

ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 9-17 1942

MR. SALYER _____ SECTION OF HABITAT IMPROVEMENT:

_____ MRS. WCODIN _____ Mr. Kubichek _____

MR. ELMER _____ 72/14 Mr. Smith _____

_____ MRS. GARVIN _____ ~~Mr. Griffith~~ REG 2-8-48

~~MR. DUMONT~~ _____ PAD 12/21 ~~Miss Cook~~ File 2-8-43

SECTION OF OPERATIONS: _____

SECTION OF ERA:

~~Mr. Krummes~~ W 12/23

~~Mr. Regan~~ JAR 12/21/42

~~Mr. Gustafson~~ PAD 12/19

~~Dr. Bourn~~ WBB 9/18/42

Miss Baum _____

Mrs. Fishman _____

Mrs. Kricun _____

SECTION OF LAND MANAGEMENT: _____

STENOGRAPHERS:

~~Mr. [unclear]~~ fly

Miss Whorley _____

~~Mr. Ackersicht~~ 12-26

SECTION OF STRUCTURES: _____

~~Mr. [unclear]~~ WWT 1/8/43

REMARKS: UPPER SOURIS NATL WILDLIFE REFUGE NARRATIVE REPORT

MAY - AUGUST 1942

Return to: Miss Cook



R56 E1 Washout, Grano Bridge, 6/14/42



R56 E2 Washing at Grano Crossing, 6/14/42



R56 E3 Washing at Grano Crossing, 6/14/42

TRANSMITTED BY REGIONAL OFFICE 9/16/44

UPPER SOURIS NATIONAL WILDLIFE REFUGE

May, June, July and August 1942

1. GENERAL

A. Weather Conditions

Month	Total Precip.	Max. Temp.	Min. Temp.
May	1.51	80	25
June	1.00	81	33
July	1.95	91	43
August	2.05	101	42

The weather for this period has been on the average much cooler than for the past two years. The mean maximum temperatures for the report period in past years are:

	May	June	July	August
1940	68.7	74.3	84.7	81.3
1941	69.9	73.1	82.2	81.6
1942	62.3	71.0	80.9	79.9

The mean minimum temperatures have been:

	May	June	July	August
1940	41.4	50.3	56.8	55
1941	45	62.7	56.4	54.2
1942	37.0	47.9	53.6	53.5

Comparisons of precipitation for the past years are:

	May	June	July	August
1940	3.36	2.68	2.07	2.95
1941	2.74	6.00	1.16	1.50
1942	1.51	1.00	1.95	2.05

B. Water Conditions

The condition of all water areas remains the best ever witnessed on the refuge at this season of the year, all impoundments have held up remarkably well, with Lake Darling not showing any decrease until July 21 when the water, due to evaporation, began to drop. The water in Lake Darling is still backed in the river channel to Dam 41 to a height that almost completely covers Dam 41's outlet and has flood the valley floor from directly in front of Sub-head-quarters South to Dam 83 the water being 4.54 feet below spillway crest. The run-off this year amounted to some thing like 33,000 acre feet of water. Due to heavy rains North of the refuge we continued to receive some run-off

until July 12; the longest period we have received run-off since the establishment of the refuge.

C. Fires

No fires have occurred on the refuge during this report period, however, a potential fire hazard is being created due to the vegetation on the uplands becoming tinder dry that would if ignited burn like it was oil soaked.

11. WILDLIFE

A. Migratory Birds

. Waterfowl

Waterfowl in general increased slightly over that of last year being estimated at a total population of 130,700) with a nesting population of 80,000 adult birds the increase being 50,700; though over a million birds migrated through stopping for various lengths of time on the refuge, resting and feeding before continuing their Northward flight.

Among the duck population the dabblers show up the most, however, the divers show the greatest percent of increase; this increase is due in a large part to the increased and depth of our water areas and the growth of desirable nesting covers.

