

Narrative Report Routing Slip

Mr. Salyer _____

~~Mr. Ackermann~~ *OS*

Mr. Crawford _____

Administrative Services

Miss Baum _____

Operations

Mr. Fermanich _____

Mr. Regan _____

Public Use

Mr. DuMont _____

Mr. Kubichek _____

~~Mr. Stollberg~~ *OS*

Resource Management

~~Mr. Morley~~ *OS*

Mr. Hickok _____

Wildlife Management

Mr. Banks _____

Mr. Stiles _____

Mr. Goldman _____

Refuge DES LACS, LOSTWOOD, LAKE ILO, Period Jan. - Apr. 1961
and Easement Refuges -
District IV & IVa

NARRATIVE REPORT

JANUARY, FEBRUARY, MARCH, APRIL, 1961

DES LACS NATIONAL WILDLIFE REFUGE

LOSTWOOD NATIONAL WILDLIFE REFUGE

LAKE ILO NATIONAL WILDLIFE REFUGE

&

EASEMENT REFUGES - DISTRICT IV & IVa

Permanent Personnel

Homer L. Bradley	-	Refuge Manager
Donald N. White	-	Refuge Manager - Lostwood
Chesley M. Dinkins	-	Wildlife Technician - Lake Ilo
Elmer M. Richwalski	-	Mechanic, Heavy Duty
Gerald L. Felch	-	Operator, General
Lowell J. Hoffman	-	Refuge Clerk

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

KENMARE, NORTH DAKOTA

May 15, 1961

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NARRATIVE REPORT
JANUARY, FEBRUARY, MARCH, APRIL, 1961
DES LACS NATIONAL WILDLIFE REFUGE

I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>This Month</u>	<u>Normal</u>	<u>Temp.</u>	<u>Temp.</u>
January	<u>1.0</u>	<u>.04</u>	<u>.42</u>	<u>46</u>	<u>-28</u>
February	<u>7.0</u>	<u>1.14</u>	<u>.43</u>	<u>53</u>	<u>-17</u>
March	<u>0</u>	<u>.04</u>	<u>.73</u>	<u>68</u>	<u>7</u>
April	<u>5.0</u>	<u>2.34</u>	<u>1.02</u>	<u>77</u>	<u>11</u>
Total	<u>13.0</u>	<u>3.56</u>	<u>2.60</u>	Extremes <u>77</u>	<u>-28</u>

Data above was obtained from the weather station in Kenmare.

January weather was relatively mild and very dry. The mean temperature was 8 degrees above that for January 1960. Snowfall was limited to only one inch.

Moisture conditions improved during February with both snow and rain falling during that month. No severe storms occurred and the mean temperature was 6 degrees higher than it was for the same month last year.

During a mild winter March is usually the last month when a good amount of snow can be expected to improve moisture and run-off conditions. As it turned out, March was extremely dry and warmer than usual. The mean temperature was 13 degrees higher than for March 1960.

April was cool and considerable precipitation fell in the form of both rain and snow. A four inch snowfall on the 4th and a good rain of .67 on the 20th boosted precipitation above normal but did not produce any run-off.

Total precipitation for the period was 37 percent above the long-term average. Soil moisture conditions did improve but the runoff was negligible. Subsoil moisture is still far below normal as the result of below average precipitation during the past four years.

The ice attained a thickness of about 30 inches during the winter. It broke up in the Middle Lake, Unit 4, on April 9 but hung on over the north part of the Upper Lake, Unit 1, until April 20--just one day later than last year.

B. Habitat Conditions.

1. Water

At the beginning of the period every pool was below the approved level except Units 1 and 5. The stage for Unit 1 has been too high for many years, it cannot be drawn down so it is operated "as is" for the time being. Unit 5 would have been low too had it not been held up by the channel plug which is essential for holding some water in the level ditches in Unit 6.

