SALTON SEA NATIONAL WILDLIFE REFUGE
AND
WATERFOWL DEVELOPEMENT AREA

REFUGE COPY

Stewart C.W.
Hall
Wesley W.W.
McFarland A.W.

NARRATIVE REPORT

May, June, July, August, 1948

--- Regular Personnel ---

Edward J. O'Neill....Refuge Manager
James H. Hall.....Foreman-Farm Operations
Will T. Wesley.....Refuge Maintenance Man
Clyde W. Stewart.....Tractor Opera tor
Alfred W. McFarland..Tractor Operator

--- Temporary Personnel ---

Joseph V. Collins....Laborer
George A. McLean.....Carpenter
C. Fearez.....Laborer
Vicente Rameno.....Laborer
Inez Bmagarito.....Laborer

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

NARRATIVE REPORT

1. GENERAL CONDITIONS.

A. Weather Conditions.

Temperatures steadily climbed as the summer months advanced. By the end of the period a high of 119 degrees had been witnessed several times.

The first rain of the period fell in the form of a light sprinkle June 2, barely wetting the paved roads.

On June 6th 0.52 inches of precipitation fell in the desert area south of the Salton Sea and in the surrounding hills. The storm was of a local nature and very little reached the refuge or developement area. Again in mid-July rains came to the area, however the precipitation was so light that gauges did not even register the amount. In many neighboring sections upwards of 4 inches precipitation was received.

In typical desert fashion Coachella Valley was deluged with a 2½ inch fall in less than three hours. Following the rains gaping, "bottomless" cracks were noticed in the earth where much of the runoff had been absorbed. Some of the cracks were as much as 10 feet wide and 20 feet deep running in a variety of patterns. One passing under the all American Canal was promptly filled in with bulldozers.

Engineers on the spot suspected an earthquake fault line in the area when they recently noticed their drills behaved oddly while drilling wells. Others speculated on lurch cracks due to land settling because of the lowering of the water table.

Tabulated below is the local weather data as compiled at the U. S. Naval Air Base near El Centro, California.

MONTH	TEMPERATURES MAXIMUM	TEMPERATURES MINIMUM	CLOUDY DAYS	PRECIPITATION
May	105°	51°	1 partly	0.00 (inches)
June	115°	57°	2 "	0.52 "
July	114°	71°	3	0.00
August	119°	71°	0	0.00
TOTALS.....			6	0.52

During May six bad windy days occured, two of which rendered tractor operation all but impossible due to dusty conditions. Desert silt-laden air nearly obscured the sun each time as strong winds ripped at the surrounding country.

Throughout the summer a known total of seven persons including desert wanderers, "wet" Mexicans, laborers and two farmers died of exposure to the high temperatures or lack of water.

B. Weather Conditions.

The muddy New River continues in it's newly created course through the north portion of the refuge developement area where some two sections of land have become inundated. Often on windy days, the Salton Seablocked the river delta and caused water to back a quarter of a mile over some of the land farmed last year.

The silting problem which has been of prime interest to the Imperial Irrigation District, guardian of rivers and drainage in Imperial Valley, has been satisfactory. The crystal clear waters passing out of the flooded area would indicate that a "heavy" silt load is being deposited on the low land.

The old, abandoned river channel to the north continues to carry about one-third of the New River stream to the old choked-up river delta and no dredge work has been undertaken to date to cut the proposed channel cut into deeper water.

Since April 16 of the previous period, when the New River was turned into the refuge developement area, cattail (Typha L.), and tamarix growths have flourished. Some bulrush (Scirpus p.), has invaded the area but the species never appears to reach an established stage before invading tamarix and cattail dominate it.

Under intense valley irrigation with periodic rises and drops in the sea itself, due to infrequent floods and evaporation, increasing salinity, etc it is doubtful if the uncontrolled natural areas will ever become desirably vegetatively established.

C. Fires.

There were no fires detrimental to property or wildlife witnessed on the area throughout the period. Often large acreages of cattail growths along drainages were set afire by farmers to eliminate a close roost for the hundreds of thousands of unpopular blackbirds which winter in the area. Burning along the drains is a regular part of the operations of the irrigation company to keep the drains and canals free of obstruction.

II. WILDLIFE

A. MIGRATORY BIRDS.

1. Population And Behavior.

Just as many of the Imperial Valley residents packed and left for the summer months, so did the waterfowl population .

