

BRANCH OF WILDLIFE REFUGES

Narrative Report Routing Slip

Date Sept. 15 , 1953

~~Mr. Salyer~~

~~Mr. DuMont~~ PAD

~~Mr. Krueger~~

~~Miss Baum~~

Section of Operations

~~Mr. Bell~~

~~Mr. Worley~~ LCM

~~Mr. Regan~~ WJR

Section of Habitat Improvement

~~Mr. Griffith~~ WJR

~~Mr. Kubichek~~

~~Mr. Bourn~~ WJB

~~Mr. Stiles~~ WBS

Section of Land Management

~~Mr. Ackerkascht~~ WJR

~~Mr. Levin~~ WJR

Stenographers

Refuge UNION SLOUGH

Period May-August 1953

Union Slough National Wildlife Refuge

Narrative Report

May - August 1953

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Union Slough National Wildlife Refuge

Narrative Report

May, June, July, & August 1953

I. General.A. Weather Conditions.

The following is a summary of the weather data as reported by the Official Weather Bureau Station in Algona, Iowa, located 15 miles south and west of the Refuge.

1953

	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
May	1.98	89	29
June	5.55	97	45
July	3.84	91	53
August	4.15	98	55
	<u>15.52</u> Extreme	<u>98</u>	<u>29</u>

1952

	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
May	3.47	89	50
June	5.06	94	45
July	4.82	98	48
August	1.53	86	48
	<u>14.88</u> Extreme	<u>98</u>	<u>45</u>

In general, for the period ther rainfall was 0.06 inches above the normal rainfall, and 0.70 inches more than for the same period of last year. The rainfall for May was -2.14 inches, June +1.27, July +0.73 and August +0.08. During August 1 and 2, 3.44 inches of rain occurred and 0.75 inches more occurred by August 16. Since that date no rain has occurred with the temperature very hot with drought conditions. May temperatures was somewhat to one extreme to another. The maximum was 89 degrees and the minimum temperature was 29 degrees on May 13. July and August has had longer periods of hot weather than any time for the past 10 years. However, this type of weather has been most ideal for agriculture crops.

Several hail storms have occurred in the area, but none occurred at the refuge to cause noticeable damage.

One wind storm occurred that blew over farm buildings, but did not hit the refuge.

B. Water Conditions.

The approved water management plan was approved to maintain the water levels at 1124.5 or 6.50 ft. for Smiths Pool, C & D Pools. Lowes Pool (A) 1125.0 or 7 ft. by gage until mid June and recede to 1123.0 ft. for seeding of millet and then raised back to 1125.0 ft. the first part of September.

The following is the maximum and minimum gage readings for each pool for the period.

	Lowes Pool (A)		Smiths Pool (B)		Pool (C)		Pool (D)	
	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>
May	8.40	7.00	6.68	6.50	6.64	6.50	6.62	6.50
June	7.20	4.98	6.54	6.50	6.52	6.50	6.50	6.50
July	8.02	5.00	6.52	6.50	6.50	6.50	6.50	6.50
August	7.90	5.00	6.50	6.30	6.50	6.24	6.50	6.20

The water levels remained near the desired elevation throughout the period, except Lowes Pool which had a sharp rise the last part of July and did not recede until August 4. This was due to a heavy rainfall east of the Refuge. The heavy flow came down Buffalo Creek and raised the water in Lowes Pool. The radial gates was open prior to the rain as the water was being held down for the growing millet. All pools have receded 0.20 to 0.30 during the last part of August, as the rainfall has been below normal and the temperature much warmer and with the growing plant life the evaporation has been greater.

C. Fires.

None this period.

II. Wildlife.

A. Migratory Birds.

1. Population and Behavior
- a. Waterfowl.

At the start of this period the largest part of the spring migration of waterfowl had moved on north. However, two mixed

flocks of snow and blue geese were observed the first week of May flying high over the refuge heading northward. Also, a few shovellers and gadwell moved on during the first part of May.

This year has been another good nesting season here at Union Slough. The nesting increased 59 per-cent over that of the year 1952. Blue-wing teal was the peak nesters and the others as listed; mallard, pintail, gadwell, black-duck, shoveller, and ruddy. No wood-ducks were observed nesting, the first woodduck observed on the refuge was July 1. The refuge must have appealed to the coots this year as 974 broods were observed. The marsh areas provided ideal cover of their likings.