Of all the ducks present the Mallard is the most common comprising 32 percent of our total duck population, Pintails comprise 30 percent, Gadwall 10 percent, Blue Wing Teal 9 percent, Baldpate 8 percent, Green Wing Teal 4 percent, Shovellers 2 percent, Ruddy 1 percent, Lesser & Greater Scaup 3 percent, Canvasback, Redhead and Black duck each 1.5 percent.

No full winged wild geese nested on the refuge except, "Oscar the Honker" the Canada gander raised and banded at Lower Souris Refuge in 1939 and mated with a pinioned Canada goose this spring. This mating produced four goslings which are still here, other matings among the pinioned Canada geese produced four more goslings.

The units below Dam 83 continue to have their full quota of nesting waterfowl which includes all species known to nest on the refuge. The lower or Southern portion of Lake Darling does not have its usual number of ducks even though the shores are lined with birds. From two miles South of Grano Crossing to Dam 41 the waterfowl population has greatly increased with ducks lining the shores and in the more favorable locations being so packed with birds that the ground is blotted out. The area of greatest increase in number of waterfowl is that newly flooded area from Highway #28 to Dam 41 where formerly only a few birds were to be found but now represents an area of greatest population; due to the newly flooded conditions which usually brings a concentrated population of ducks.

On the average the size of the broods this year were smaller than in past years, especially was this true of the earlier broods most of the later broods compared favorably to those of past years. The broods have survived well this

Form NR-1

MIGRATORY BIRDS

Refuge Upper Souris National Wildlife Months of May to August, 1942

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
	Common Name	Number	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Holboell's Grebe											
Norred Grebe											
Eared Grebe											
Western Peed billed				630	8/21/42						630
White pelican				750	8/21/42						750
Cormorant				400	8/21/42						400
Great Blue Heron				75	8/21/42					None	75
Black Crown Night Heron				100							100
American Bittern											
Western Bittern											
Canada Goose											
Mallard				40,000	8/21/42					16,000	40,000
Black Duck				150	8/21/42					25	150
Gadwall				12,500	8/21/42					5,000	12,500
Baldpate				10,000	8/21/42					4,000	10,000
Pintail				15,000	8/21/42					15,000	37,000
Green Wing Teal				5,000	8/21/42					2,000	5,000
Blue Wing Teal				11,000	8/21/42					4,500	11,000
Shoveller				2500	8/21/42					1,000	2,500

REMARKS: (Pertinent information not specifically requested)

53,055 ducks produced

(only copy sent Chi office)
Extra made at. sue

INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) 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 manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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1612

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	Common Name	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Redhead					1500	8/21/42					500	1500
Canvasback					3000	8/21/42					1000	3000
Greater Scaup					5000	8/21/42					2000	5000
Lesser Soap												
Buffle head					3	8/21/42						3
Ruddy Duck					4000	8/21/42					2000	2500
Hooded Merganser					75	8/21/42					30	75
American Merganser					8	8/21/42						8
Cooper hawk												
Swainson's hawk												
American Rough legged hawk												
Ferruginous Rough-leg hawk												
Marsh hawk					83	7/14/42					40	83
Duck hawk												
Western pigeon hawk												
Sparrow hawk												
Virginia rail												
American Coot												
Semipalmated Plover					6000	8/21/42					2000	6000
Killdeer												
Upland Plover												

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	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Spotted Sandpiper Western Willet Greater Yellow legs Lesser Yellow legs White rumped Sandpiper Bairds Sandpiper Least Sandpiper Long billed Dowitcher Semi palmated Sandpiper Marbled Godwit Sanderling Avocet Herring Gull Ring billed Gull Franklin Gull Common Tern Black Tern Mourning Dove											
All these species are present on the refuge but no detailed data available											

REMARKS: (Pertinent information not specifically requested)

INSTRUCTIONS

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year both on and off the refuge due to the abundance of water always available and to the abundant cover that afforded additional protection and food.

The predator pressure has this year increased especially with crows and weasel's showing such a large increase over the entire area both on and off the refuge. Losses due to predators is believed to be relatively small in comparison to the number of predators present.

