this public shooting was to be administered by the State of California, Department of Fish and Game. The entire Unit II of the refuge fell under this order and is outlined in the accompanying map. This entire area amounted to over 14,000 acres of which approximately 1200 acres were developed and were practical for some sort of waterfowl shooting. It was agreed by the

two agencies involved that the hunters would be kept off any fields that were being farmed or irrigated. It was also agreed that an irrigated field would be allowed to dry sufficiently before hunters were allowed on it to prevent excess crop damage by trampling, etc.

Inasmuch as most of the area was planted to barley and alfalfa intended for green food for waterfowl, only 80 acres of which were being leached were suitable for duck shooting. It was therefore decided by the Department of Fish & Game that the emphasis should be on goose shooting.

AREA OPEN TO SHOOTING

During the first half of the season a few shooters were allowed on the 80 acres being leached and a few ducks were bagged. Some of the goose blinds were ready and a few shooters used them, but there was not yet enough geese in the valley to make the prospects very good. No geese were shot during the first half of the season.

The Fish and Wildlife Service kept its activity in the shooting area to a minimum throughout the second half of the season and an average of nearly 90% of the area was open to public shooting.

POSTING

Prior to the opening of season the Department of Fish and Game signs were tied onto the regular Fish and Wildlife Service signs in such a manner to cover them. This was done because the Fish and Game signs indicated that hunting was allowed, but only by written permission.

ARRESTS

A total of 16 citations were issued during the season. Four citations for overlimit of geese and 12 for trespassing.

BLINDS

An initial attempt to construct pit type blinds in the fields was abandoned after considerable difficulty was encountered with the pits caving in. Subsequently, 30 surface blinds were constructed of arrow-weed interwoven in a hog-wire frame that was staked down to prevent it from being blown away. These blinds were spaced relatively far apart (approximately one blind to forty acres), in order that the sportsmen might be fairly successful in decoying geese to their blinds. Each blind would accommodate two persons.

REGISTRATION OF HUNTERS

Registration of the hunters took place on "X" Lateral road as indicated on the map. These registration stations consisted only of a big registration sign, a Department vehicle, and a table. Actual registration began at 3:30 AM. Shooters were signed on a first come, first served basis and were required to have goose decoys to be eligible for a permit.

As the success of the hunters using the area became known, public sentiment against repeat shooters induced the Department to restrict each hunter to only one permit for the remainder of the season. Beginning Dec. 16th, all licenses were stamped and repeat shooters were not allowed thereafter unless there was a vacancy. A few repeat shooters managed to get a permit for one or two days but favorable publicity soon responsible for more than enough new shooters to fill the area.

further difficulty was encountered when prospective registrants started lining up 12 to 20 hours ahead of time for a permit. At first a man was put on duty all night in an effort to monitor the line and give information. Shortage of personnel, along with sportsmen sentiment against having to stay in line all night soon persuaded the Fish and Game to make an official list of the hunters at 4 PM and allow the hunters to leave until 3:30 AM.

RESIDENCE OF SHOOTERS

The 915 shooters using the Lea Act area came from the following counties.

Los Angeles	488
San Diego	152
Imperial	108
Riverside	89
San Bernadino	46
Orange	25
Monterey	3
Tulare	2
Fresno	1
Kern	1

KILL BY SPECIES

A total of 915 hunters killed 1,234 geese, 112 ducks, and 3 coots.

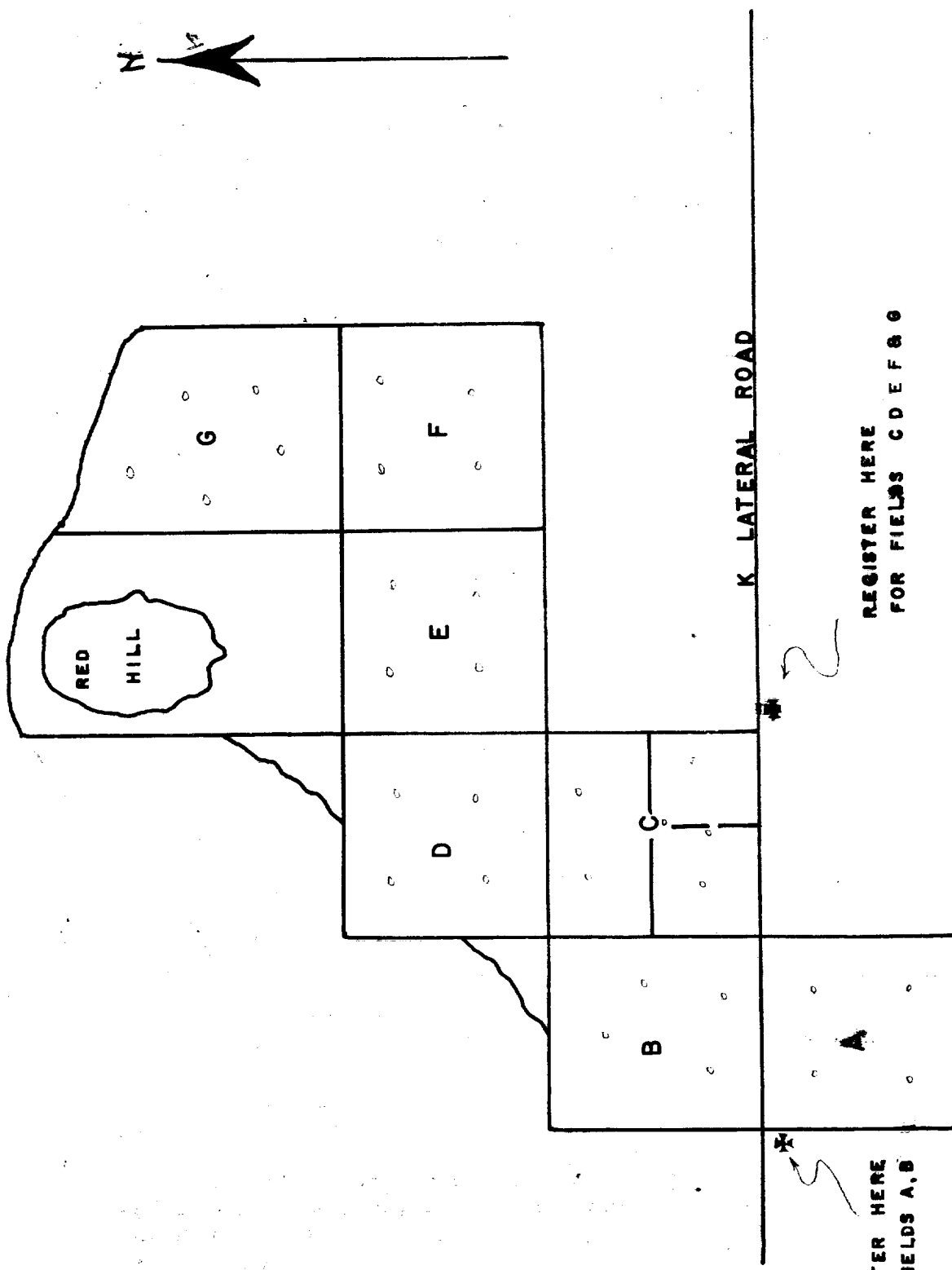
Geese

Lesser Snow	752
Canada Goose	407
White Front	69
Cackling Goose	6
Total	<u>1,234</u>

Ducks

Shoveller	44
Green-winged Teal	25
Ruddy Duck	18
Pintail	17
Baldpate	6
Mallard	1
Gadwall	1
Total	<u>112</u>

(End)



UNIT II U S F & W SALTON SEA REFUGE

Via the grapevine, over the telephone, and through personal contact by indignant people came a scathing criticism for the Service. Very, very few smiles or good will reactions registered on the popularity meter. If anyone has entertained the thought that hunters would praise the refuge or Service for the 31 day crack at the choicest waterfowl habitat in this area, the music just hasn't reached our ears yet, much to the contrary. The attitude is clearly one of "we opened this.....next year we'll take the whole thing!"