In general, the number per brood was somewhat small this year, but the number of broods present gave a much larger population than last year.

The blue-wing teal nest gave an ideal picture of their nesting this season. 18 nests were located in all, 12 of which was located in the alfalfa hay field when the hay was harvested in the first part of June. Not a single duck was injured by the hay harvesting. Flushing bars was used to flush the old ducks and the nests was located before the mower destroyed them. A watch was kept on the nest after they were located. Two was destroyed by predators and 9 hatched safely and the other one the out come is not known as a few days elapsed between visits and two unfertal eggs remained in the nest and the other five eggs were gone, giving no sign of hatch or of being carried away by predators. These 12 nests were found in 55 acres of hay land which was 4.68 acres per nest. The other 6 nests were found while spraying thistles in grazing areas. Five of these nest was successful and predators destroyed one. If we use the 4.68 acres per nest and a total of 855 acres of hay and grazing land there would be 170 teal nest. However this does not include the acreage of nesting cover along the shores of the pools, muskrat houses or drainage ditch banks that provide nesting sites. No other species of waterfowl nest was found in the hay fields. The mallard and pintail nests was in grazing areas and ditch banks. The reason believed for the mallards and pintails not nesting in the hay fields was that the hay was not advanced far enough for cover when they started nesting.

Broods were common throughout the refuge except in Lowes pool. But the greater per-cent was in pools C & D.

Three broods of ruddy ducks was observed which is the largest number to date.

By the close of this period the broods have most all concentrated together getting ready for the fall movement.

It is regretted that time does not permit more research of the nesting waterfowl on the refuge.

On the following page is a table indicating the number of broods, average number per brood and total number by species. As to date, no evidence of all migration of waterfowl from the north has been observed.

B. Other Waterfowl.

Great Blue Heron are present in number equal to that of last year and have been present on the refuge the entire period .

American Eagrets was first observed in mid May and have been here the entire period with the largest number in August.

Black Crown Night Heron and Bittern are present, but in no large numbers.

C. Shorebirds.

No large number of shorebirds have been observed this period, a few Lessor yellow legs spotted sand piper and upland plover was observed during August. Two broods of Wilson snipe was observed this period for the first being raised on the refuge. Also, three broods of Florida Gallinule was observed. Kill-deere and mourning doves are present in about the same number as last year.

2. Food and Cover.

The food and cover is again excellant this year with sago-pond weed and duck weed in abundant throughout the refuge, except, Lowes Pool in which sago has shown a good come back. The shore areas are dominated with duck potato, smart-weed, rice, cut grass, and millet. We have established approximately 7 acres of duck potato in the north part of Smiths pool (B) Pool (C) & (D) are well established with bull-rush and in the open areas sago and duck weed.

1953

Table of Brood Counts.

<u>Species</u>	<u>No. of Broods</u>	<u>Ave. No. Per Brood</u>	<u>Total Young</u>
Mallard	91	5.7	518
Black-Duck	3	3.6	10
Gadwell	6	4.2	25
Pintail	81	5.9	477
B. W. Teal	143	7.1	1015
Shoveller	2	4.8	9
Woodduck	0	0	0
Ruddy duck	3	5.1	15
Grand total	329	5.2	2,069.

1952

Mallard	82	6.5	533
Black Duck	5	4.3	21
Pintail	78	6.8	530
B. W. Teal	93	7.3	679
Shoveller	11	5.2	57
Woodduck	23	8.4	193
Grand total	292	6.6	2,013

1953

Table of Brood Counts For Coots.

<u>Species</u>			
Coot	645	4.3	2,873

1952

Coot	166	5.8	985
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The corn on the agriculture Units is again this year an abundant crop and with no danger of frost damage.

3. Botulism.

None observed this period.

4. Lead Poison and Other Diseases.

None observed this period.

B. Upland Game Birds.

1. Population and Behavior.

The ring-necked pheasant is the only abundant upland game bird of the refuge. The carry over of breeding stock was large again this spring, nesting was under way in April and even at the close of this period young birds are observed one to two weeks of age. By all indications the pheasants have done all right for themselves. One pure white pheasant was observed in a brood which was about one half matured.