Other Waterbirds

Other waterbirds compare for the most part quite favorably to those of past years both in numbers, nesting, broods etc. Certain species of the grebes, the horned, veared and pied billed, have decreased approximately 25 percent while the Western and Holboell's have increased the same amount with the Western grebe showing up exceptionally well.

In the heron family the black-capped night heron has decreased 20 percent in numbers while the great blue heron has increased 30 percent; this increase not apparent, however, until August when evidently both adult and young migrated from other nesting areas to the refuge. The bittern compare favorably to past years in numbers and nesting activity.

Cormorants are present in larger numbers than formerly having now established three nesting colonies on Lake Darling.

Pelicans have increased though the increase is difficult to estimate due to these birds trading back and forth between Des Lacs, Lower Souris and Upper Souris Refuges.

Coots have shown a decided decrease in all areas of the refuge estimated at 25 percent; even in the newly flooded areas the Coot population is not what was expected.

Shorebirds

This class of birds has shown the greatest decrease of any of the birds, the decrease being noted in practically all species except western willet, killdeer, upland plover and yellow legs, these species being equal in numbers to those present in past years. Both the Dowitcher and Marbled Godwit have decreased in number and are at least 30 percent fewer than last year. The Wilson and Northern Phalarope were fewer in migration this spring than in 1941.

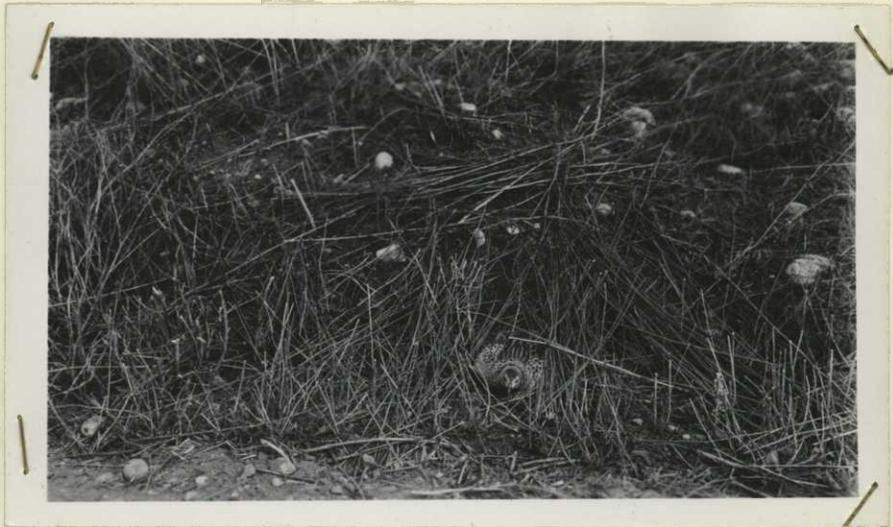
The terns have shown no increase or decrease over the number present in past years, though no extensive nesting areas have been found this year as were found in past years; the higher water enveloping all former nesting grounds.

There has been a 50 percent decrease in the number of gulls, mostly in Franklins, utilizing the refuge. The waves of gulls migrating from the refuge to the fields outside the refuge are not nearly so noticeable this year as in past years.

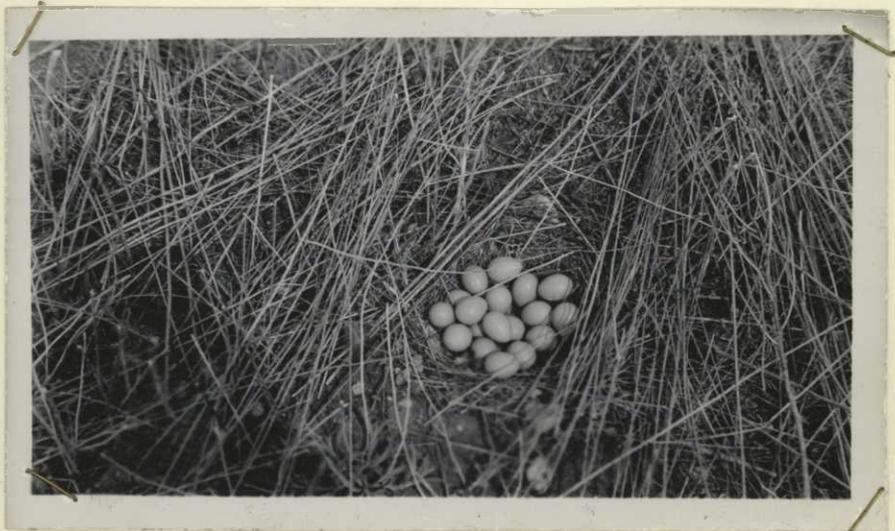
Doves also have shown a decline in the past two years over the peak year of 1940 and though quite common are not nearly as plentiful as formerly. They apparently have had a fairly successful nesting season.