The meager spring run-off began on March 14 when water started trickling into the refuge pools from Niobe, Ankenbauer and Taskers Coulees. The run-off continued for only a few days. The volume was sufficient to fill Unit 3 which has a capacity of only 49 acre feet. This unit spilled a small amount of water into Unit 4 for 2 weeks. Unit 4a also filled to the level of Unit 4 to which it has been connected for many years through the old damaged spillway. Unit 4a required only an estimated 4 acre feet for filling to the Unit 4 level. The water level at the upper small dam, of the two on the Stony Run waterway near the Northgate Crossing, was 8 inches below the spillway after the run-off ended. No water was available for the lower dam and the amount left there is very low. Otherwise, only minor gains in the water levels, over those at the time of freeze-up last fall, were recorded this period.

Unit 3 is already dropping rapidly and Units 4a, 5, 6 and 8 are almost certain to go dry during the summer. Unit 1 has plenty of water for this year but the quality will no doubt deteriorate. Units 4 and 7 will probably retain water throughout the summer but Unit 7 is presently quite shallow. It is estimated that Unit 4 will drop 2 feet or more during the season. Because of this it is anticipated that the town of Kenmare will have difficulty with the disposal of sewage as Unit 4 serves as a sewage lagoon.

One of the greatest losses from lack of water this season will likely be the adverse effect upon aquatic and marsh vegetation in several pools. This will be particularly true for Units 6 and 7

where the rotational manipulation of water levels was initiated in 1959. The level of Unit 6 was due to be raised this year and all that was needed was water to create some additional prime waterfowl habitat.

The following tabulation shows the Des Lacs pool elevations for the period and comparisons of maximums, approved and end of the period readings for the past four years:

Unit	Maximum for period	Approved level		End of the Period Readings			
		Gauge	Sea Level	1961	1960	1959	1958
1	12.86	"as is"	--	12.84	14.44	12.06	13.22
2	7.34	9.00	1786.00	7.28	9.66	8.90	8.54
3	9.22	9.00	1786.00	8.50	9.76	9.06	9.00
4	7.50	9.00	1786.00	7.46	9.70	9.08	8.80
5	6.20	6.30	1783.30	6.16	7.40	5.80	7.30
6	4.20	5.00	1782.00	4.14	6.16	5.44	4.46
7	1.92	3.00	1780.00	1.82	4.40	3.20	3.80
8	3.12	4.50	1781.50	3.02	5.38	6.00	6.50

Practically all potholes and sloughs on the uplands are dry. It is not believed that more than 6 or 8 potholes on the entire refuge hold any water at this time. The few depressions that did hold a little water earlier are drying up rapidly as the frost leaves the ground. The numerous wet spots and small bodies of water found over the surrounding croplands in a normal year will be seeded for crop production this season.

2. Food and Cover

Food was certainly more than adequate for the small number of waterfowl present during this period. Waste grain was abundant and available on a large acreage throughout the period. This was caused by the fact that farmers were unable to continue field work on a large scale because of cool weather with snow and showers. Actually, more puddle ducks were noted feeding in the fields than was the case a year ago. This was believed to be influenced by the cold weather with resulting greater demand by the birds for cereal grains. Cover conditions for waterfowl around the pools were definitely not up to par. Most of the vegetated portions of pools and shorelines have been left high and dry by present low water levels.

Food for upland game birds was also abundant and it was not covered by deep snow at any time during the winter. These birds apparently fared quite well as relatively few were seen along the roads where they generally search for food when there is more snow. Cover conditions were excellent because of the favorable growth of upland vegetation of all kinds last year. Grasses and forbs were not even matted down during this period as they usually are by heavier snowfall.