Hungarian Partridge are present in no large numbers. They seem to build up on the refuge during the winter months and are seldom seen during the summer.

2. Food and Cover.

The food and cover is again excellent this year and is believed to be the best in the state. As we have the largest winter concentration of pheasant of any place in the State of Iowa.

C. Big Game Animals.

White tail deer are the only big game animals observed on the refuge. During January, February and March 35 deer was counted compared to 30 for the same period of 1952. The largest concentration of deer is during the months mentioned above. They have set up a winter yard on the extreme south end of the refuge in the Buffalo Creek area, as this is the area which has the most deer habitat. During the early spring they migrate down the Buffalo Creek south to the Des Moines River bottoms which is their summer range. However, a few remain on the refuge during fawning time. During this period 8 fawns were observed.

The State of Iowa has set an open hunting season for deer from December 10 to 14. The State estimates 200 deer in this county which has a total acreage of 670,720. This will be the first deer hunting season in 75 years. 20,000 license is to be issued at \$15.00 each to residents only. Land owners or tenants and families residing on the land are exempt from licenses, also, men in the armed forces, and people receiving old age assistance.

D. Fur Animals, Predators, Rodents and Mammals.

1. Muskrats.

The muskrat population appears to abundant this period, they have ideal conditions for reproduction, many young rats are observed in the evening feeding in the marshes. If the population holds up to this fall we should be able to harvest around 4,000 pelts. Last trapping season was the first time we have had a fur harvesting program since 1944. By flooding the last two pools it has given them a good habitat and increased the population very rapidly .

2. Beaver.

Beaver are present, but do not show much change from last year.

3. Mink.

Mink are present in small numbers and not plentiful enough to create much damage.

4. Raccoon.

By observation the raccoon population on the refuge is the lowest in three years. However, the farmers living along the creeks and river away from the refuge are having their trouble with them in the sweet corn field and domestic poultry roosts.

5. Skunks.

None observed on the refuge.

6. Red Fox & Gray Fox.

One red fox was observed this period. Very few foxes stay on the refuge at any time.

7. Rabbits.

Both the cotton-tail and jack rabbit appear to be in number to class as plentiful.

8. Badger.

Badger are present in no large numbers.

9. Squirrels.

The fox squirrels are the only ones present and seldom observed as we do not have sufficient wooded areas as to there liking.

10. Pocket Gopher.

No noticable change in there number.

11. Striped Ground Squirrel.

They are still present in to large a number as it is a known fact they destroy more corn than the pheasants at corn planting time.

12. Franklin Gray Squirrel.

They are seldom observed.

E. Predacious Birds.

Very few crows are observed on the Refuge.

Hawks are seldom observed on the refuge only during migration periods.

F. Fish.

The game fish population appear to be in number equal to that of last year, but the weather has been very hot and the water areas shallow. The fish have not shown to much activity in biting during July and August, prior to that time the fishing was excellant. The game fish consist of northern pike, yellow perch and bullheads. The carp population appears to be in small numbers. It looks like the rough fish control methods are beganing to pay off.

The last part of June, Mr. Sharp and Mr. Howell, from the Regional Office poisoned the Bancroft Gravel Pit with Rotenone, and 3000 lbs. of Buffalo, 1,000 lbs. of carp, and 1,000 small bullheads were removed. The Buffalo was very large in size some of them weighing 20 lbs. There was an abundance of rough fish minnows killed. The pit was cleaned for the restocking of large mouth bass and bluegill combination. Approximately 1,500 bass fingerlings were stocked in July, and the bluegill are slated to arrive in September.

III. Refuge Development and Maintenance.

Conducted sales of Services share of corn remaining in the field. Supervision of seeding, fertilizing and crop rotation of agriculture Units.

Installed rough fish bearier and fish trap after ice broke up and maintained the same.

Made and installed 16 wood-duck nesting boxes, and made periodically check of same.

Made up program and arrangements for all county school children to gather in Burt American Legion Hall as part of their study for conservation work.

Secured nursery stock and planted it at the recreational area.

Made wage survey of area for wage rates.

Seeded and fertilized 30 acres of wildlife area.