2. Food and Cover

Both food and cover for waterfowl is abundant this year as it has been in past years and all is in excellent condition



R56 E4 Pheasant on nest, 6/21/42



R56 E5 Pheasant nest with 18 eggs, 6/21/42

having made a very satisfactory growth during the past season.

The emergent aquatics are coming along very satisfactory and are spreading to other areas especially true of both the soft and hard stem bulrush, the cat tail, which has always been abundant is more so this year having spread out in Unit 96 to include areas formerly wholly devoted to submergent vegetation. This spread was no doubt due to the draining of that unit last fall which allowed the cat tail seed to become scattered over the area and firmly embed in the soil where this spring with the reflooding of the area the seeds germinated. Our nicely started stands of Wild rice have almost disappeared due to draining of Unit 96 and to muskrat taking over the wild rice beds. River bulrush has increased especially along certain shores in Unit 87. The Arrow head (*Sagittaria cuneata*) in Unit 87 has also spread over a large area in this unit though the birds are now beginning to work in it and if past performances are any indication they will have it pretty well cleaned out by freeze up.

Smartweed growth has been retarded and is gradually dying out in those areas that are constantly flooded though in the newly flooded areas, those North of Greene, large Smartweed beds have become established. The large beds near the Grano Crossing are not as extensive as formerly though still cover considerable area.

The sub-mergent vegetation has made exceptional growths throughout the entire area except in Lake Darling where the raising of the water levels has drowned much of our former growths where such was becoming established. *Potamogeton foliosus*, *pectinatus*, *perfoliatus*, *grameneus* are all well established, especially the sago and grassy leaf pondweed which practically cover Units 87, 96 and Pond A (for the first time) B and C. Good growths of these pondweeds are also becoming established in Unit 41.

No supplemental feeding of waterfowl has been carried on and so far this class of birds have not begun to feed in the grain fields though it is only a matter of days until the grain fields will be utilized.

3. Botulism

Botulism was first found on August 21 in the Grano-Greene area, the same areas where it has shown up in former years. It was estimated that 55 sick birds and 50 dead birds were in this Grano-Greene area which covered both sides of the lake. It is believed that the coolness of the past months plus the higher water levels retarded the Botulism outbreak and at this late date the outbreak will not be severe.

B. Upland Game Birds

Pheasants our most numerous upland game bird continues to increase at a very rapid rate and is now almost too abundant for the food and cover found on the refuge. Fortunately many pheasants have worked out of the refuge where they will

Refuge Upper Souris National Wildlife Months of May to August, 1942

(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	Hunting	For Re- stocking		
Pheasant					10,000				27,900	Estimates based on observation only, no details
Sharp tail grouse					1,000				3,000	Estimates based on observation only, found mostly in Northern area.
Pinnated Grouse					250				700	Estimate based on observation only
Hungarian Partridge					500				1,500	Estimate based on observation only

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.

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be available to sportsman during the coming hunting season. Any additional increase in the number of pheasants will no doubt cause competition for food between pheasants and other upland game birds, especially in cases of severe winter weather with above average snow conditions.

Both sharptail and pinnated grouse continue to increase and this year have shown the greatest increase of any past years. One brood of nine pinnated and one of seven sharptail have been around Headquarters since hatching. Most of the grouse migrate from the refuge during late summer and early fall but return during severe winter weather conditions; a great many nest on the area.