Conditions were very good for deer with a large amount of preferred food and cover available throughout the season. Wolfberry or "buck brush", one of the preferred foods, is very plentiful over the refuge and it is well distributed. There is also a good supply of larger woody vegetation which provides both food and cover. The cover provided by marsh vegetation, that has been heavily used by deer at times, showed little sign of use this past winter.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

Whistling Swans arrived on March 27, more than 3 weeks earlier than last year. This was the earliest arrival date since 1946. The peak of 338 for this period represents a large increase over the peak of 40 last year and only 27 in 1959. Total use days jumped over 1100 percent over the figure for 1960. The swans made use of all units of the refuge except Units 2 and 5 but the heaviest use occurred in Units 4 and 6.

Canada Geese were first observed passing over on March 21-- more than a week earlier than last year. A larger number stopped at the refuge this spring although the total was still very small. Canadas were present from the last week of March until April 19 and probably later.

The first White-fronts made their appearance on April 7, just 10 days earlier than in 1960. Only small numbers were picked up on the weekly census and a few were still present on April 28. Overall use by Canadas and White-fronts combined was more than thirty times the figure recorded for this period a year ago.

The duck migration averaged about a week earlier than last year. Every species common to the area arrived earlier than in 1960 except the Red-breasted Merganser. Mallards and Pintails arrived first as is usually the case. It appeared that the unseasonably cool weather slowed down the spring flight to some extent. Overall use for the period increased nearly 46 percent despite this condition. Even with this increase the figures are still below those for the like period in 1959.

Mallard, Widgeon, Pintail, GW Teal, Redhead, Scaup, Common Goldeneye, Bufflehead and Common Merganser all returned during March. All of the other common species had put in their appearance by April 7 except BW Teal, Wood Duck, Ruddy and Red-breasted Merganser. The single female Wood Duck observed on April 28 was the first record for this species since June 1951. A noticeable increase in populations

occurred during the week of April 9 with gains being recorded for practically all species present at that time. In most cases numbers continued to build up with the overall count being doubled the following week. Diving species were increasing more rapidly than were the dabblers during that period. Only a small increase in overall numbers was recorded for the last week of April as the populations leveled off. This will no doubt prove to be the high count for the spring migration.

Total use increased appreciably, over that for 1960, for each species of puddle ducks that were present. As a group, this increase was more than three times the figure recorded for the same period one year ago. Overall use by divers as a group was up only 4 percent as compared to a drop of 51 percent a year ago. It is significant that favorable increases occurred for Redhead, Canvasback and Ruddy this spring. On the other hand, Lesser Scaup show a big drop below the figures counted last year.

Coot arrived about a week later than last year and only small numbers have been observed as yet. Total use for the period was about one-third of the amount calculated for the spring of 1960.

A comparison of waterfowl use days for the past three years will be found in Table I.

Signs of nesting activities by Mallards and Pintails were evident by April 15. A good sampling of this activity was obtained while making early morning grouse counts along the Upper Lake. Birds seeking nesting sites did not seem to be as plentiful as they were last year in that area. This was to be expected as nearly every single pothole and slough on the upland is dry.

2. Water and Marsh Birds

Horned, Eared and Pied-billed Grebes arrived during the latter part of April and are present in small numbers. The Eared has been the most plentiful thus far. White Pelicans have been present for more than two weeks in much larger numbers than was the case a year ago. Their feeding activities have been confined to Units 1, 2 and 4, the only pools where minnows, and possibly other fish are likely to be found. Double-crested Cormorants have been here only a little more than a week but the number for April was larger than it was a year ago. Great Blue Herons arrived in mid-April but there has been no noticeable buildup in the population as yet.