Four citations for overlimit, as mentioned in the foregoing report involves Canada geese. Two hunters proudly marched themselves up to the custodian, expressed their ecstasy and uncontrollable urge to keep pumping lead into a flock one morning and played their case. The attendant listened to the drooling men, photographed them with their entire over bag of 8 geese, seized two of the birds, made out citations, and sent them merrily on their way.

In another instance Agent Kroller and State Captain Willard Greenwald watched 10 Canada geese drop over a 2-man blind in Tract 15, Unit II. When the facts were learned, the violation involved one Carl Miller, prominent sportsman, past Valley sports association president, and successful bidder on numerous state refuge land preparation jobs. It seems Miller and friend, a Mr. Johnson who put up the most valiant justification for the existence of sportsmen at a recent depredations meeting, had killed their limits of Canadas and had nothing to do but get oiled up on a couple of pints while more and more Canadas flew overhead. Finally, Miller ups and strolls the full length of the field and traded blinds with another hunter who had a limit and was being smothered under by snows. Later in Calipatria Justice...."of peace", Judge Koons dismissed the case on the testimony of Miller that three of the geese in possession of the hunters apprehended were his. (Fish and Game regulations clearly state that no one shall leave his blind at other than designated times....for pickups only). Miller was permitted to go out the next day and obtained a full limit of geese on the federal unit. That's not all....he reportedly hunted there twice later. That's not all either....sometime later Agent Elder apprehended the guy just north of Westmorland in the act of shooting down 14 snow geese!

When complaints from hunters who couldn't obtain a blind for their first time became numerous, we passed the word along to state men in charge and requested a complete list of hunters who daily shot on the federal area....(....which we did not get). For a sample, though, we have a list of hunters who used the area during the first half of the season. Some 77 men hunted once, 9 hunted twice, 2 hunted three times, and one hunted four times.

The tabulated kill of geese taken on the federal area covers only 15 shoot days.

In at least three instances, when all blinds were filled, extra hunters were packed in under trees or in drain ditches within the shooting area. The extra hunters and their bag presumably were not recorded.

After the stamping of licenses was started to eliminate repeats, several hunters reportedly purchased duplicate licenses and some even removed the stamp imprint with ink eradicator.

The closed 40 acres around subheadquarters was hunted often and twice state employees went in and flushed feeding geese off to accommodate the hunters. During the last week of hunting one gunner got so close to the buildings he sprayed the area with shot and even dropped a snow goose 100 feet from the residence house.

Almost daily we saw one custodian haul hunters in from the area and return with one or two who were allowed to range freely over the area rounding up cripples or taking pot shots while the boys along the little "Tule Lake firing line" grumped about not being able to even get a blind.

Tracts 7-14 of Unit II is still marked with ruts where the boys hauled hunters to and from blinds way out in the refuge alfalfa crop...service, delus!

Registration of shooters came in for considerable criticism too. We listened to disgruntled, unhappy hunters until it became exasperating. At first the signup took place at 3:00 am; later 4:00 am; later, the evening before the shoot, and finally the afternoon before the shoot. At one stage of the game the hunters were making up their own lists, or rosters, and it was being accepted for the signup.

There were other sides to some of the problems too. One Sunday, some jerk along the east boundary with a 22-rifle kept shooting over the heads of the men in one of the blinds. They were so pinned down that they didn't dare ^{raise} their heads or guns when low flying geese came over. For better than an hour they were helpless until a patrolling custodian scared off the practical jokers.

Along New River in Unit I, hunters built a 20 foot tower where they watched for flocks of geese with field glasses and announced impending arrivals to anxious hunters in the dense growths of woods below.

One morning more than 100 hunters were counted along a section of refuge boundary less than 1/2 mile long.

On the opening day Agent Kreller stood along the west boundary of Unit I and watched hunters ground sluice more than 60 snow geese in less than 2 minutes.

All in all, the word hectic cannot explain the trials of both agencies. The flood of undisciplined humanity, from the asphalt jungle 250 miles away, nightly roared into the country and steered itself frantically up and down the floor of the Valley in quest of hunting. Without doubt the infernal grip of summer temperatures in these parts is the lesser of two evils.

At this writing an extension of the season on American Widgeon and coot is being considered. We heartily recommended the night shooting season if confined to agricultural fields where damage is actually being done. It should cool many a hunter's hook and temper some of the undying faith in how much good can be done.

The season on coots has caused some raised eyebrows since they cause no damage and have not been complained about in Imperial Valley.

E. Violations

As usual a number of hunters entered the refuge units for a variety of reasons. Listed below are the individuals against whom complaints will probably be filed. Most of the apprehensions were made by Messrs Kridler and Beals on regular patrol.

Name and Address

<u>Name and Address</u>	<u>Hunting on Refuge</u>
Herschel Leon Younger	Santa Monica " " "
Adelle Simpson	" " "
Stanley Younger	" " "
Claude Edward Johnson	" " "
Clarence H. Freidow	Compton " " "
Edward Fowler Hope	Van Nuys " " "
Clarence Leon Green	Brawley " " "
Jerry Crawford	" " " "
Gerald Hogman	" " " "
Eugene William Haden	" " " "
Larry Paul Miller	Westmorland " " "
Jerry Burns	" " " "
James Richard Cobb	" " " "
James W. Farrow	Indio " " "
R. C. Horton	Holtville " " "
Donald W. Terry	Fontana " " "
Max Beach	Brawley " " "
William Harrington	Phoenix, Arizona " " "
Guy Junior Collins	El Centro " " "
Martin L. Pfefer	Costa Mesa " " "
Ralph De Palma	Los Angeles " " "
James E. Sale	Wilmington " " "
Dwaine F. Sale	Wilmington " " "
Julius Christion	Corona " " "
Roland V. Cook	Corona " " "

Agents Kreller and Elder were active in and along the refuge and reported a number of cases as well as cases by Cal. Fish and Game wardens.

A number of refuge boundary signs were removed or shot up by hunters and in one place they were used to construct a bridge to gain entrance into the refuge.

