

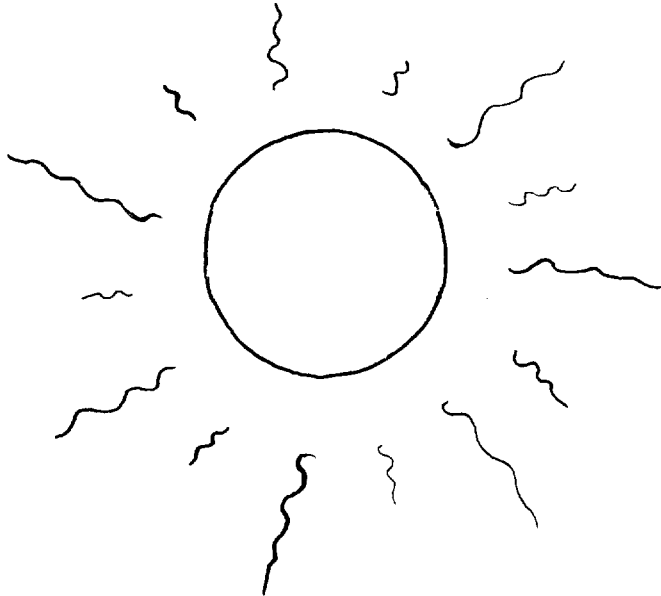
SALTON SEA NATIONAL WILDLIFE REFUGE

&

WATERFOWL DEVELOPMENT AREAS

NARRATIVE REPORT

SUMMER 1950



XXXXXXXXXXXXXXXXXXXX

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

Salton Sea National Wildlife Refuge
&
Waterfowl Development Areas

XXXXXXXXXXXXXXXXXXXX

NARRATIVE REPORT

May, June, July, August, 1950

XXXXXXXXXXXX

United States Department of The Interior
Fish & Wildlife Service
Brawley, California

REGULAR PERSONNEL

Edward J. O'Neill.....Refuge Manager
Lloyd R. HamelliRefuge Manager (On Detail)
James H. Hall.....Foreman-Farm Operations
Will T. Wesley.....Refuge Maintenance Man
Glyde W. Stewart.....Tractor Operator
Alfred W. McFarland.....Tractor Operator
Carl W. Ford.....Tractor Operator
Joseph L. Merrill.....Tractor Operator

TEMPORARY PERSONNEL

John Barros.....Laborer
Jose Barros.....Laborer
Sylvester Barros.....Laborer
Melvin Ford.....Laborer
Morris E. Hild.....Laborer
Jerryl W. Sexton.....Laborer(Reassigned to
Gregorio Paez....." Clerk temporarily)
Don Ferrel.....Laborer
John Hunt.....Laborer
Raymond Gash.....Carpenter
Louis Hensley.....Carpenter
Maurice McCullough.....Carpenter
William Aguayo.....Cement Finisher
Eugene Minter.....Laborer
Ceaser Moore.....Laborer
Luis Sotelo.....Laborer
Phillip Silva.....Laborer
William Lynch.....Laborer
Leon Lesicka.....Laborer
William Hoff.....Laborer

NARRATIVE REPORT

1. GENERAL CONDITIONS

A. Weather Conditions, Etc.

Mild weather, too cool and ideal for good hay growth is what the early days of the period meant to growers as a tremendous acreage of alfalfa started to produce the Valley's top ranking crop. Many acres fell short of expected tonnages until after June 10th when a steady rise in the mercury set harvesters a'stir.

Mean temperatures for the month of June, over a 35-year span, has averaged 82.5 degrees.

July, filled with surprises, started off with thermometers registering 117 degrees in the north end of the Valley on the 1st. The same day, for variation, the mercury dropped to 65 degrees. During the month temperatures varied from mild to scorching--the average maximum reading was 103.5 degrees.

Rain came to the Valley during the period. At Imperial, California .05 of an inch fell on July 5 and .17 on July 8. Humidity figures averaged 37 per cent. July 6 saw a cloudburst which centered over the desert a few miles west of refuge headquarters. The half-inch downpour was short lived and devastating where it hit, topping drains and canals to block Highway 99 with deep mud. Drains 12 to 15 feet deep and 30 feet wide overflowed. From the Imperial Irrigation District comes the report that the storm caused more than \$15,000 damage to irrigation facilities.

Old man weather had more to offer--toward the last of the month a cloudburst struck El Centro, flooding stores and doing considerable damage as high winds and water temporarily paralyzed the city.

August saw some "unseasonable" weather too, as rain, humidity, and hordes of crickets came to the general area. Humidity reached a sticky 97 per cent with an accompanying temperature of 108 degrees one day.

As usual there was days of windy, dusty conditions. Worst winds came on June 6 and 7 rendering tractor operations impossible.

Tabulated below is the weather data as compiled by the El Centro Naval Air Base station.

MONTH	MAXIMUM	MINIMUM	PRECIPITATION
May	105	50	0
June	119	62	0
July	123	72	4.42"
August	118	68	0
TOTAL			4.42"

Earthquakes were big news in Imperial Valley during the period. Four were recorded July 27, seven on July 28, two more on the 29th and one July 31. The shock of July 29 was of the greatest intensity and resulted in varying amounts of damage to uptown arcade structures, hotels, roads and the like. Haystacks everywhere shook and many toppled. In one locality the earth disturbances interrupted underlying water tables which resulted in numerous water "springs" or "sand boils" in open fields.