Mallards, Baldpates, Green-winged Teal and Pintails all decreased in numbers until the last of May, while Shovellers, Cinnamon Teal and Fulvous Tree Ducks moved in apparently for the summer months.

During May the duck population averaged about 250 individuals. In June there were 70; July, an average of 180 and in the first week of August Pintails began to show up again. Each successive weekly count for August almost trippled the figure of the previous week. At the end of the month some 5150 Pintails were present on the developement area. The early arrivals were approximately 90% males but frequent observation indicated that the females were rapidly arriving toward the end of the period. At first the Pintails preferred leaching fields and irrigated areas over the valley to the Salton sea or the refuge cropped areas. They could be found almost anywhere throughout the valley where there was shallow water.

Green-winged Teal likewise moved in in early August. The first group of 20 were here the 7th of the month. The last of the period saw 300 individuals.

A few Baldpates like the little Green-wings showed up during August and by the last of the month at least 80 were on the units.

The erratic Redhead disregarded the seasonal factor entirely. At the first of the period it was surprising to note that 2 were present so late in the season. None could be found during the next three weeks until June 20th when 16 showed up. On June 27th we found 7 males and 2 females. The numbers swelled until July 26th when a peak of 120 were counted. The sex ratio was precisely the same (7-2). At this time we were surprised indeed, to find them in courtship flights and activities. The following day we observed copulation a number of times. After July the group disappeared with six returning to the area. The real surprise came however when a female with 2 ducklings emerged from one of the flooded tracts on July 31. This female and her small brood were seen twice the following week but never since then have they returned to the open water units.

Cinnamon Teal were relatively steady in population during the summer months with an average of about 60 present throughout.

Mallards were rather low in numbers compared with the pintail and Green-winged Teal during the August influx, however their increase on the area was very prominent, with a jump from 10 the 25th of July to 120 the last of the period.

Ruddy ducks were consistent in numbers, there being an average of about 20 throughout.

Two Scaup Ducks remained here until June 12th.

The Fulvous Tree Duck present since the previous period, increased to 30 birds by the end of June and reached a peak of 80 by July 26th afterwhich they completely disappeared from the area. Six of the "squealers" were seen the last day of July. Later, August 11th, a few were heard at night by Mr. Wesley of the refuge staff but no positive observation was made later than that date, representing a southland departure of almost one month earlier than last year.

All time available was put into an attempt to locate any juvenile tree ducks that might have been hatched on the area. Our searching and tramping of the birds haunts never were rewarded but from Mr. Laurence Bubbe of the State Shooting Grounds at Calapatria, we learned that broods of these "pato silvon" were seen this year along the Alamo River.

Nesting Activities.

Waterfowl did not nest extensively at Salton Sea. Only species present on the developement area in appreciable numbers throughout the season were Cinnamon Teal, Coot, Fulvous Tree Duck, Pintail and Ruddy Duck.

Five Cinnamon Teal nests were observed. Bermuda grass (Cynodon d.), on ditch banks and contour borders was the preferred cover. Eggs were laid from about June 8th to July 18th. Seven eggs was the average clutch but none reached the hatching stage due to predation by skunk, raccoon and bobcat. At no time were broods of Cinnamons observed on the area.

Four Pintail nests were observed. The first, on June 20th was found in tamarix and Bermuda grass which proved to be the preferred cover. Eggs were laid from about June 10th to about July 23rd and 5 eggs represented the average clutch. No eggs reached the hatching stage for this species either due to predation and at no time were broods observed on the area.

Close observations on coots were not made, There was a total of 18 nests observed with a known 8 nests lost due to predation and flooding. Five broods were seen on the area from time to time.

No Ruddy Duck nests were located but on August 9th a pair emerged from one of the units with a week-old breed of 5.

No data was obtained on the afore-mentioned Redhead and it's nesting activities.

Mourning Doves continued nesting through the summer months. During June the writer watched a dove successfully bluff a small bull snake away from her two newly born squabs by flapping her wings. Despite three returns to the ground nest and repeated striking and bluffing on the part of the snake, the parent dove stood over the young and refused to leave.

White-winged Doves came to the general area in great numbers during the first half of May. On the 26th of that month the first nests were located in Eucalyptus trees. By the last of the period most white-wings were gone from this area migration probably having started sometime in late July when the first population decreases were noticed. Several squabs were captured and banded at the nest.