On October 25th hunters drove into the west alfalfa field in (tracts 7-11) Unit II, mired down and used the refuge Farmall tractor to extricate their car. This, while the manager journeyed to San Diego.

VI OTHER ITEMS

A. Items of Interest

From Tucson, Arizona comes word that a bacteria has been found which will attack and kill salt cedars (Tamarix gallica).

Much experimenting remains to be done however Dr. J. G. Brown of plant pathology, University of Arizona is hopeful about the recent discovery. He reports that salt cedars were introduced into the Southwest by Spanish missionaries, probably in the 16th century. Experts list the species as the leading problem phreatophyte. Geological Survey some time ago reported they consume 70% of the water flowing down the Gila River to Safford.

The whole thing started a year ago when the Bureau of Reclamation donated \$10,000 to University men to search for some biological means of control. Dr. Brown and associates recently found salt cedar dying of disease from bacteria and fungi.

Pathogenicity has been proved by killing healthy plants sprayed with cultures.

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Along the Colorado River a new industry is reported thriving among the growths of Mesquite trees.

Ralph Lane and William Currans of Yuma, Arizona are manufacturing charcoal from mesquite trees. They have two kilns in operation on rented lots on Californias Quechan Indian reservation. Some 12 to 14 more will be built to turn out 200 tons of charcoal monthly.

The men employed 32 laborers and have contracted for all the green mesquite trees that can be cut from 3,800 acres in the Dona area on the Arizona side and the Chocolate Mountains on the California side.

Mr. Lane reports that a William Dunlap, Tucson, Arizona has been operating 5 kilns in the Santa Rita Mountains for some time. The whole thing came about as a suggestion by the Southwestern Forest and Range Experiment Station to check the spread of mesquites.

This no doubt will cut down a lot of the wildlife habitat in what one might have thought a country immune to man's commercialization.

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The last primitive area in southwestern United States, untouched for hundreds of years is now under close scrutiny. Recently 20,510 acres of the untouched scenic area, accessible only by boat, horse, or afoot became State park. First consideration up is to carve out a speedy road to help "preserve" the area in all it's splendor. A no hunting ban has been approved. A newspaper dispatch indicates the state parks also active in Riverside County where work has been started on the new Salton Sea Park at the north end of Salton Sea where some \$120,000 has been set up for camping grounds, a boat harbor, etc.

The discussion of creating a state park at Mullet Island is also gaining momentum. Local groups, led by Assemblyman Ward Casey, want a boat landing and camping facilities.

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The State Legislature took action in early September to reclose the nearby 30,000 acre San Jacinto Mountain Game Refuge after stormy protests from citizens interested in contact with nature minus the hunting trimmings. The short open period last year marked the first legal hunting on the refuge in 20 years.

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A United Press dispatch from Sacramento dated September 8th outlined expected shuffles in the Department of Fish and Game under the new Governor Goodwin J. Knight administration.

The writup states: "The new Governor is generally regarded as being somewhat at odds with the present director of the department, Seth Gordon.

"Gordon, like other officers of cabinet rank, holds his post at the pleasure of the governor. --- While it is customary to get the blessing of the Fish and Game Commission for any new appointee it isn't required.

"The rumor mill has ground out a half dozen names of men supposedly under consideration for the \$13,000 a year post if Gordon gets the axe. The man supposedly given the inside track is Sam L. Collins of Fullerton. Collins, currently an oil company lobbyist, is a former speaker of the assembly".

In November word came to the effect that the new Governor issued a statement declaring Gordon would remain in office as long as the Governor himself occupied the Mansion in Sacramento.

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In the famous "no man's land" along the Colorado River history was made during October. The first discussion in one of several, regarding ownership and state boundaries along the river, was handed down by Judge Elmer Heald. One complaint, that three individuals took possession of

some 100 acres of farm land supposedly lost through shifting and obliteration of the channel of the river, was heard. A commission set up this year by the California state legislature session is studying the boundary problem and hopes to establish legal lines.

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Randolph Leigh, a noted New York yachtsman, author, and Los Angeles Times editorial writer shot his French wife and hung himself in early November.

Leigh brought on considerable wrath on the part of local irrigation officials and Chamber of Commerce when he published his "Forgotten Waters". In the book it is asserted that someday the tidal waters of the Gulf of California would surge up and over the 40 foot earthen delta barrier and into unsuspecting Imperial Valley.

For years it has been claimed that eastern bonding concerns were reluctant to loan or invest in the Valley due to stories of probable inundation.

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Imperial Valley's cotton acreage will be reduced from 104,000 to 40,878 acres next year. Originally the figure was set at 18,000 acres but through the state production and marketing association the allotment was upped.

Many farmers claim shortages due to their incorrect reports on total cotton acreages raised rather than on total cotton acres and other acres of land owned or farmed.

It is still up to the growers to decide which is the lesser of two evils -- accept the 40,878 acres figure at a guaranteed support at 90 per cent of parity by the government or grow as much as they desire at only 50 per cent of parity.

As we sit here on the little ole Salton Sea Refuge we sincerely hope that every money-loving cotton farmer up stream will accept the reduction in acreage and hold back some of the waste water which is steadily raising the sea and squeezing us out of existence.

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Up north, in Coachella Valley a committee of drainage cooperators composed of men from the University of California, U. S. Bureau of Reclamation, U. S. Salinity Laboratory and Coachella Valley County Water District met in December to discuss problems of the rising water table.

Dr. Martin Huberty of U. C. L. A. stated he believed, "the water district should apply penalties to farmers using too much water". He said sharp increases in price could be levied after a certain amount of water has been used to discourage waste and overuse.

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On December 17th a contract, which may eventually run into a million dollar project at the Atomic Energy Commissions Salton Sea installations, was let.

The proposed work, just across the "pond" from Unit I will consist of protective works to guard A E C against incroachment of Salton Sea. The job will get under way next spring and Golden and Bryant Company, El Centro will prepare plans and supervise construction work.

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The San Diego Zoo continues to seek a pair of California Condors. Lewis W. Walker, formerly of the zoo has been employed to stalk the condor in the coastal mountain range north of Los Angeles. It is believed that a pair will provide a nucleus for breeding stock.

As a result of the National Audubon Society and intrested conservationists a deadline has been imposed on the "hunt". Some believe the one-man safari will upset the 60-odd timid individuals left and tend to disperse or further reduce the species.

No trapping or stalking can be done within the 35,000 acre Los Padres National Forest sanctuary in Ventura County and legislative permission only extends to January 15, 1954.

Walker and the group at the zoo contend that Condors have declined due to slow starvation through ecological relationships with predators, etc. The zoo has had outstanding success with the closely related Andean Condors of South America.

In a recent article in Audubon Magazine A. B. Miller, director of Museum of Vertebrate Zoology at U. C. L. A. declares; "Many baits (used to attract Condors for observation) are not consumed hardly an indication of near starvation". "..... apparently the sole current objective in trapping is to establish California Condors in the zoo with the hope of propagation that will permit supplying other zoos".