On the refuge one operator noticed that his tractor trembled and shook like a small tree with the heaving, quivering earth. A small 1 inch crack running along the banks of New River was the only visual effects of the quakes on the refuge areas.

Center of the earthquakes was the Calipatria, California area where scarcely a building remained undamaged. Many however were only slightly disturbed.

Long time residents recall periodic recurrence of quakes and the relative commonplace of tremors in past years. A review of the records available showed that similar quakes occurred here in 1920, '31 and '40 -----almost a 10 year jinx!

The quakes all may have originated along the San Andreas fault which runs through Imperial Valley into Mexicali Valley below the border. Hardest shakes were reported to have rocked the area with an east-west motion of number 4 intensity. At this writing light tremors continue to reflect pent up pressure deep below the surface of the Valley.

B. Water Conditions

No change has been made in the course of New River in Unit I nor of the Alamo in Unit II. Backwaters of New River continue to flood and improve the existing wildlife habitat. No small amount of aquatic food was developing in these fresh water areas.

C. Fires

No fires occurred on the refuge areas during the period.

II WILDLIFE

A. Migratory Birds

1. Population And Behavior

The migratory waterfowl picture over the period duplicated somewhat the trend of previous reports for the same season.

Ducks were arriving in fair numbers, as indicated on the NR Forms, the last days of the period with perhaps slightly later than usual arrival dates.

Tree Ducks, Baldpates and Cinnamon Teal were somewhat higher in numbers than one year ago.

Waterfowl nests as usual were not common. Several Fulvous Tree Ducks brought forth broods of two and three chicks. One pair succeeded in rearing 12 young.

Cinnamon Teal, Pintails and Ruddy Ducks all brought off broods during June and July. These broods are mentioned just for the records -----we doubt that the national waterfowl population is much affected by the number of ducks hatched off at Salton Sea each summer.

2. Marsh And Water Birds

White Pelicans returned to nest at Salton Sea despite the stepped up human activity at the nearby Atomic Energy Commission station which now occupies the largest of the islands on Salton Sea.

Some 200 nesting pelicans and a lesser number of terns were banded on the islands June 24th.

Pelicans abandoned the AEC's island, known to us as Still Island, and were using another island against the west shore of Salton Sea which is barely surrounded by shallow water. This would indicate a definite tolerance to the nesting ground infringement and a great desire on the part of the colony to exist.

The Wood Ibis arrived about June 25 when 300 were observed in the Valley near the north portion of Unit I.

3. Shorebirds, Gulls and Terns

In early June Black-necked Stilts were hatching on the development areas and along the south shore of Salton Sea.

Western Willets, Avocets and Long-billed Curlews were all present June 24th when a party of refuge personnel made the long trek across the desert to the nesting islands.

A few Ring-billed Gulls remained at Salton Sea throughout the period but no indication of nesting was noted or heard of.

Plovers and Black Terns returned before the period was over in accordance with former records. The Black Tern departure and return is not pronounced as many others, there being only a matter of days between spring and fall movements.

While at the islands in Salton Sea one of the men found an old abandoned duck decoy which was cast out into open water. Almost immediately the pugnacious little Gull-billed Terns took up the attack and from mid-air persistently dove at and pecked the lifeless decoy for almost fifteen minutes until it came to rest on the shores of one island supposedly mortally wounded by these little dive-bombers of the colony.

4. Food and Cover

The small patch of Spiny Naiad discovered a year ago along the west boundary of Unit I has spread over most of the water area in that locality. Widgeon Grass too showed the best gains in any year yet.

As Spiny Naiad attracted coots and Teal, Pintail and Tree Ducks began to arrive the last days of the period. Wild Millet was the main diet. Tract 8 in Unit I is supporting a gratifying population of ducks at this writing.

The over all Valley populations may be some lower than previous years for the same period but the refuge figures are slightly higher than previous years. An estimate of ducks using the Valley at this time would perhaps place the figure at about 8,000. Our guess is that the vast majority of the population is using the refuge food plots.

Blackbirds too have utilized the millets to no small degree since the crop has become more mature. We find little indication that they are harrasing neighboring farmers where sorghums are being raised.

B. UPLAND GAME BIRDS

1. Population and Behavior

No notable change in status of resident populations.

Only a handfull of hen birds were released on Unit II early in the period by the State Fish & Game. Permission wasnot requested this season as has been the practice in past years.

During June an outbreak of botulism occured among hatchery-reared pheasants at the State's game farm near Calipatria, California. The disease reportedly wiped out some 4,600 birds before Dr. E. R. Quortrup, San Diego County Vetrinarian was consulted and the matter cleared up.

2. Food and Cover

No change in status save for increased acreages as shown on progress maps.

C. BIG GAME ANIMALS

No big game animals on this area.

D. FUR ANIMALS, PREDATORS, RODENTS AND OTHER ANIMALS

There is little information to report under this heading for the period. Hunters and dogs continue to persue the raccoon and seem now to be making definite inroads into the population.

A lone coyote was seen a number of times near headquarters---- the first in several years since the Service and State trappers reportedly carried out a rather extensive poisoning campaign.

E. FISH

No notable change in status.