Waterfowl census of breeding pair and brood counts throughout the period.

Maintenance of five water control structures reducing excess water.

Sprayed 35 acres of thistles, 4 acres of bruss, cut weeds on dike county roads across refuge and along boundary fences and trails.

Patrol of refuge for illegal fishing and tresspassing cattle.

Removed 350 tons of rock from one farming Unit and repaired north dike.

Purchased and trucked fencing material to building sites.

Built two miles of boundary fence and repaired $3\frac{1}{2}$ miles of fence.

Brushed and cleaned out $1\frac{1}{2}$ miles of boundary fence before new fence was built.

Supervision of sportsmen working at recreational area.

Picked up brick at Fort Dodge, Ia. for fire places at recreational area which was donated by the Vincent Clay Co.

Making recreational area ready for "Kids Fish Day."

Checked on waterfowl nesting and success of nesting after hay was harvested.

Cultivation of nursery stocks.

Issuing grazing permitts and checking cattle.

Amendment to economic use plan for bee keeping and issued permit for the same.

Assisted Mr. Smith, spraying trees and seeding of millet by plane.
 Seeded 100 lbs. of milo for bird food.
 Work program for S. & M. funds, obtaining cost of tile job.
 Placed rock at wing walls of water control structure on
 Governors Grade Road.
 8 hr. removing floating trees from radial gate at Buffalo Creek.
 Kept equipment operating. Janitor work of office and numerous
 errands and chores that appears upon Refuge work.

B. Plantings.

1. Aquatic and Marsh Plants.

700 lbs. of wild millet seed was seeded in Lowes pool
 by the Services plane on July 1. 40% of this seed grew and
 gained a height of about 10 inches by the last of July when
 the largest percent was flooded out by heavy rainfall.

2. Trees and Shrubs.

240 trees and shrubs were planted at the Refuge Recreational
 Area.

3. Upland Herbaceous Plants.

30 acres of sweet clover and brome grass was seeded in
 wildlife cover and eroded grazing areas. The plantings
 have responded well.

4. Cultivated crops.

The Special Use Permits were issued in 1952 for a five
 year period of co-op farming for an improved soils building
 program which calls for crop rotation, grass seeding for
 a one year meadow, 2 year meadow contour farming, and commercial
 fertilizing. The grass seed is 6 lbs. of alfalfa and 6 lbs.
 of brom grass with 250 lbs. of commercial fertilizer per acre for
 a two year meadow and 8 lbs. of red clover, 3 lbs. of timothy
 seed with 250 lbs. of commercial fertilizer for a 1 year meadow.
 The crops this year are 53 acres planted to corn, 55 acres
 seeded to oats accompanied with grass seed and fertilizer for
 a 1 year meadow or green manure crop, 44 acres seeded to oats
 accompanied with grass seed and fertilizer for the two year
 meadows. 55 acres which was seeded last year for a two year
 meadow produced two cuttings of alfalfa hay this year. The
 first cutting produced 1,837 bales. The market price was
 50¢ per bale which was \$918.50 or \$16.70 per acre. The second
 cutting produced 1,667 bales which was 75¢ per bale or \$1,250.25
 which was \$22.73 per acre, total hay crop per acre for the two
 cuttings was \$39.43.

The permittee received all the oats and hay to compensate him for seed, fertilizer, labor and expenses of growing the crops. The Service receives 80% of the corn and the permittee 20%.

The oats was a rather short crop this year, only averaging 25 bu. per acre. This was due to the dry hot spring. The average oats yield in normal years is 60 bu. per acre.

The corn shows the prospect of being an excellent crop again this year, and the largest per-cent is out of frost danger.

C. Collections.

None this period.

D. Receipts of Seed and Nursery Stock.

Nursery stock was purchased for the recreational area.

1. Speciman.

None this period.

IV. Economic Use of Refuge.

A. Grazing.

The grass on the grazing areas are again excellent this year, and will provide enough grass for the cattle and still have plenty remaining for wildlife cover, also, will not affect next years growth. The grazing period is from July 16, to October 31, at the rate of \$1.25 per AUM.

The grazing demand was not as great this year as last, due to the cattle market being down as some of the cattle breeders have cut their herds down.