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One morning we were stopped along the boundary by a burly-looking Texan who had been admiring the birds in one of the fields being irrigated. Asked what kind of birds they were we replied, "they're shorebirds". "Yep they shore are birds", he shot back, "what I'd like to know is what kind are they?"

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In a letter to Mr. Harry F. Stiles, Grand Rapids, Michigan we note that Mr. Salyer, in locating Salton Sea Refuge, directed our prospective visitor to Death Valley some 250 miles to the north (as the coot flies). If all don't go well from here on out our future address may be; Petrified Forest, Arizona, where we've already applied for a quiet job as fireguard.

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A sheet of hunting regulations and time changes is published by the local sportsmen each year. The current sheet calls upon hunters to get permission to hunt on property that is private, etc, "failure to do this simple gesture will result in more No Hunting or Trespassing signs".....

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Mr. O. S. Pettingill, Jr. in his, "A Guide To Bird Finding West Of The Mississippi", under the assistant authorship of C.G. Sibley and Howard L. Cogswell, remarks that "hords of transient swifts, swallows, vireos, warblers, tanagers and fringillids sweep up the Valley almost disregarding their usual habits". (Swifts and vireos are actually on our "rare list").

The Salton Sea Refuge location and direotions are given as well as a run-down on abundant species, etc. California's Imperial Refuge is mentioned, "where Desert Song Sparrows, Ground doves, Gila and Ladder-backed Woodpeckers may be found any time of the year. (This we can't prove)"; ".....the Vermillion Flycatchers are to be found in the dry shrubland bordering the marsh". (This species too is "rare").

For a close view of Salton Sea a drive to Mullet Island is recommended". (Today the "island" is actually an island and the mud pots are now under water).

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Respectfully submitted,


Edward J. O'Neill
Refuge Manager

Note: Credit is due.....to Mr. Eridler for recording most of the waterfowl migration data, banding information and assistance in editing; to Messrs Rubke and Parrish for the section dealing with state management of Unit II hunting and to Mr. Beals who also assisted in editing and applying the finishing touches.

Approved: _____

WEEKLY WATERFOWL CENSUS

REFUGE Malheur MONTHS OF Sept. TO Dec., 1927

Species	Weeks of Reporting Period																	
Common Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Swans:																		
Whistling Trumpeter								90	100	275	500	315	2170	2650	1185	880	620	
Geese:																		
Canada																		
Cackling																		
Brant																		
White-fronted				6	200		300	150	500	800	1200	1300	300	600	800	21	130	
Snow					20		75	100	1200	1450	1800	3000	4000	4150	7500	7750	5200	
Blue																		
Other																		
Ducks:																		
Mallard				17	10	5	15				10	25						
Black																		
Gadwall																		
Baldpate																		
Pintail																		
Green-winged teal																		
Blue-winged teal																		
Cinnamon teal																		
Shoveller																		
Wood																		
Redhead																		
Ring-necked																		
Canvas-back																		
Scaup																		
Golden-eye																		
Buffle-head																		
Ruddy																		
Other																		
Count:																		

Reported by

26,061

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

23,731

No duck count taken

No duck count taken

Reported by

26,061 25,655 22,650 23,721 23,200 20,200 20,200

9/3 9/9 9/15 9/23 10/1 10/8 10/16 10/22 10/29 11/5 11/12 11/20 11/26 12/3 12/10 12/17 12/24

Letter

(over)

(Aug. 1952)

SUMMARIES

Total Production:

Geese

Ducks

Coots

Total waterfowl days use during period 2,567,162

Peak waterfowl numbers 47,334

Areas used by concentrations *Chickadee*

White Tailed

Principal nesting areas this season

No. of inventories this period _____ % of refuge covered
Reported by _____

INSTRUCTIONS (See Sec. 7532, 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) First Seen:

The first refuge record for the species during the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak Concentration:

Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen:

The last refuge record for the species during the reporting period.

(5) Young Produced:

Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total:

Estimated waterfowl days use (average population X no. of days present) of refuge for reporting period based. (See Sec. 7532, Wildlife Refuges Field Manual.)

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

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Salton SeaMonths of September to December 1943

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young
I. Water and Marsh Birds:									
<u>Wood Ibis</u>	Previous Period		425	9/24	220	9/28			
Glossy Ibis	"	"	4200	12/26					
Green Heron	"	"	Present						
Common Egret	"	"	"						
Snowy Egret	"	"	"						
B.C. Night Heron	"	"	"						
G. Blue Heron	"	"	"						
Gullinule, Florida	"	"	2	12/5					
Western Grebe	"	"	Present						
Mare's Grebe	"	"	"						
Virginia Rail	"	"	1	12/9					
Sora	"	"	1	12/19					
White Pelican	"	"	1500	10/25					
Brown Pelican	1	11/18	1	11/18	1	11/18			
Cormorant	Previous Period		Present						
Sandhill Crane	3	10/12	3	During Period					
II. Shorebirds, Gulls and Terns:									
<u>Lesser Yellowlegs</u>	Previous Period		150	12/5					
<u>Godwit</u>	"	"	150	9/23					
Willet	15	9/23	156	9/23					
L.B. Curlew	Previous Period		4900	12/26					
Black-bellied Plover	"	"	30	9/23					
Avocet	"	"	450	9/23					
Black-necked Stilt	"	"	600	9/23					
Stilt Sandpiper	6	11/20	6	11/20					
Red Phalarope	1	9/6	1	9/6	1	9/6			
Northern Phalarope	Previous Period		125	9/23					
Black Tern	"	"	1	11/18	1	11/18			
Caspian Tern	"	"	1	12/5					
Forrester's Tern	"	"	3	12/5					

(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					
Reported by.....					

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviliformes to Ciconiiformes and Gruiformes)

II. Shorebirds, Gulls and Terns (Charadriiformes)

III. Doves and Pigeons (Columbiformes)

IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1753

Form NR-3

(June 1945)

BIG GAME

Refuge ~~Michigan~~ Michigan Calendar Year 1944

(1) Species	(2) Density Cover types, total Acreage of Habitat	(3) Young Produced Number	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name														
	No big game on refuge.													

Remarks:

Reported by _____

INSTRUCTIONS

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

Refuge Salton SeaYear 1945

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Kind of disease _____

Period of heaviest losses _____

Species affected _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Affected	Actual Count	Estimated
Species	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Hospitalized

No. Recovered

% Recovered

Number Recovered _____

(a) Waterfowl

Number lost _____

(b) Shorebirds

(c) Other

Source of infection _____

Areas affected (location and approximate acreage) _____

Water conditions _____

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

Food conditions _____

None this year

Condition of vegetation and invertebrate life _____

Remarks _____

Remarks _____

Refuge Ball Lake Year 1945

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number re-moved for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
		No fishing on refuge - - resources undeveloped						

REMARKS:

3-1757

Form NR-7

(April 1946)

PLANTINGS

(Marsh - Aquatic - Upland)

Refuge Saltwater Bay

Year 1945

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Plant- ing	Survival	Cause of Loss	Remarks
				None				

TOTAL ACREAGE PLANTED:

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

CULTIVATED CROPS

Refuge Salt Lake Year 194 50 Sept-Dec

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return		Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested Acres	Unharvested Bu.	
REFUGEE PERSONNEL		Unit I	WILD KILLED						
			Vol. Barley (Green)						
			Barley (Green)						
			Barley (Dry)						
			Extensile						
		Unit II	Barley (Green)						
			Alfalfa						

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share		Total Revenue
			Acres	Bushels	Harvested Acres	Unharvested Acres	
	Barley (Gr.)	1360				1360	
	Barley (Dry)	110				110	
	Wheat	200				200	
	Alfalfa	100				100	

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

Cultivated Crops Report Form NR-8 should be prepared on a calendar-year basis for all crops harvested or utilized during the calendar year and submitted with the December 31 refuge report.