Hungarian partridge also are increasing though are not found on the refuge in the numbers that the other upland game birds are. These birds prefer the upland farming areas and are considerably more numerous outside than inside the refuge.

There have been a greater number of broods of all upland game birds though the size of the individual broods have averaged from one to three birds less than normal. This decrease is believed to have been caused by the late cool spring.

Predation appears to have been no more than normal even though there has been a large increase in weasels. The great amount of cover available giving the birds more protection to offset the increase in predators.

2. Food and Cover

As with the waterfowl, food and cover is especially abundant this year with all plants making an exceptional growth. The native wild fruits due to late spring frosts are not as abundant as in past years, especially is this true of June berries, choke cherry and plums, the other fruits not being as greatly effected. There will be despite this wild fruit shortage a sufficient supply of native foods plus the grains left in the fields to winter the supply of birds that will be on the refuge; providing the hunters take their usual numbers and the winter is not too severe, if not, then supplemental feeding maybe necessary.

3. Disease

To our knowledge no disease exists with our upland game birds, at least no losses have been noted.

C. Big Game Animals

The deer on the refuge have increased quite rapidly and soon will no doubt reach the maximum carrying capacity of our deer range though to date no over utilization of the range has been noted. This year due to the raise in Lake Darling a part of our winter deer range has been flooded and the trees and shrubs consequently killed out. This, of course, eliminates part of our winter range which formerly supported approximately sixty head of deer during the winter months. The area North of Highway 28 will have

to be closely watched during the coming winter for over utilization and if found excessive steps should be taken to reduce the deer herd to correspond with our decreased deer range. The deer range in other areas has improved steadily and may be sufficient to adequately care for our present numbers; additional studies this winter will be made to determine the amount of damage if any. Our summer range is adequate for our deer population for during that season the deer are mainly on the upland areas with at least 50 percent spending most of the time outside the refuge. It is only during the fall and winter months when the deer are concentrated in protected areas along the river channels and in certain large coulees that over utilization may result.

This years fawn crop does not appear to be the average as compared to former years as the number of twins observed have been fewer this year than in the past. Our estimate is that we have had an increase of seventy head which gives an estimated population of 445 deer that will be on the refuge this winter, less if the winter is open, possibly a few more if the winter is one of cold and snow.

All deer observed are sleek and fat with no evidences of disease or any predation.

D. Fur Animals, Predators, Rodents and Other Mammals

The ~~few~~ animals have all increased to point where it is now possible to take an annual harvest equal to the years increase. Muskrat and Beaver both have increased steadily; in the Northern district this increase being limited due to the draining of Unit 41 every fall. In other areas there has been no check on the increase except that done by trapping below Dam 83 where muskrats have been trapped to prevent serious damage to the water impoundment structures and to the aquatic growths that have been planted. Beaver were trapped for the first time last spring to hold there population down to a point where serious damage to our trees and shrub growth will be at a minimum.

This past summer there has appeared an enormous increase in weasels not only on the refuge but throughout this entire area. Reports of weasels doing damage to chicken flocks have been common and there appears to be more of these animals outside the refuge than inside. No reason for such an increase is known unless it is due to the abundance of upland game birds, however, the gopher population has dropped during this summer.

Apparently mink has also increased throughout the area. Reports received have indicated that mink have again inhabited areas where they have been unknown for the past ten to fourteen years. The increase in this animal is not as great as in weasels and on the refuge they are to be found only in limited numbers.

Raccoon have also increased slightly and have now extended their range to include all of the refuge and reports received



R56 E6 Canada Goose Nest, 6/24/42



R56 E7 Wild Canada Gander "Oscar" and
Pinioned Goose "Oscarett" 6/21/42



R56 E8 Oscar & Oscarett, Wild Canada Goose
and Pinioned Goose, 6/21/42

have indicated that some are in the larger coulees that have coulee dams also including the Des Lacs valley at Foxholm and Carpio.