III REFUGE DEVELOPMENTS AND MAINTENANCE

A. Physical Developments

Following acquisition, by lease, the area in Section 12, Unit I, (Tracts 27, 28, 29), was surveyed and contours run. It is planned to surround this entire area with a levee of heavier construction. Much of the work is now completed and lower, smaller contours will make up the interior portion of the area. By the close of the period two bulldozers working steadily had completed more than 1 mile of levee and 6 miles of heavy contours which will be capable of supporting flash floods from the nearby canals and drains. All is not surveys and bulldozing however, this project has taken many precious hours of time in negotiating with Irrigation District engineers and Board members for clearance, water delivery and perhaps eventually the unlimited use of all waste waters entering the area below the -230 foot contour.

The task of constructing the levee along Salton Sea has been indeed an exciting piece of work for all concerned with heavy tractors treading lightly on spongy, clay soils which sink several inches for a radius 50 feet around an engine. As tractor withdraws each trip a tough, rubbery layer of clay raises up as before. Every hundred feet of levee brought slightly different textures of soil; some too wet to work, others slick with alkali, but dry under the surface. Here and there erstwhile fissures in the soil mantle have emitted "sand boils" which bubble subsurface silty sand and salt water for hours, sometimes days.

At subheadquarters the residence house cooler ducts have been installed, water lines, gas lines, septic tank and water reservoir dug and formed. All preliminary plumbing and electrical wiring is finished. The interior sheeting is nearing completion and painting will follow soon.

The service building at subheadquarters has been started with footings dug, poured and sewage line provided.

The two large No. 12 designation signs were stained and lettering completed. Together with 3 small unit designation signs the lot are being varnished and letters treated with reflection beads for extra effectiveness at night time.

More than 200 new 4 x 4 posts and boundary signs have been erected around most of Unit 2.

Date Palms which did not survive the initial planting of two years ago were replaced during the period to support general appearances of headquarters and provide at least a perching place for meagre population of resident passerine birds. Who knows, perhaps someday dates may be written up under Economic Use items since, this summer two trees actually bore a few dates!

During July and August a dozen 30 inch checks were installed in a newly constructed half-mile of ditch servicing Tracts 18 and 19, Unit I. The men spent many tiring hours under intense summer heat completing this project to provide land for additional crops in that area.

B. Cultivated Crops, Etc.

On May 11 alfalfa hay harvest was started on Unit I and II under Special Use Permit No. SAL-4. A later harvest under Special Use Permit No. SAL-5 completed the new crops growth before hot weather arrived. The crops were allowed to mature and develop seed. Permits were issued for seed harvest and at this writing a total of about 40,000 pounds of seed was harvested by the first permittee.

Tracts 7 and 14 of Unit II proved to be too alkaline and steep graded to produce a satisfactory crop of alfalfa and work has been started on deep tillage and leveling of these lands in the hopes that they can be later leached.

In mid-June the Service succeeded in negotiating a contract with the Imperial Irrigation District for free leach water with which to improve alkaline soils in Tracts 24 and 25 of Unit I, and 1 and 2 of Unit II. At the close of the period this 90 day contract was still in effect as more than 250 acres under-goes the process of improvement. This acreage has been held submerged in shallow water since the start of the process dissolving surface salts and driving them downward into the lower stratas of soil.

A light infestation of Yellow Dodder Weed showed up in the Tract 4, Unit II alfalfa seed crop during the period necessitating frequent control work and close vigilance until the growth stage of the noxious weed had passed.

The leveling project in Tract 2 of Unit I by TD-18 and carryall scraper was continued during the period as time permitted. In the leveling process sandy soils are being distributed over the hard clay soils which will tend to greatly improve the condition of this tract.

Along with the lands leased in Unit 2 it is now evident that we have inherited a magnificent growth of Hitler Weed (Bassia h.)...(See photo of residence house--foreground), which, due to its summer growth habit has flourished in the barley fields after the crops matured and were left for wintering waterfowl. So dense were the weeds, following early summer showers, that 8 men armed with mattocks were unable to clear 30 acres of weed-infested barley in a weeks time.

It is now believed desirable to plow under all the weeds and seed possible after utilization of the barley by ducks, raise a crop of clover which can be plowed under as the weeds begin to grow in early spring, thus eliminating much of the seed crop and last years growth. It may become necessary to raise Sudan Grass and Milo Maize to provide food for next winters population of ducks.

Acreages of crops, their location, etc are shown on the accompanying progress maps.

C. Collections

Alfalfa seed harvest, underway during the period is not completed but at this time is estimated that perhaps 30,000 pounds of alfalfa seed will be the Service's share of the harvest.

IV PUBLIC RELATIONS

A. Recreational Uses

No recreational facilities exist on the refuge. The public continues to seek fishing places along the refuge boundary near New River in Unit I.

B. Visitors

A few farmers, interested parties and bird enthusiasts came to the refuge during the period.

C. Official Visitors

<u>Name</u>	<u>Date(s)</u>	<u>Organization</u>	<u>Purpose</u>
Dr. W.S. Bourne) Ray Fleetwood) Party	5/15-21	U.S. F&W-Wash. D.C. " Bosque Refuge "	Habitat insp. " "

<u>Name</u>	<u>Date(s)</u>	<u>Organisation</u>	<u>Purpose</u>
L.R. Jacoby	5/19-21	Regional Office U.S.F.W-Engineer	Unit II survey
W. Anderson	5/19-24	" R.O.-Refuges	Inspection
Wm. Anderson	6/3 & 29, 30	Calif.F&G, Refuge Mgr.	Tour Refuge
C.H. Hart	6/14, 27, 7/14	" " , Biologist	" " -Pheasants
H. T. Harper	7/1	" " , Game Mgr. F&G	" " "
A. W. Elder	8/28)	U.S.P.M.-" Sgt. Agent	" "
H.M. Worcester	") Party	" " "	" " "
H. Lattimer	")	" " "	" " "

D. Violations

No violations during the period.