Permittee - List each permittee separately. If lands of the refuge are farmed by refuge personnel or hired labor, this should be indicated in the Permittee column.

Permit No. - List the number of the Special Use Permit issued to the individual.

Use or Location - The Unit No. or name specified in the Economic Use Plan should be listed in this column.

Crops Grown - A separate line of the form should be used for each crop grown by each permittee or by refuge personnel. This is important, since if each crop grown by each operator is not specifically enumerated, the report will be of no value for statistical purposes.

Average Yield per Acre - It is important that the average yield per acre of each crop grown by each operator should be shown.

Permittee's Share - Only the number of acres harvested or utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. It is requested that all crops harvested be reduced to bushels wherever possible, or, as in the case with the harvesting of seed such as that of sweet clover, alfalfa, brome grass, etc., the total harvested crop in pounds may be shown. Timothy, alfalfa, or other hay harvested by the permittee should be shown on Form NR-10 and should not be shown in the Permittee's Share column.

Government's Share or Return - Harvested - Show the number of bushels harvested for the Government and the acreage from which this share is harvested, both for grain raised by refuge personnel and by permittees. Unharvested - show the exact number of acres of crops allowed to remain unharvested as food and cover for wildlife. An estimate of the number of bushels of grain that is available for the wildlife in such unharvested crops should be shown in the Bushels column.

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.

REFUGEE GRAIN REPORT

Refuge Salton Sea Months of September through December, 1954

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF			(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed		Seed	Feed	Surplus
Marion's barley	0	1,100	1,100		1,100		0			
Feed barley	0	600	600		165		435		X	
Rematchon barley	150		150		50		100		X	
WILD MILLET		10	10			10	10	X		

(8) Indicate shipping or collection points

(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.
- (2) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (3) A total of columns 2 and 3.
- (4) Column 4 less column 5.
- (5) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (6) Nearest railroad station for shipping and receiving.
- (7) Where stored on refuge: "Headquarters granary," etc.
- (8) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

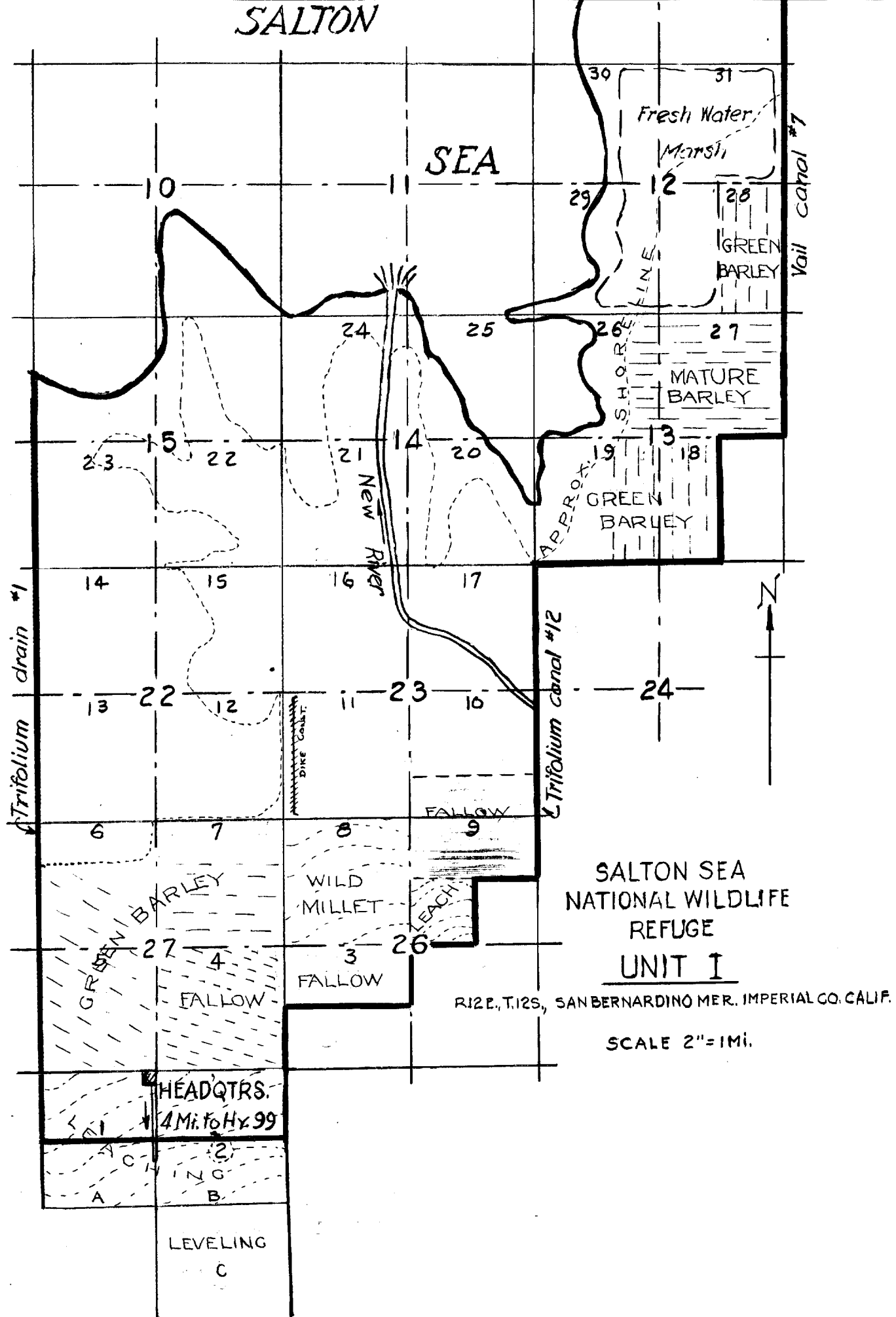
HAYING AND GRAZING

Refuge Saltwater Marsh Year 1946

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
John Searles	SAL-25	Tr. 7-24 Unit II	100		33.35	6/24-30/53	2.00/ ton	66.70	

Totals: Acreage grazed..... Animal use months..... Total income Grazing.....
Acreage cut for hay 100 Tons of hay cut 33.35 Total income Haying 66.70