2. Marsh And Water Birds.

In mid-July a group of 15 Wood Ibis, migrants from the south, came to the refuge. The 25th day of the month there were 250 in a flooded field near Calipatria and three days later the writer observed from the air an estimated 1700 between Calipatria and Westmorland, California. Perhaps 25 per cent of them were immature birds. An average of 60 used the refuge development area continuously but it was not uncommon to find several hundred roosting in large Athel trees (Tamarix a.), with American and Brewster's egrets. The main interest of the Ibis hereabouts appears to be the leaching and flooded fields which are always occupied.

Anthony's Green Heron was the only representative of it's group which nested on the area, cattail being the preferred cover for two nests observed.

June 6th broods of Florida Gallinue were observed, 3 chicks being the average brood. This species preferred the densely covered drain ditches just west of the refuge area for it's habitat and at no time were nests located.

Both Clapper and Sora rails were seen and heard often but no young were found.

3. Shorebirds, Gulls And Terns.

Killdeers and Black-necked Stilts were the only known nesting shorebirds in the area. Stilt nests were common everywhere on the flooded tracts and the height of nesting came during early July. Of 161 nests counted only 6 young were later seen.

The last of the Avocets left June 20th but returned on the southward migration in mid-July.

A few Ring-billed gulls were here the third week of July. By this time Dowitchers, Sandpipers, Yellowlegs and even Wilson's Snipe were

present. A flight over the Salton Sea and adjoining Valley disclosed that there were countless hundreds of thousands of shorebirds swarmed over the shallow shoreline fringe during the latter part of July.

Common Terns nested on the area and in all probability the Gull-billed terns seen almost daily likewise nested on the small sandy islands out in the Salton Sea, however we were unable to return to the sea and visit the nesting sites.

4. Food And Cover.

Food and cover was substantially as reported in the previous period. Beautiful, luxuriant growths of Horned pondweed (Zannichillia), and Widgeon grass (Ruppia m.) were greatly handicapped and mostly eliminated by dense growths of algae in the water.

5. Diseases.

No known disease among birds in the general vicinity.

B. Upland Game Birds.

1. Population And Behavior.

California Valley Quail nested on the area during the period. On May 13th the first brood of 10 week-old chicks was observed.

On the 27th of May a "new" brood of 4 young was discovered. During June the first and only nest site was located in a Screwbean (Strombocarpa) thicket near the east boundary canal. Eight egg caps were found indicating the hatch to be successful.

In July 4 more broods were located bringing a total of some 48 young quail observed during May, June and July. Eleven young was the largest brood recorded. Four chicks represented the smallest. The average brood was 6.8 chicks. Survival was very good, 3 being the greatest reduction of any brood watched.

Pheasants, not unlike ducks and perhaps the stilts, on the area suffered from heavy predation. Only one known hen with a single chick survived the season. The first nest of the season with 13 eggs was discovered by Mr. Collins of the refuge staff, on May 1st. The last known nesting was a freshly broken up nest of two eggs found by Mr. Hall in the north portion of Section 27. A total of 37 pheasant eggs were recorded in seven nests located. The raccoon was credited with most of the nest predation. By the last of August pheasants were again in groups. Farmers reported a number of cut-over nests in June alfalfa and flax fields.

2. Food And Cover.

No change over previous period. Ample food for the population.

C. Big Game Animals.

1. Population And Behavior.

No big game animals on the area.

Since coming to this area the writer has been told by several interested people that there are Big Horn Sheep in the nearby Chocolate range of mountains. One individual who flew over the area in early August reported that he observed two groups of sheep comprising a total of 13 head.

D. Fur Animals, Predators, Rodents And Other Mammals.

Both Jaok Rabbits and Cottontails appear to be enjoying an upswing in the population curve. Cottontails at least have more than doubled in population since last year.

E. Fish.

Abundant carp continue to inhabit the fields and areas flooded recently by the New River.

III. REFUGE DEVELOPEMENT AND MAINTENANCE.

A. Physical Developements.

With the refusal of the Imperial Irrigation District to sell land to the Se-z-vice the planned permanent headquarters area was abandoned. A struoture and improvement removal permit was obtained from the irrigatio company, from which all developement lands are leased, and during the period work started on a temporary headquartera. Building sections for a 10 by 20 foot structure originally used at Tule Lake Refuge were brought in from Sacramento Refuge to serve as an office.

Due to the high water table on the developement area the headquarters site was raised some 14 inches with soil brought in by tractor and carry-all.

Two miles of new irrigation and drain ditch were constructed in Section 26. Six miles of irrigation ditch was repaired, ripraped in places with willows and planted to Bermuda grass during the summer.