Coyotes have increased and it will be necessary this coming winter to make a special effort to take off five to eight of these animals. The damage done by these predators on the refuge is slight, in fact the present numbers are no doubt beneficial, public relations though demand that coyotes be held to the minimum.

Fox have not increased on the refuge, however, they are abundant five to eight miles East of the refuge and a few are reported on the West side of the refuge. These animals do not spend much time on the refuge.

Most of the rodents family found on the refuge have decreased in numbers this being especially true of the gophers though not of the mice which have shown neither increase or decrease. The gopher decrease maybe due to the large increase in weasel though this is doubtful.

Jack rabbits have declined somewhat in numbers while cotton tails or bunny rabbits have increased; these latter animals are causing some damage to the tree reproduction and shrubs.

E. Predacious Birds

Our predacious birds are limited in numbers and confined to a few species of hawks, owls, crows and magpies. The hawks, most of which are classified as beneficial, have increased slightly this increase being especially noted in Swainsons and Marsh hawks. Only one duck and one coopers hawk have been observed on the refuge. No eagles have been seen this report period, no predation on animals other than that on mice, gophers, frogs and snakes have been observed by any of these birds.

The crows and magpies have increased their use of the refuge, expecially the crows, for ideal nesting and feeding conditions for these birds are found on the refuge. It is doubtful that the increase of these birds has caused any noticeable increase in damage being done except in one small corn field where the crows pulled up the sprouting grain as fast as it showed through the soil.

F. Fish

There are no fish other than the small minnows on the area. Repeated trys to catch fish have failed and none have been found in any of the areas. Reports received have indicated that small suckers have been caught in the Mouse River Park area and one report, unconfirmed, was that a Northern pike was siened out in that area.

111. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

As there has been no CCC, WPA or other work agency on the refuge during the past report period all that that has been accomplished has been done by regular personnel.



R57 E1 Canada Geese in Goose Pasture, 5 Geese
on right and full winged wild geese



R57 E2 Canada geese in goose pasture, 5 are
wild geese, 8/9/42

The curtailment in use of automotive equipment and the necessity for economies has restricted some of the work so that only that of major importance has been attended to.

All of our fence both boundry and interior has been checked, repaired, tightened and put in first class condition, all of the gates have been repaired and additional gates, where needed, installed. Most of our fence work was done with the aid of a saddle horse, which though much slower, proved very effective here, due to the many deep coulees that our boundry fence crosses and the fact that not over half of our fence line is accessible from roads.

During the fence repair, the shield shaped enamelled signs was carried along and all necessary replacements were made.

The truck trails below Dam 83 were all maintained and the weeds have been kept mowed, only the truck trail from Grano Crossing to Greene and from Greene to Mouse River Park on the West side was maintained in the Northern District. These trails were maintained with the grader patrol and later on mowed, additional mowing and maintaining is being done at the present time.

All dykes and dams have been mowed at lease once, the main dykes have been mowed twice.

The dykes and dams have also been gone over thoroughly for any muskrat damage and such damage repaired.

All buildings have been properly maintained and kept in the best possible condition including the tower where the glass has been replaced.

Additional work has been done on the large type wooden refuge signs and two have been put up. The lettering on the remaining signs needs one more coat of white paint and then these will be ready to be installed.

Fifteen man days of work was expended on the Grano Crossing riprapping and hauling gravel to prevent further washing of the wing walls at the bridge and Dam 83 at the control gates was re-riprapped and additional gravel hauled and spread to prevent washing at that point.

A new inlet for the irrigation system was installed which makes this unit again useable.

B. Plantings

Due to the rise in the water level in Lake Darling practically all of the aquatic plantings made in that area were too deeply submerged to germinate.

The draining of Unit 96 last winter totally destroyed the wild rice beds we had established in that unit. The sago planted in this unit during last winter has made a very fine growth and practically all of the shallower water is filled with sago and other pond weeds. New growths of cat tail however are showing up over much of the Northern *end* of this unit. This is believed due to draining the unit which allow the cat tail seed to become embedded in the soil so that when the unit was refilled germination and growth resulted.