SALTON



SALTON

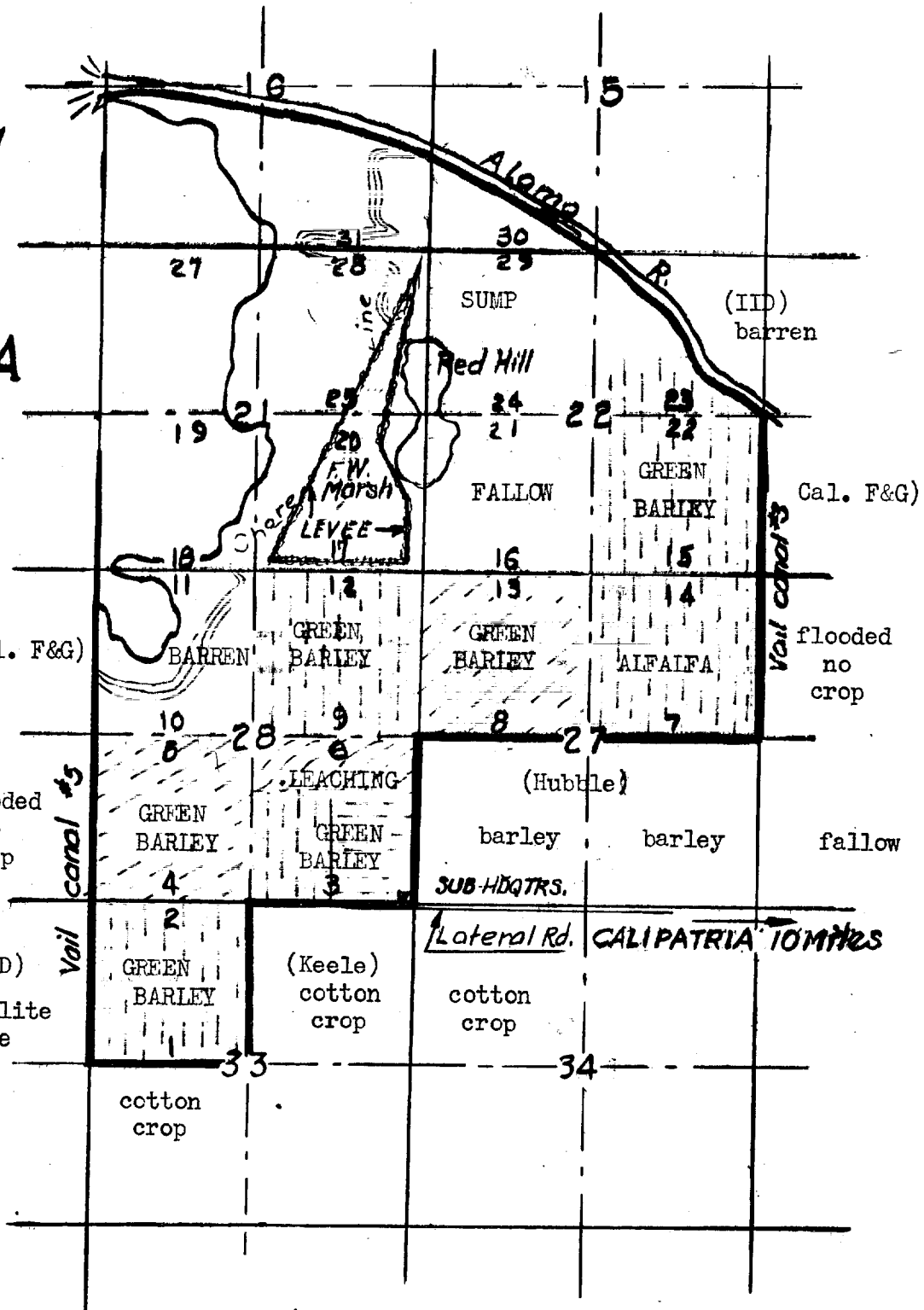
SEA



(Cal. F&G)

flooded
no
crop

(IID)
Superlite
mine

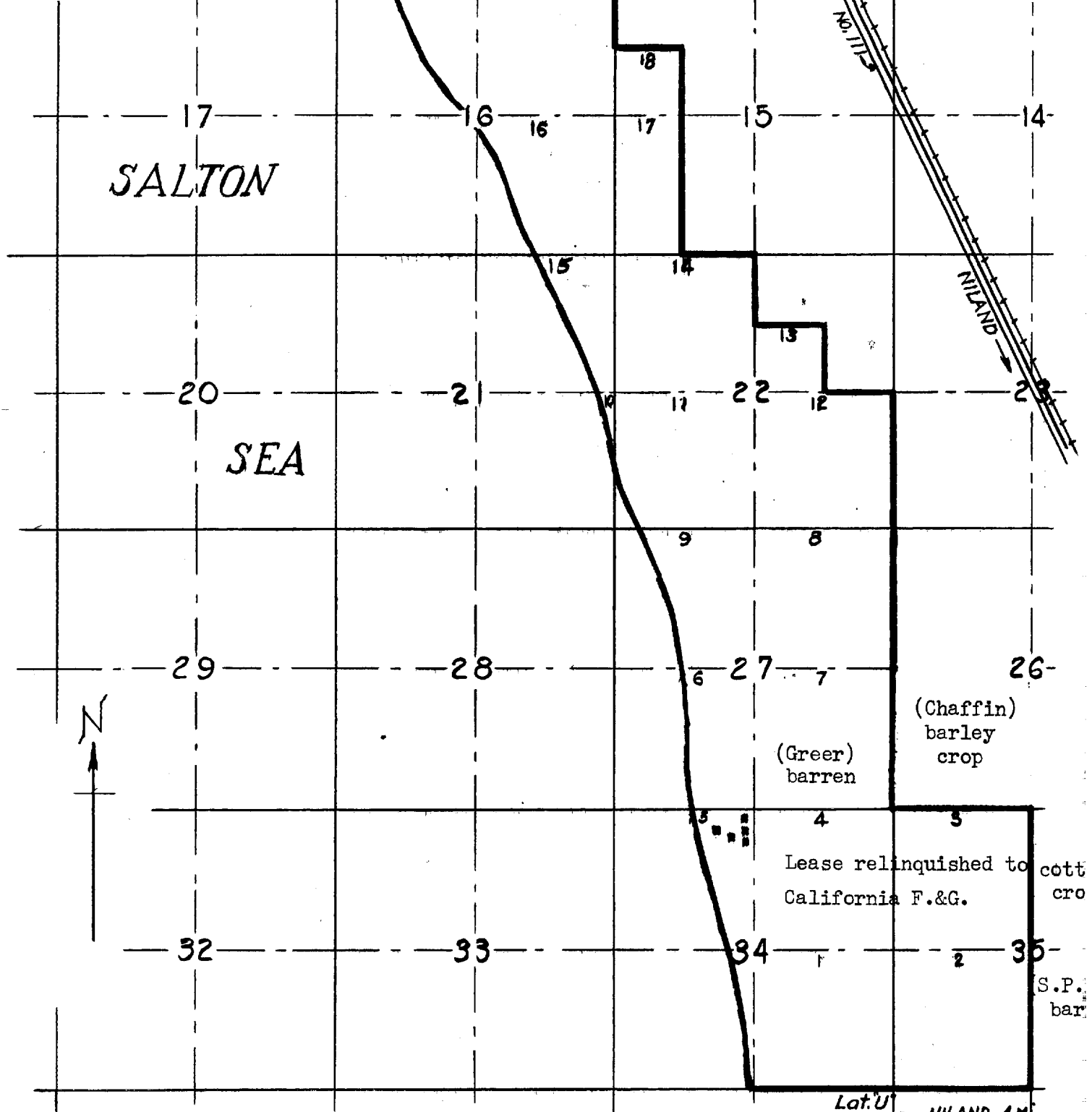


SALTON SEA NATIONAL WILDLIFE REFUGE

UNIT II

SCALE 2 1/2 MI.