5. Cultivated Crops.

During the period 250 acres of land was double disced, floated, bordered, provided with irrigation boxes and checks and planted to Milo Maize. The crop was irrigated three times. At the last of the period the eastern half of the crop was making good growth gains and blackbirds hadnot started on the field although they were congregating in the nearby watergrass fields daily. The milo on the western half of the plot was so poor that the ground was deep chiseled and worked preparitory to planting a winter barley crop.

Due to the heavy work load and lateness of drying up some of the areas coupled with the shortage of heavy equipment, Wild Millet (Echinochloa) wasnot planted until July and part of the crop didnot get flooded until mid-August when Pintails were arriving. As the last three units of Section 27 were flooded it is believed most of the seed was taken by Pintails. At this writing however most of the crop is making excellent gains.

The 400 acres of barley planted for dry feed last winter was reduced greatly by the New River floodwaters. In the Section 13 area barley yielded a fair crop throughout and taking all the the barley on the development area as a whole the average yield was estimated to be about 35 bushels per acre.

Some 80 acres of land was prepared and seeded to Seebania and irrigated 4 times for the purpose of obtaining sufficient seed to rotate and build up nirtogen delpeted lands where milo was planted.

During the month of August approximately 45 acres of alfalfa land was prepared by discing and floating and an eighty of land was nearing completion of work for berseem clover and barley by r moving the contour borders, double discing, floating, chizzling, building flood borders and providing irrigation and drain ditches.

6. Collections.

No collections made during the period.

IV. PUBLIC RELATIONS

1. Recreational Uses.

No recreational facillities exist on the area.

A total of 6 visitors came to the area during the summer months.

On August 9th the Service Film Upper Souris Refuge was shown to 56 members of the Orange County National Audeben Society Club in connection with a lecture on the Salton Sea Refuge and other bird sanctuaries. During the same week the reel was shown to some 70 individuals at Westmorland and Brawley, California.

E. Official Visitors.

Name	Date	Time Spent	Purpose of Visit
Byron Walker Imperial I. Dist. Westmorland, Cal.	6/22	1½ hrs	Survey of ditch, etc.
Waldemar Rehm Sacramento Ref. Willows, Cal	7/13	1 hr	Unload building sections
A. F. MacDonald R.O.-Portland	7/21 7/22	2 hrs 5 hrs	General Inspection tour.

F. Violations.

No violations during the period.

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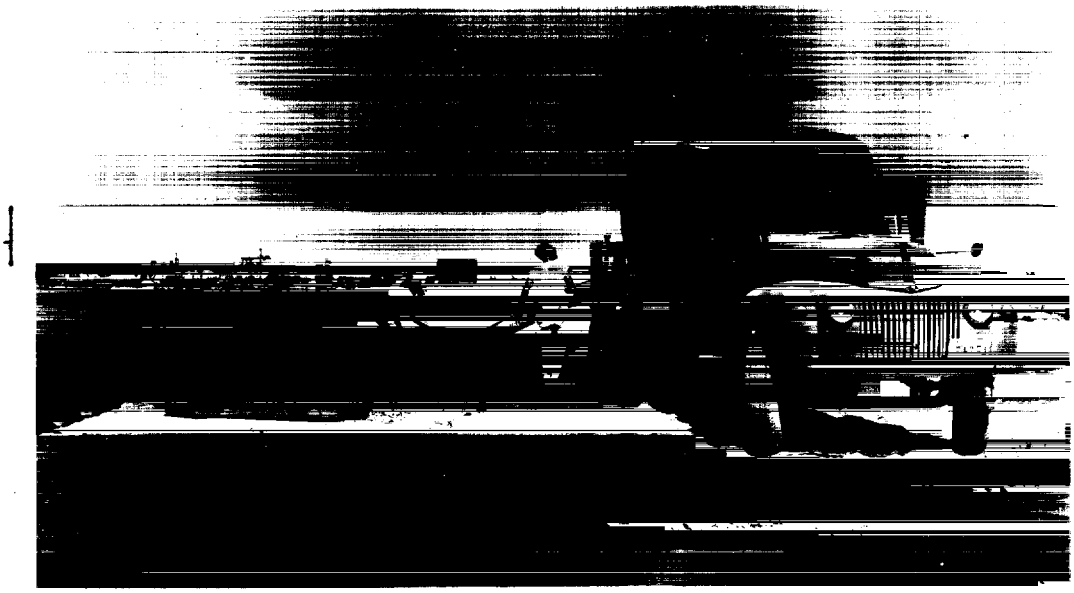
Date: September 19, 1942

Report By: Edward J. O'Neill
Refuge Manager

Approved by: _____



Pouring cement foundation for office building. (8-13-48).
(Hall - McLean)

Assembling office building sections on cement foundation. (8-20-48)
(Wesley - McLean - Hall)

Barley in the Sec 13 tracts yielded an estimated 40 bushels per acre.
8-26-48 (McFarland).