TABLE I - Comparison of Waterfowl Use Days - 1/1-4/30

<u>Species</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Whistling Swans	308	434	4,830
Canada Geese	105	91	2,569
W.F. Geese	<u>77</u>	<u>0</u>	<u>217</u>
Subtotal - Geese	182	91	2,786
Mallard	42,420	8,596	56,014
Gadwall	9,044	1,071	1,708
Widgeon	5,103	1,400	8,050
Pintail	65,863	7,378	16,569
GW Teal	11,242	1,890	4,235
BW Teal	3,479	224	245
Shoveler	1,757	994	2,961
Wood Duck	- -	- -	7
Subtotal - Dabblers	138,908	21,553	89,789
Redhead	31,566	3,339	16,968
Ringneck	1,414	1,813	924
Canvasback	36,911	12,558	28,434
Scaup	214,081	117,831	79,541
Common Goldeneye	315	210	910
Bufflehead	385	707	322
Ruddy Duck	1,400	140	2,555
Hooded Merganser	- -	14	- -
Common Merganser	7,378	5,306	19,082
R.B. Merganser	<u>112</u>	<u>189</u>	<u>63</u>
Subtotal - Divers	293,562	142,107	148,799
GRAND TOTAL - ALL DUCKS	432,470	163,660	238,588
Coot	1,020	10,850	3,710

Sandhill Cranes were first noted passing over on April 8-- just three days earlier than last year. More birds were noted passing over than has been the case during the past two years. A large number of birds were moving north on April 8, 9, 11 and 19. To the best of our knowledge none of these birds stopped on the refuge.

Several reports of Whooping Cranes were received but none of them proved to be authentic this year.

3. Shorebirds, Gulls and Terns

Several species common to the area have not yet made their appearance so our list is quite short. Killdeer, Willet, Lesser Yellowlegs, Marbled Godwit and American Avocet have all been represented but some have been here only a few days and populations are very low. The Ring-billed Gulls returned during March and were quite plentiful by the end of the period. Only a few Franklin's Gulls have been seen since they arrived on April 20.

4. Mourning Doves

The first dove was sighted on April 11--just one day earlier than last year. The population for April is estimated as about equal to that for the same period in 1960. Transect census routes will be run in late May or early June.

B. Upland Game Birds.

1. Ring-necked Pheasant

The population is very low and only a few birds have been seen during the period. One pair have a territory near the headquarters and that is the only hen found so far this spring. Two or three other cocks have been heard and it is possible they may have found mates by this time. This remnant population probably will not survive much longer.

2. Gray Partridge

Relatively few sightings were made during the colder months as the birds did not congregate along the roads as they usually do. Apparently the population was dispersed until pairing was noted in March. Several pair have been counted since that time. This indicates that overall numbers are nearly the same as they were at the end of 1960.

3. Sharp-tailed Grouse

The spring census of dancing grounds was run again this year during the period April 12 to May 4. Cool weather prevailed

much of the time along with high winds, rain and snow which made counting difficult. Each ground was checked at least twice as we find a wide variation in counts on a given ground at various times. Last spring the population was estimated at 730 birds, based on a count of 25 grounds. This year's count on the same number of grounds is the basis for an estimated total of 590, a drop of 19 percent as compared to an increase of 18 percent for 1960.

C. Big Game Animals.

1. White-tailed Deer

Deer had no trouble finding food during the mild winter and they came through the season in good condition. Winter losses were light as we have no records of any found dead or of road kills. Actually, few deer have been seen during the period as compared to last year. These animals were well dispersed during the winter and they did not concentrate on the refuge at any time. The planned aerial census was not made during the period because of inadequate snow cover for a good count. It is doubtful if the refuge population would exceed 50 head at the close of the period.

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

Muskrat: Remain very scarce in this area. Only one animal observed during the period.

Beaver: The increase reported during the previous period was smaller than estimated or some animals moved prior to the spring breakup. The population seemed to be less than it was last fall when trapping resumed again in March. Seven beaver were trapped this period. A total of 20 were taken during the fur season, 2 of which were either damaged or lost. Five other nuisance animals were disposed of during the past year.

Mink: Overall numbers are about the same as a year ago and at a lower level than during the wet years. Nineteen removed by trapping last period and one other disposed of during the year.

Raccoon: Only a limited amount of sign observed this spring. Twelve animals removed during the fur season, four disposed of around duck traps and one road kill in April.