R. 13 E., T. 11 S., SAN BERNARDINO MER. IMPERIAL CO. CALIF.

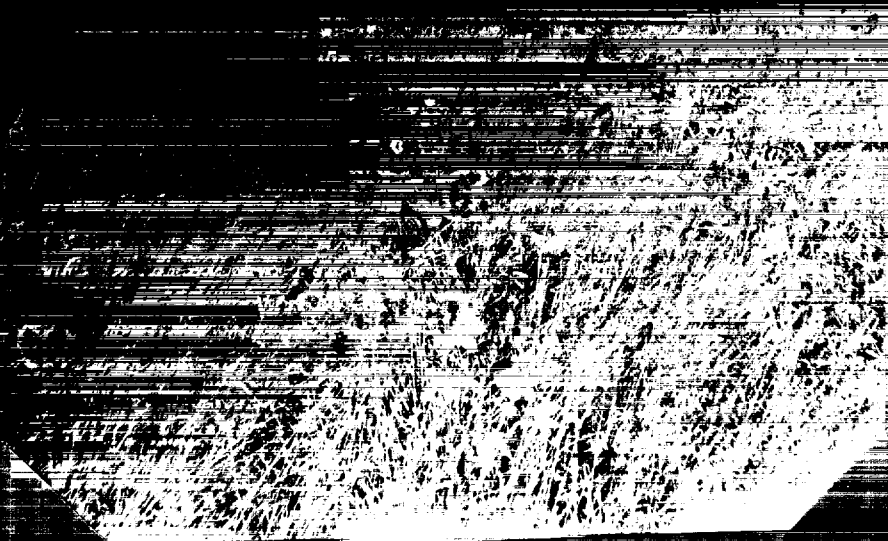


SALTON SEA NATIONAL WILDLIFE REFUGE
UNIT III

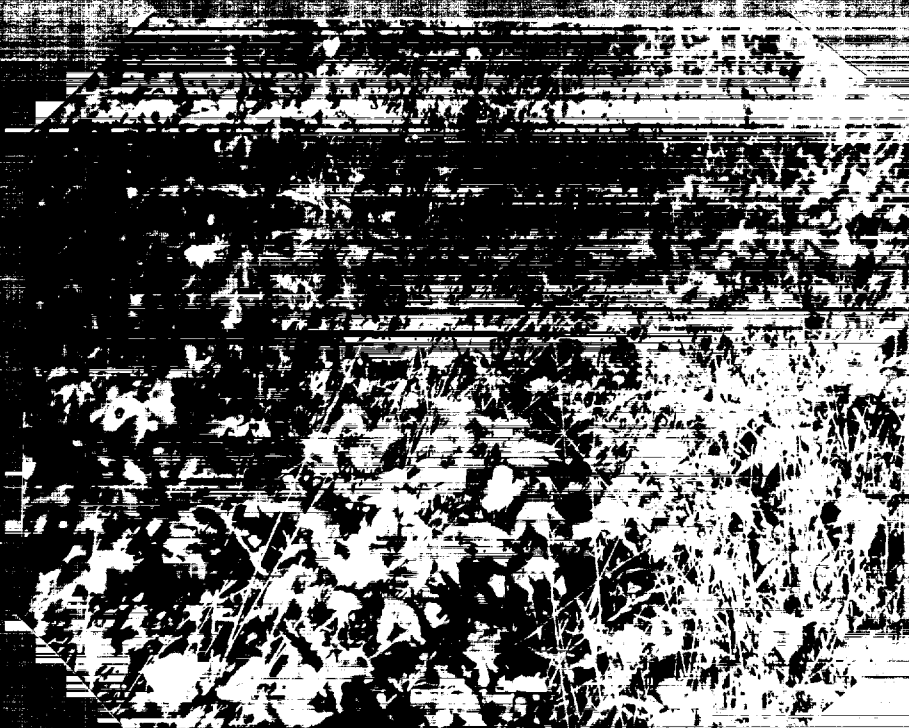
R.13E., T.10S., SAN BERNARDINO MER. IMPERIAL CO. CALIFORNIA

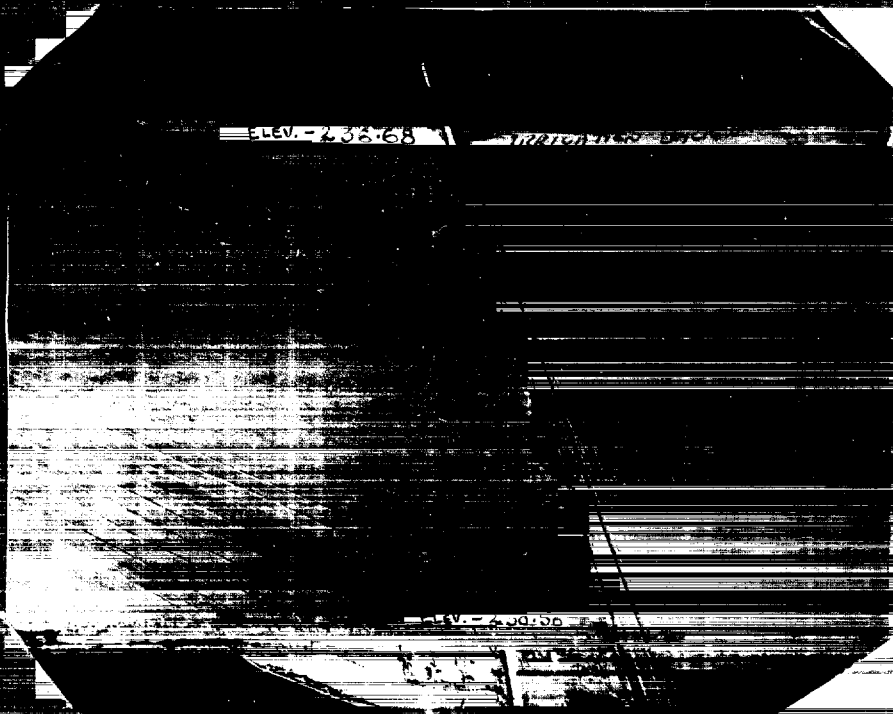
Lat. U
 NILAND 4 MI.
 Cardex-Western

SCALE 2" = 1 MI.