Regular personnel. 9-7-48
Wesley, Hall, McFarland, Stewart, O'Neill

September 19, 1948

QUARTERLY GRAIN REPORT

Station Salton Sea Refuge & Dev. Area Period May - August, 1948

Variety	On Hand Beginning of Period	Received During Period	Grains Disposed of: Transferred	Seeded	Fed	Total	On Hand End of Period	Proposed Use: Seeds	Feed	Surplus
Barley	1600						1600	X		
Milo		40		30			10	X		
Berseem		2					2	X		
Wild Millet	10,000lbs	400lbs		8,000lbs			2400	X		

1. Indicate shipping or collection points Westmorland, California

2. Grain is stored at Property of Mr. James H. Hall, Westmorland, California

3. Remarks

Approved By:

Regional Director

Submitted by:
Edward J. O'Neill
Refuge Manager

Signature & Title

WATERFOWL

Refuge Salton Sea Refuge & Dev. Area Months of May to August, 1948

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for Period
I. Swans:									
Whistling swan									
II. Geese:									
Canada goose									
Cackling goose									
Brant									
White-fronted goose									
Snow goose									
Blue goose									
III. Ducks:									
Mallard	Prev. period		180	8/27					800
Black duck									
Gadwall									
Baldpate	"	"	80	8/27					150
Pintail	"	"	5,150	8/28					7000
Green-winged teal	"	"	300	8/28					300
Blue-winged teal									
Cinnamon teal	"	"	70	7/18					70
Shoveller	"	"	40	5/15					40
Wood duck									
Redhead	"	"	180	7/26			1	1	150
Ring-necked duck									
Canvas-back									
Scaup	"	"	2		2	7/12			10
Golden-eye									
Buffle-head									
Ruddy duck	1	8/7	1		1	8/7 (Dead)			1
	Prev. period		80	7/11			1	5	100
IV. Coot:	"	"	300	8/28			5	20	500

3-1750
(July 1946)

(over)

Form NR-1

SUMMARIES

Total Production:

Geese _____

Ducks 2 broods

Coots 5 broods

Total waterfowl usage during period [illegible] _____

Peak waterfowl numbers 4265

Areas used by concentrations flooded portion Gov. area & Drain ditches.

Principal nesting areas this season _____

Reported by Edward J. O'Neill
Refuge Manager

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 Concentrations: 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.