Skunk: A slight decline in numbers as the result of trapping 37 last November and December. No sight observations and sign is uncommon this spring.

Weasel: Population has been low for several years. No tracks found and none sighted this period.

Badger: Damage noted along refuge trails in April indicate a probable increase in the refuge population. Two were trapped and removed during the previous period.

Porcupine: Common over brushy and wooded sections of the refuge but only a few sightings during the past winter. Very little damage noted this period. Eighteen animals accidentally caught during the trapping season and two others were road and railroad casualties.

Red Fox: Estimated to be plentiful in this area although sightings have been less than usual this period. Insufficient snow for good results by aerial hunting during the past winter. Nine animals trapped and one other removed by shooting during the year. Den hunting will be carried on by P&RC personnel in the near future.

Coyote: Not common and none sighted during the period..

Rabbits: The populations of Cottontails, White-tailed Jacks and Snowshoes seems to remain fairly static from year to year. The habitat available for Snowshoes is limited to brushy hillsides and coulees which will not support a large population. On the other hand, we would expect a larger number of Cottontails considering the large acreage of wild land and the amount of woody cover.

Other Mammals: Meadow and White-footed Mice continue to be plentiful. Damage to woody vegetation by mice was very small during the past winter because of only light snow cover. The Thirteen-lined Ground Squirrels have been active since March. Occasional Richardson's Ground Squirrels are seen over the surrounding country but none have shown up on the refuge as yet.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies.

First observations of hawks for the year were recorded as follows: Sharp-shinned - 4/20; Cooper's - 4/25; Red-tailed - 3/26; Swainson's - 4/21; Marsh - 3/4; and Sparrow Hawk - 4/20. These birds have been present in only small numbers--definitely less than a year ago. The moderate migration of Marsh Hawks during April of 1960 was not observed this spring.

The last record on the Golden Eagle for the winter period was of a single adult on March 30. This was also the only record for the entire period. One adult Bald Eagle was seen on March 25.

Several pairs of Horned Owls are permanent residents and there is little apparent change in the population from year to year. No Snowy Owls were found on the refuge this past winter. This is the

third consecutive year we have missed recording these visitors from the north. Short-eared Owls were unusually common during the winter season and a few are still present.

Migrant Crows were first noted on March 13. A heavy migration was observed on March 28 that continued on a more moderate scale until after mid-April. The overall population seemed to be about the same as last year.

Magpies are common during the winter months but are seen less frequently at other times of the year. The small resident population shows little change from year to year.

F. Other Birds.

There are no new records to add to the refuge bird list at this time.

G. Fish.

There is no evidence of minnows or any kinds of fish in any of the pools except Units 1, 2 and 4. Other pools were either nearly dry or so low during the winter that fish could not possibly survive. Minnows and possibly a few suckers are the only species known to exist in the refuge pools during recent years. Some minnows have lived through the past three winters in the deeper water of Units 1 and 4 although there is some winter kill every year. No fish were able to enter the refuge this spring from the stream below because the water level in both Unit 8, and the By-pass Ditch to Unit 7, was far below the stop-logs and spillway crest.

H. Disease.

There has been no evidence of disease among waterfowl, upland birds or mammals during the period.

III. REFUGE DEVELOPMENT AND MAINTENANCE.

A. Physical Development.

Fencing

Gate fasteners were made during the period for the boundary fencing that will eventually get underway on the Waterfowl Production Areas that are administered by the Des Lacs Refuge.

Several cattleguard wings at Des Lacs were repaired during the winter months and partial fence relocation was completed around farm units A-3 and A-9.

Equipment Repair and Alteration

In addition to periodic servicing, safety and 5000-mile checks, the following repair work was performed:

Ford Tractor - Des Lacs - made brackets and bracings for installation of hydraulic post driver, made new pins for push rods and put new grease seals in front wheels.