The following Special Use Permits were issued this period.

<u>Permit No.</u>	<u>Cattle</u> <u>AUM</u>	<u>Total Amount.</u>
U.S. #63	182.83	\$ 228.55
U.S. #64	66.8	83.50
U.S. #65	11.0	13.75
U.S. #67	36.0	45.00
U.S. #68	60.0	75.00
U.S. #69	129.0	161.25
U.S. #70	174.19	217.74
	<u>659.82</u>	<u>\$ 824.79</u>

The total income for the 1952 grazing year was \$1,132.41. However, it is evident that more cattle will come into the refuge before the closing date which will increase the revenue for this year.

B. Haying.

No hay this period only that harvested by co-op farming, reported under cultivated crops.

C. Fur Harvest.

None this period.

D. Other Uses.

Bee keeping was added to the Economic Use this period. Special Use Permit U.S. #66 was issued for 20 stands of bees at 15¢ per stand with a total of \$3.00.

V. Field Investigation or Applied Research.

A. Progress Report.

On May 13, and 14, Mr. Smith, with the Service plane, air sprayed 30 acres of willows and white ash. The willows leaves were about $\frac{1}{2}$ developed and the ash was budding. The kill on willows up to 5 ft. high was 95% and heights above that kill was nil. The ash indicate that they were not sprayed. It is believed that the leaves should be at least one half developed if not, enough spray is not consumed by the tree, as the leaves are too small to gather enough spray. The spray was 2-4 D ester mixed at the rate of 1 gallon to 3 gallons of fuel oil, and applied at the rate of 3.3 lbs. per acre.

It is observed that the spraying of trees by the county along highways in July and August is very effective. I, have also, had good kills with the hand operated sprayer by spraying when the leaves were farther developed, especially in larger trees.

VI. Public Relations.

A. Recreational Uses.

The work on the refuge recreational area located at the Bancroft Gravel Pit, showed much progress this period.

Shrubs and trees were planted, willows cleared, 3 fire places built, 3 picnic tables in place, pump installed, two toilets in place and parking area designated with rocks painted white. The largest credit for the work is due to the Burt Conservation League. The pit is now being stocked with bass and bluegills.

On June 14, the annual "Kids Fish Day," was held, Sponsered by the Burt Conservation League. 455 children entered the contest, prizes consisted from fishing equipment to cash prizes, with a total of 30 prizes being awarded. The sad part was that the fish did not co-operated, only about 100 bullheads were caught, compared to 1,572 last year with only 262 kids fishing. It is the 64 dollar question as to just what happened to the fish that the state put in, as the fish did not show up two weeks later when the area was poisoned to remove all of the fish for the restocking program. A total crowd of 1,450 people were present during the day which is a record crowd for this kind of an event.

During this period 6,000 man hours of fishing has taken place at the refuge on county highways that cross the refuge. It is estimated by spot check that 5,000 northern pike and 3,000 bullheads was taken which was less than last year. The pike population seems to be equal to that of last year, but the blame is placed on the hot weather.

On June 6, Kossuth County Boy Scouts Troops gathered at the recreational area for their field day. There were 72 scouts and 8 leaders, they also, assisted in cleaning up the area.

B. Refuge Visitors.

<u>Name & Address</u>	<u>Date</u>	<u>Time Spent</u>
Mr. Donald Smith, Regional Office	5-7	1 hr.
" " " " "	5-13&14	6 hrs.
Messrs Sharp & Howell, Regional Office	6-4 & 5	10 hrs.
" " " " "	6-30 & 7-1	10 hrs.
Mr. Donald Smith " " Seeding	7-1	3 hrs.
Mr. Harry Maltby, USGMA Des Moines, Ia.	7-24	6 hrs.
Mr. Lund R. O. Administration office	8-6	7 hrs.
Messrs. Mann & Sweny R. O. River Basin	8-24	3 hrs.
Mr. Gillett Regional Office	8-26	4 hrs.

County, State and SCS officials call at the office regular. Many other local residents call at the office.

C. Refuge Participations.

On April 10, 373 county school children were gathered at the Burt American Legion Hall for a follow up of there tour of the refuge last October. The Services films were shown "Haunts For The Hunted," and "bears of Alaska." This is a part of their text study on conservation. A talk was given by the writer on what a refuge is for and how they are developed and maintained. The Burt Conservation League popped corn and presented it to the children.