Most of our aquatic plantings in other areas have

shown an excellent growth except the bull rush planted last winter which of course won't show up until next year. Bull-rush has become firmly established and is in most places spreading and taking over additional areas.

Experimental burning of cat tail has only so far, resulted in thicker ranker growths of cat tail.

The results of aquatic plantings in Unit 41 have begun to show and now that unit has an abundance of aquatics and is an ideal waterfowl area.

2. Trees and Shrubs

The remainder of the trees and shrubs received from Lower Souris Refuge on April 24 were planted, these being: 150 Cedar, 200 Russian Olive, 300 Blackhaw, 100 Wild plum, 600 Dogwood, 192 Sumac, 350 Buffaloberry, 225 Silver berry, 200 Wild currant, 300 Juneberry and 600 Grape; 200 Cottonwood, collected on the refuge were also planted.

Tree growth this year except for newly planted stock has been good; newly planted stock suffered somewhat from the dryness occurring in July.

3. Upland Herbaceous Plants

No range planting or range revegetation work has been attempted on the refuge. The upland grasses have made an exceptional come back and are gradually reclaiming the old agricultural fields. In most areas only a few remaining indicators show that the area was in the past over utilized and these indications are rapidly disappearing.

4. Cultivated Crops

The crops grown on the refuge this year include wheat, barley, oats, millet, corn in strips and flax. All but the corn have made from good to excellent growths and the yields this year should excel the average. Corn has not done so well this season and though ears will be formed the kernels will not be matured and will be soft making excellent duck, upland game birds and deer food.

IV. ECONOMIC USES OF REFUGE

Though there is plenty of grazing on the refuge it has not been taken advantage by those possessing cattle and only six grazing permits have been issued covering a total of 112 head of cattle.

Cattle only are permitted to graze on the refuge though there are a few inquiries concerning sheep and horse pasture. Grazing is restricted to the period from July 10 to November 15 and is charged for at the rate of fifty cents per head per month.

D. Timber Removal

The timber removal consists only of that timber that was first cut down and stocked when the area for Lake Darling was being cleared and such other timber that has died and been cut or blown down. This is sold for fire wood at the

rate of \$1.50 per cord. The demand for this wood during this report period has been light and only six permits covering 14 cords of wood have been issued.

E. Other Uses

One permit covering five loads of rock was issued the Government receiving \$2.50 in revenue, another permit covering the rental of a live stock shelter for a one year period at a \$18.00 rental fee was also issued.

VI. PUBLIC RELATIONS

A. Recreational Uses

The only recreational use provided on the refuge is that of a public picnic area this area has not been used as extensively as in past years and this year has averaged three cars per week or fifteen persons, all being at the picnic area on Sunday's.

B. Refuge Visitors

Official visitors have been few during this report period those that have visited the refuge are:

Mr. McBride on May 24 on an inspection
 Mr. Gillett on May 24 & 25 on an inspection
 Mr. Hotchkiss on May 28 to look over Botulism area and again on July 26.
 Mr. Hall on June 16 on an inspection trip
 Mr. Vroman on June 17

The Ward County Commissioners were here on June 6 to look over the area and check on CCC equipment that was being offered for sale.

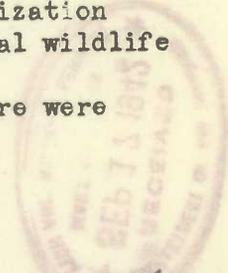
Mr. Wm. C. Lowe, N. Dak. State Fish and Game Commission was on July 20

C. Refuge Participation

Refuge personnel participated in a radio broadcast given during National Wildlife Week which was well received.

Refuge personnel also participated in an organization meeting of North Dakota Junior Wardens where personal wildlife movies were shown.

Sportsman club meeting both at Minot and Kenmare were attended.


F. Sheldon Dart
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Approved:

Gurnie Maurek
 Regional Director

9/15/42
 Date

rate of \$1.50 per cord. The demand for this wood during this report period has been light and only six permits covering 16 cords of wood have been issued.

E. Other Uses

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