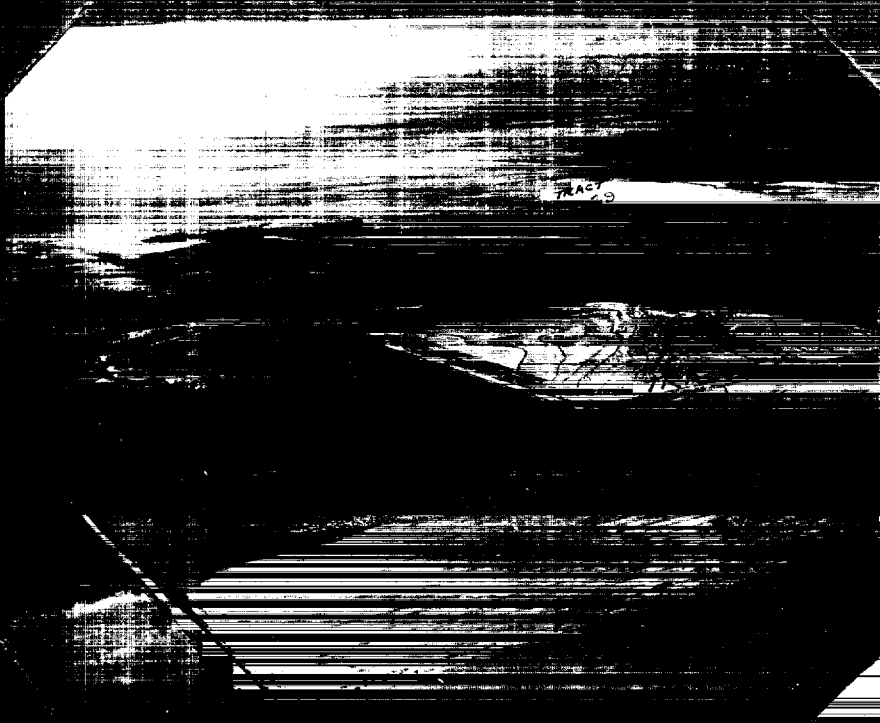


Waste growth of wild millet in cotton crop.





Location of water 1 mile north of headquarters.
May, 1955

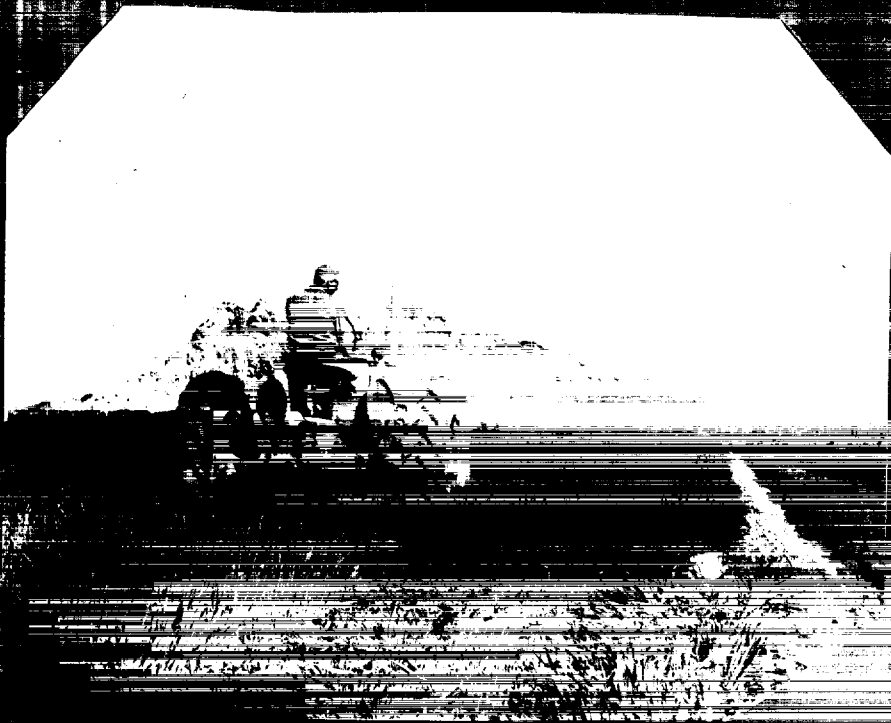




Typical designation sign used by State at Unit 11.



Site where hunters slept nightly in cars to await opening.
Subheadquarters in background (Dec. 1953)



by birds
1953.



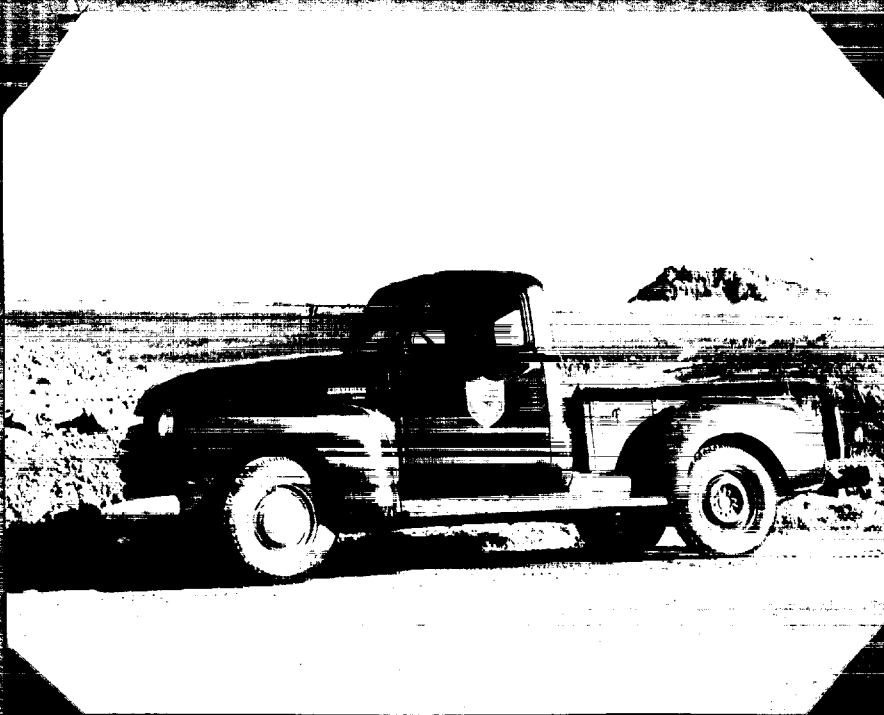
1291 reese



Hunters here display bag of 7 snows and 2 canadass taken on Unit 11 of Porcupine. Dec. 1955. (Photo by Ray Knight).



Hunters here display bag of 7 snows and 2 canadass taken on Unit 11 of Porcupine. Dec. 1955. (Photo by Ray Knight).





Children gathered at mouth of Mono River (Nov. 1957)