XXXXXXXXXXXX

Date submitted.....September 19, 1950



Edward J. O'Neill
Refuge Manager

Approved: _____

WATERFOWL

Refuge Balton Sea Refuge Months of May to August 1949

(1) Species Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total Estimated for Period
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	
I. <u>Swans:</u> Whistling swan									
II. <u>Geese:</u> Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose									
III. <u>Ducks:</u> Mallard Black duck Gadwall Baldpate Pintail Green-winged teal Blue-winged teal Cinnamon teal Shoveller Wood duck Redhead Ring-necked duck Canvas-back Scaup Golden-eye Buffle-head Ruddy duck	Previous	Period	100	8/19					200
	"	"	500	8/19					1000
	"	"	1500	8/19			2	2	3000
	"	"	1100	5/6					1500
	"	"	1000	5/6					1500
	"	"	7500	5/6					3000
	"	"	25	6/10					50
	"	"	10	6/10					20
	"	"	6000	5/13					1000
	"	"	150	5/28			4	15	500
IV. <u>Falcons Tree Duck:</u> <u>Coot:</u>	"	"	150	5/28			4	18	300
	"	"	500	8/19					800

3-1750
(July 1946)

(over)

Form NR-1

SUMMARIES

Total Production:

Geese _____
 Ducks 50
 Coots _____

Total waterfowl usage during period 12,000

Peak waterfowl numbers 26,000

Areas used by concentrations Units I & II on rivers and Salton Sea

Principal nesting areas this season " "

Reported by Salton Sea Refuge

INSTRUCTIONS

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.
- (2) First Seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.
- (3) Peak Concentration: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned in the reporting period.
- (5) Young Produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

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

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge ~~Salton Sea~~ Months of ~~May~~ to ~~August~~ 194~~5~~

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total Estimated Number
Common Name	Number	Date	Number	Date	Number Colonies	Date	Total # Nests	Total Young	
I. <u>Water and Marsh Birds:</u>									
Black-billed Grebe									75
Ring-billed Gull	200		50	8/6					250
Laughing Gull			8	8/6					25
Caspian Tern			3	8/19					25
Black Tern			15	7/30					25
Cormorant			53	8/19					75
White Pelican			229	8/19					300
Wood Ibis			200	8/19					300
White-faced Glossy Ibis			66	8/19					100
Least Bittern			9	8/6					25
II. <u>Shorebirds, Gulls and Terns:</u>									
Gr. Blue Heron	16	7/30							50
American Egret	276	8/13							300
Brewster's Egret	181	8/19							250
Least Heron	5	8/19							25
Black-crowned Night Heron	14	8/19							100
Clayton Rail	1	7/1							10
Florida Gallinule	50	8/19							250
Wilson's Phalarope	940	8/19							1500
Avocet	530	8/19							1000
Black-necked Stilt	750	8/19							1500
Long-billed Dowitcher	415	8/19							1000
Least Sandpiper	600	8/19							1000
Western "	330	8/19							500
Greater Yellowlegs	82	8/19							250
Lesser "	1	8/18							100
Wedge-billed Curlew	1	8/18(er)							25

REFUGE GRAIN REPORT

Refuge Saltan Sea Months of May thru August 1949

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF			(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED		SEED	FEED	SURP.
Barley	200	---	200	---	---	---	200		x	
WILD MILLET	2	90	92	---	90	---	2	x		

(8) Indicate shipping or collection points..... Westmorland, California

(9) Grain is stored at..... Headquarters, Saltan Sea Refuge

(10) Remarks.....

REFUGEE GRAIN REPORT

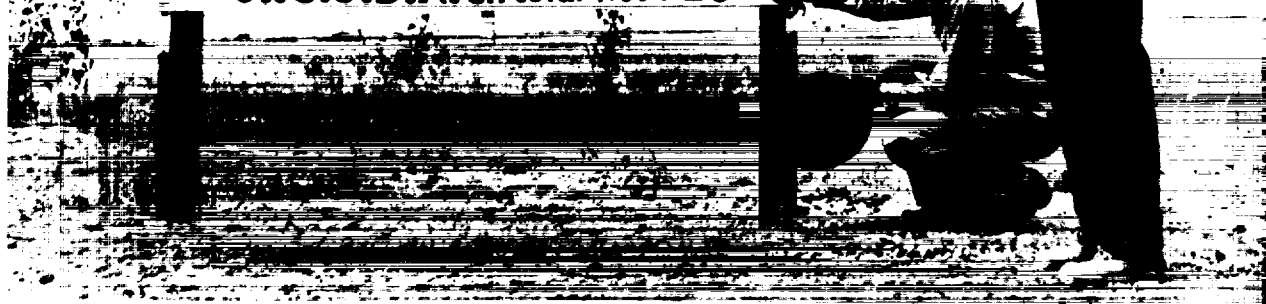
This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

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 lbs., Corn (ear)--70 lbs., Wheat--60 lbs., Barley--50 lbs., Rye--55 lbs., Oats--30 lbs., Soy Beans--60 lbs., Millet--50 lbs., Cowpeas--60 lbs., and Mixed--50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately: Corn, wheat, proso millet, etc. 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 breakdown by varieties of grain listed in Column 6.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters grainary", etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

THIS CLIMATE IS THE
WARMEST
AND
DRYEST
IN U.S.A.