On April 18, 26 Boy Scouts, of Tropp #50, from Elmore, Minn. was taken on a tour of the refuge.

May 6, 31, school children from Titonka, Ia. was taken on a tour of the refuge relative to our soils and moisture program.

July 11, 14 members of the Grant Township 4-H Club was taken on a tour of the refuge.

The writer attended monthly meetings of the Algona and Burt Conservation Leagues.

July 14, the writer appeared before the Mens Lutheran Club of Titonka, Ia. and gave a talk on Refuge programs.

D. Hunting.

None this period

E. Fishing.

Reported under recreation.

F. Violations.

Mr. Burnie Rueter, was apprehended May 7, fishing in closed area for game fish before the open season, and a set up gun in automobile. The case was taken into State Court for set up gun and he was assessed a fine of \$10.00 and cost of \$3.50.

VII. Other Items.

A. Items of Interest.

None this period.

B. Photographs.

Photographs are in back of report, all negatives are property of the writer.

September 8, 1953

(Date)

Milfred J. Smith
(Signature)

Approved:

LA Janger
Regional Director

Respectfully Submitted

Milfred J. Smith

Refuge Manager

(Title)



Automobiles parked at "Kids Fish Day"





Some of the poisoned buffalo
from the Gravel Pit.



Fishery truck arrives with bass.



Releasing bass

THE INTERIOR

UNITED STATES DEPARTMENT OF THE INTERIOR

IN REPLY REFER TO



County equipment removing rock from Agriculture Unit



"Kids Fish Day"

WATERFOWL

REFUGE

Union Slough

MONTHS OF

May

to

August 31, 19 53

(1) Species Common Name	(2) First Migrants Seen		(3) Peak Concentration		(4) Last Migrants Seen		(5) Young Produced		(6) Total
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total <u>COUNT</u>	Estimated for Period Juveniles Only.
1. <u>Swans:</u> Whistling swan	No fall migration of waterfowl observed this period. A few late spring migrators moved on Northward the first week of this period.								
2. <u>Geese:</u> Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose									
3. <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					Present entire. Bed.....		91 3 6 81 143 2 0 3	518 10 25 477 1,015 9 0 15	700 15 30 500 1,200 12 0 18
4. <u>Coot:</u> 3-1750 (June 1949)							645	2,873	3,500 NR-1

(over)

SUMMARIES

Total Production:

Geese None

Ducks 2,069

Coots 2,873

Total waterfowl usage during period 6.025

Peak waterfowl numbers No noticeable migration

Areas used by concentrations Smith's "C & D" pools.

"C & D" Pools Major.

Principal nesting areas this season _____

"C & D" pools major, Lowa's & Smith's pools minor.

Reported by _____

M. J. Smith

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 Union SloughMonths of May to August 31, 1955

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
P - B. Grebe	Present entire period.							9	42	50
Great Blue Heron	"	"	60	8/15	Still Present.		0	0	0	75
American Egret	2	4/27	43	8/5	"	"	0	0	0	50
Black Crown Nite Heron	Entire Period.		95	8/15	"	"	0	0	0	125
II. <u>Shorebirds, Gulls and Terns:</u>										
Wilson Snipe	"	"			"	"	0	2	7	10
Florida Gallinule	"	"			"	"	0	3	11	11
Yellow Legs	15	8/26	40	8/31	"	"	0	0	0	75
Terns, (Common)	Entire Period				"	"	No nesting observed.			175

(over)

UPLAND GAME BIRDS

1613

Refuge Union Slough Months of May to August 31, 19453

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge Pertinent information not specifically requested. List introductions here.
Ring-Necked Pheasant	Agriculture, Marsh, Grazing & Wildlife areas, 1,200	.24	450	4,500		0	0	0	5,000 Broods are not stable as migrate to and from the refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

REFUGE GRAIN REPORT

Refuge.....**Union Slough**.....

Months of May thru August 19453.

[illegible]

(8) Indicate shipping or collection points.....

(9) Grain is stored at _____ 0 _____

(10) Remarks.....

NR-8a 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.