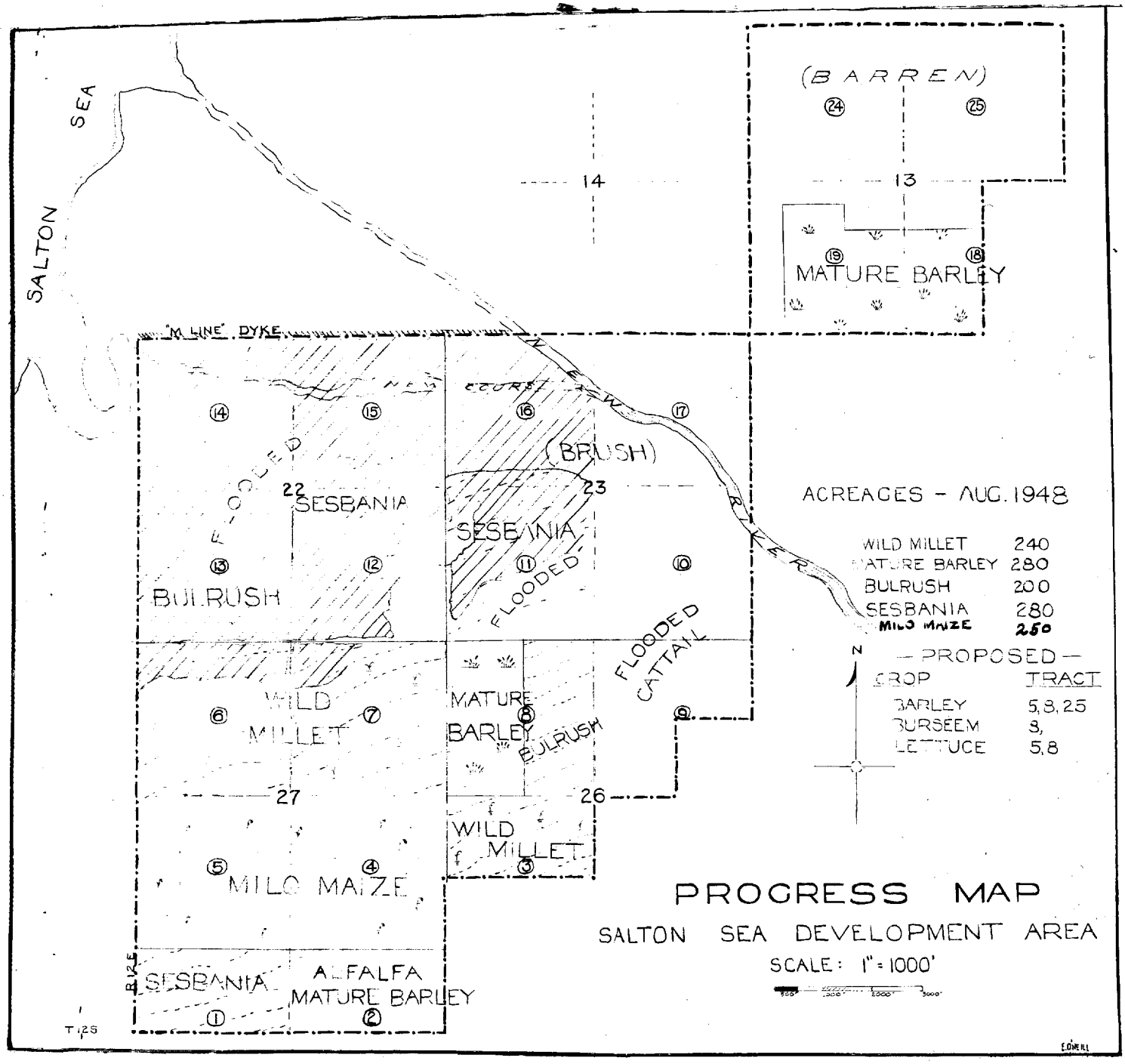
Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

2338

MIGRATORY BIRDS
(other than waterfowl)

Refuge... [illegible] Refuge ... Area, ... Months of ... May ..... to August 1948

Species	First Seen		Peak Numbers		Last Seen		Production			Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe	previous period									
Western "										
Pied-billed Grebe	"	"	11	7/25						100
White Pelican	"	"	125	5/19						500
Double-cr. Cormorant	"	"	30	7/3			2	30	unknown	200
Gr. Blue Heron	"	"	9	5/8						20
Glossy Ibis	"	"	28	5/29						300
Wood Ibis	1	7/11	250	7/25						1700
Am. Egret	prev.	period	34	7/12						100
Brewster's Egret	"	"	40	5/15						80
Am. Bittern										
II. Shorebirds, Gulls and Terns:										
Wilson's Snipe										
Willet										
Gr. Yellowlegs										
Lesser "	40	7/25	40							100
Baird's Sandpiper										
Dowitcher										
Western "										
Am. Avocet										
Wilson's Phalarope										
Black-necked Stilt	Prev.	period	250	5/14				161	6	1000


SALTON SEA
(BARREN)
24
25
14
13
19
MATURE BARLEY
18
"M LINE" DYKE
NEW COURSE
17
16
15
14
(BRUSH)
22
SESBANIA
23
SESBANIA
FLOODED
13
12
11
10
BULRUSH
FLOODED
CATTAIL
WILD MILLET
7
6
MATURE BARLEY
8
9
BULRUSH
27
26
WILD MILLET
3
5
4
MILO MAIZE
SESBANIA
ALFALFA
MATURE BARLEY
1
2
T.12S
R.12E
ACREAGES - AUG. 1948
WILD MILLET 240
MATURE BARLEY 280
BULRUSH 200
SESBANIA 280
MILO MAIZE 250
N
— PROPOSED —
CROP TRACT
BARLEY 5, 8, 25
BURSEEM 8,
LETTUCE 5, 8
PROGRESS MAP
SALTON SEA DEVELOPMENT AREA
SCALE: 1" = 1000'
E.O.NERI