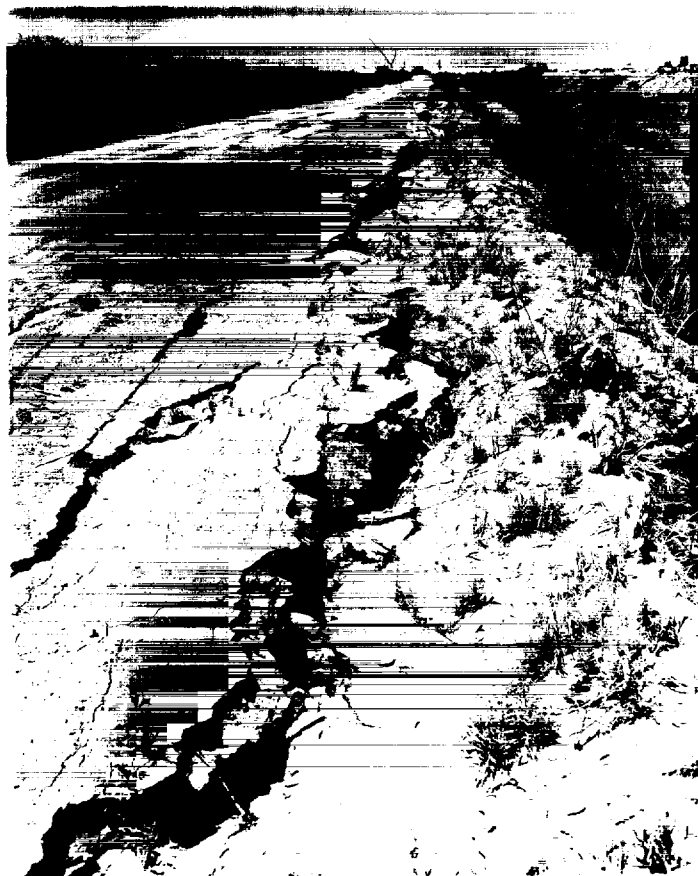
BY GOVERNMENT TEST
See U.S.D.A. Circular No. 728



Two members of the U. S. Army Task Force Furnace II check marker along the west edge of Imperial Valley near Plaster City. The men of this force already had proof of the temperatures though as they tested numerous items and military equipment under a blazing desert sun. Ground temperatures this July ranged up to 156.20 degrees.--U.S. Army Photo.

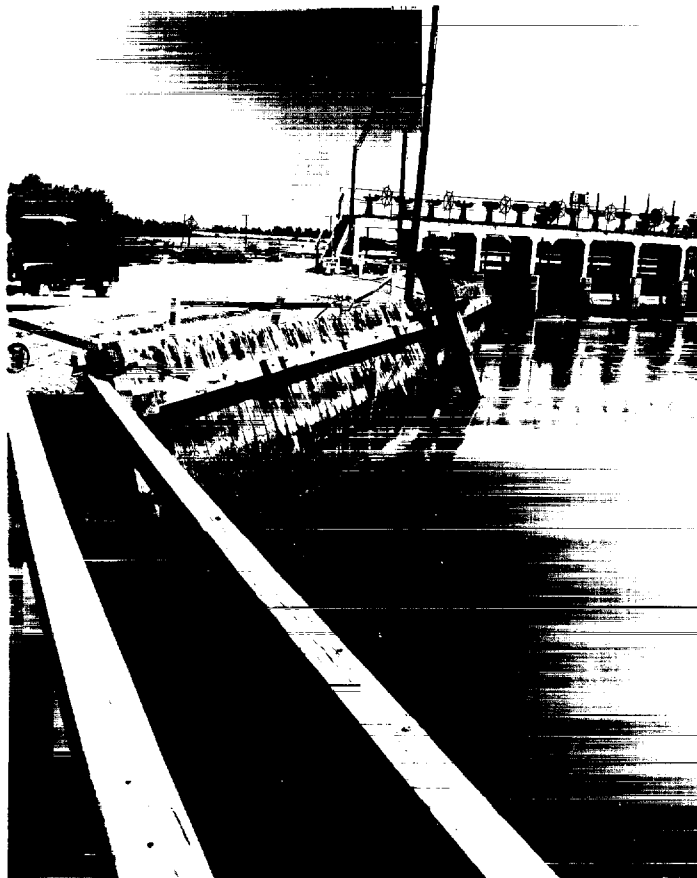


"Earthquakes were big news in Imperial Valley... .." At left is typical damage to building arcades at Calipatria, California, center of damage area.



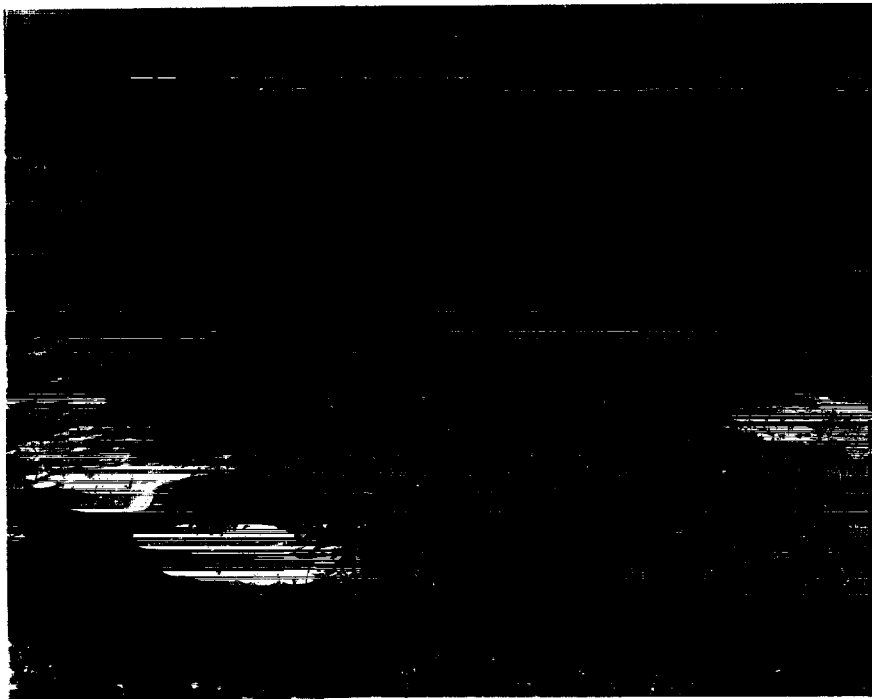
Earthquake disturbances left cracks which spider-webbed roads and canal banks in the north central portion of the Valley.

The Valley's North
End Dam structure re-
ceived a brisk shak-
ing by quakes which
damaged approach
buttresses, settled
and shifted the earth
until the hydrograph
instrument leaned
over. Cracks up to
six inches wide opened
in the earth nearby.



At left is wide crack
which ran alongside the Old
Calipatria Highway more than
one-half mile.

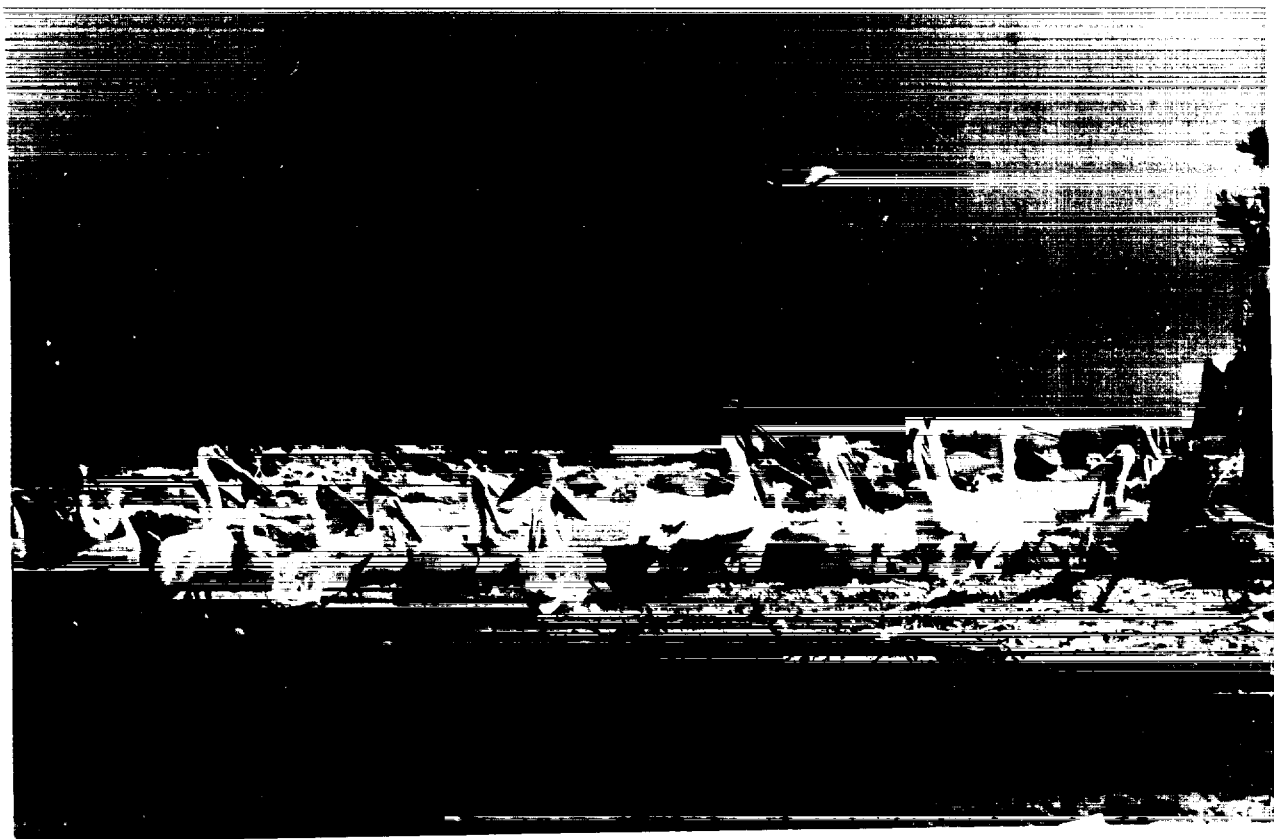
(Photos by Lois Bowden)



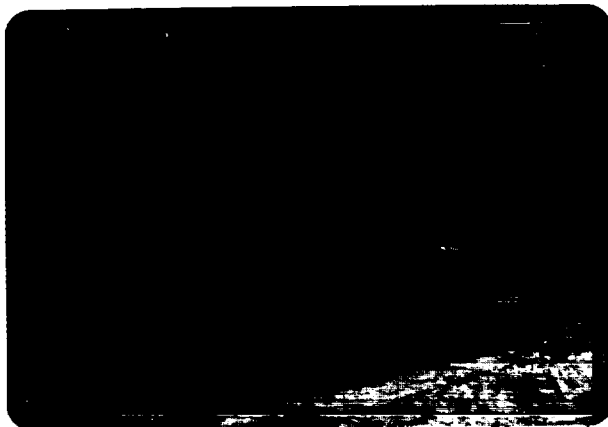
Disturbances of the earth's surface by quakes brought sandy water to the surface over a rather extensive area as shown in this field of downed alfalfa on the W. Lee Johnson place along the Nail Canal.

At right, "sand boils" filled this canal with sandy silt brought up from below the surface along the New River.





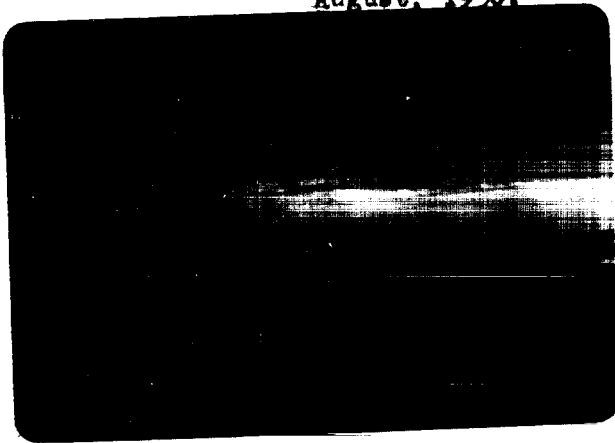
"White pelicans returned to nest again at Salton Sea despite the accelerated human activities and disturbances....."



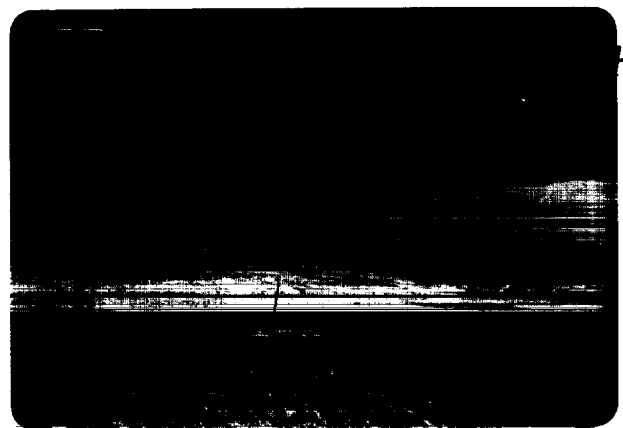
Plowing marked contours preparatory to
bulldozer work on levee. Tract 27, Unit I.
(Oper. C.Stewart, D-6 w/disc plow, Aug. 1950)



Levee construction Tract 27, Unit I
August, 1950.



Tract 24, Unit I contours and
water impoundment for leaching
and soil improvement purposes.
July, 1950



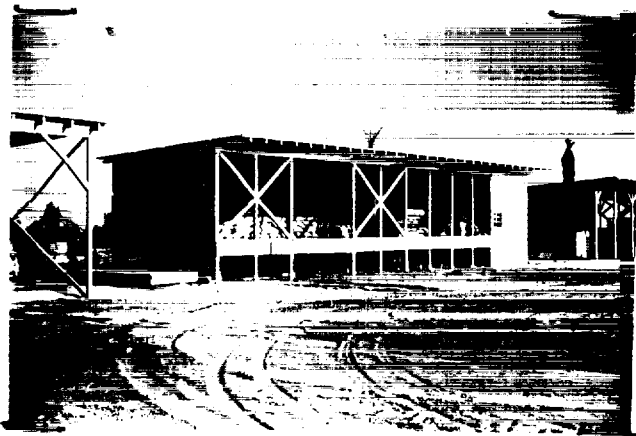
Tract 18, Unit I Salton Sea Refuge
as leveled for new alfalfa crop to
replace abandoned tracts in Unit II.
August, 1950



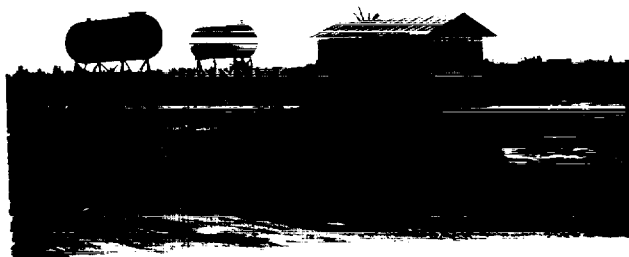
Windrowers in process of cutting
and swathing alfalfa for seed crop.
Tract 4 Unit II. August, 1950



One-man Holland baler in operation Tract
4 Unit II following combine harvesters.
Services share of chaff, one-half, will
be spread over alkali spots to reduce
further surface corrosion and get crop
established. August, 1950.



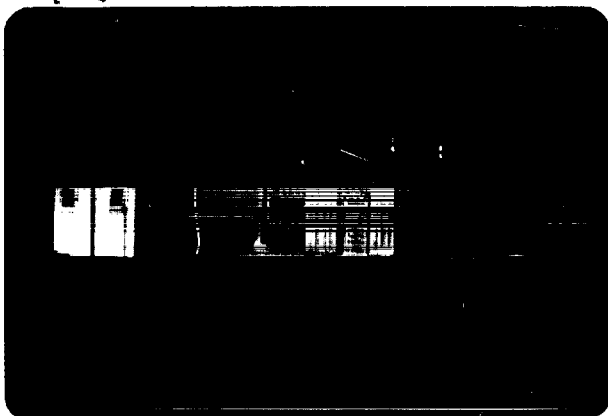
Grain storage shed with irrigation supplies, storage section. Yach slab at left...auto-motive shelter, right. Headquarters, July, 1950.



Overhead fuel storage tanks and oil house which was originally D-7 Caterpillar tractor crate. Headquarters Unit I, July, 1950.



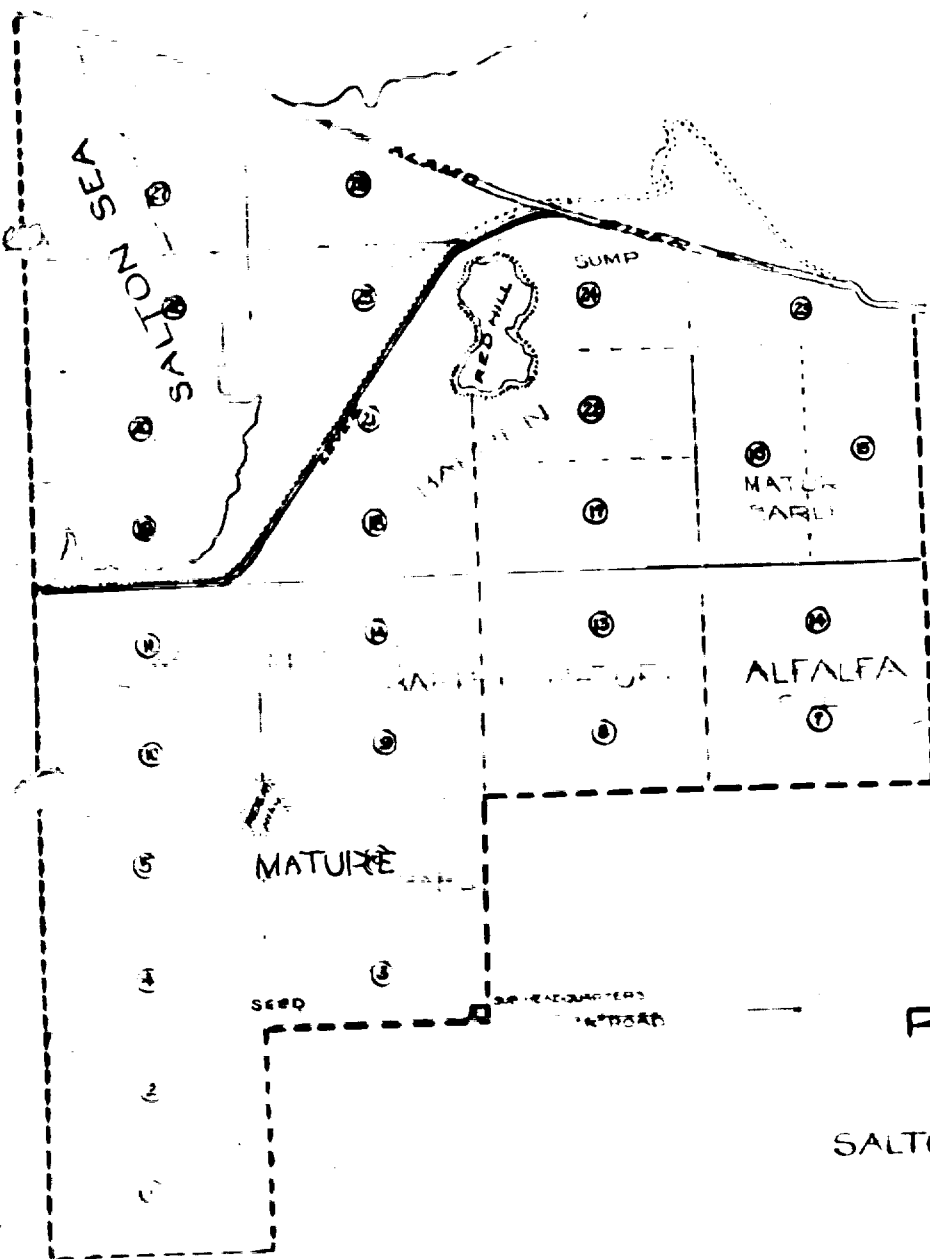
Office building, headquarters, Unit I July, 1950.



Combination restroom-generator house
and 24 x 40 foot Butler-Built Aluminum
Service Building. Headquarters, Unit I,
July, 1950.

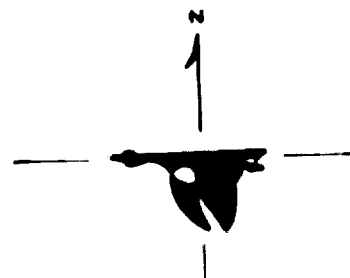


Residence house under construction.
Structure consists of used, salvaged lumber
obtained from Corps of Engineers, U.S. Army,
Los Angeles. Subheadquarters, Unit II, July,
1950.



ACREAGES - AUG

ALFALFA
MATURE BARLEY
FALLOW
MATURE



PROGRESS MAP
UNIT 2
DEVELOPEMENT AREA
SALTON SEA NATL. WILDLIFE REFUGE

1 INCH = 1000 FEET