D-4 Caterpillar - Des Lacs - repaired clutch.

D-7 Caterpillar - Des Lacs - Overhaul of engine, built up corners and other repair to dozer blade and installed new brake bands on power control unit.

Dodge Dump Truck - Lake Ilo - installed new saddle tank.

Willys Jeep - Lostwood - Ground valves, installed new head and repaired steering arm.

Signs

All recognition and directional signs were repaired and painted at Des Lacs, using the new blue and white color scheme. Recognition signs were also painted for McLean and Hiddenwood Refuges.

Miscellaneous

The most time consuming jobs during the period consisted of preparing the following plans and programs: Ten Year Development Plan for Des Lacs, Lake Ilo and District IV Waterfowl Production Areas, Program Schedules for Des Lacs and Lake Ilo, Land Use Plan for McLean Refuge and the Water Management and Sign Plans for Des Lacs.

Had one load of cedar poles sawed into lumber at mill north of Bottineau, N. Dak.

A trip was made on April 28 to Hiddenwood, McLean and Shell Lake Refuges. Work at Hiddenwood consisted of putting up the repainted recognition sign, reset water level gauge and made waterfowl census. At McLean Refuge a repainted recognition sign was put up, the water gauge elevation was checked and waterfowl census taken. At Shell Lake a timber was set and marked for installation of a water gauge.

Hand picked 10 bushels of ear corn on Unit A-11 that was not utilized by wildlife during the winter.

Transferred an estimated 5-6 tons of surplus steel from the Minot Air Force Base to Des Lacs Refuge. This consisted of aircraft maintenance stands which were made up primarily of angle and channel iron, excellent material for repair jobs.

B. Plantings.

1. Aquatic and Marsh Plants. None.
2. Trees and Shrubs. None.
3. Upland Herbaceous Plants. None.
4. Cultivated Crops.

Total farm land to be seeded on the refuge this year is 287.3 acres. Of this amount, 156.9 acres will be received by the cooperator on a 100 percent basis for the initial summer fallowing on areas being brought back into production. Of the 130.4 acres set up on a share crop basis, 111.4 acres will be seeded to small grains consisting of barley and wheat, a 19 acre field, seeded to alfalfa during the spring of 1960 will be in production. This latter unit was set up to provide alfalfa for the Lostwood Goose flock.

Farm units A-1, A-6 and A-11 will each have one strip seeded with a grass-legume mixture along with barley or wheat for the coming crop year. These strips will stand idle for a period of 4 years before being broken up again. This rotation will provide undisturbed nesting cover on each unit and improve soil structure and fertility. On crop units where 4 strips are involved, a complete rotation will take place in 16 years.

Waterways will be seeded to grass in Farm Unit A-11 this spring, this being the only contoured field on the refuge. Farming on the refuge will not get underway until around the middle of May because of cold, damp weather.

C. Collections and Receipts.

1. Seed or Other Propagules

Seed obtained during the period consisted of 725 pounds of Slender wheatgrass by transfer from the Lower Souris Refuge, 450 pounds Crested wheatgrass from Lake Ilo and 250 pounds of alfalfa from White Lake via Lake Ilo.

2. Specimens. None.

D. Control of Vegetation.

No work accomplished during the period.

E. Planned Burning.

None this period.

F. Fires.

No fire occurred on Des Lacs Refuge although the hazard was with us all through the winter months. Very little precipitation was received through January, February and March and there was very little snow cover on the ground at any time throughout the period.

IV. RESOURCE MANAGEMENT.

A. Grazing. None this period.

B. Haying. None this period.

C. Fur Harvest.

Three permits were issued during the previous period which did not expire until April 15. The following animals were trapped during the entire fur season:

<u>Beaver</u>	<u>Mink</u>	<u>Raccoon</u>	<u>Skunk</u>	<u>Fox</u>	<u>Badger</u>
*20	19	12	37	9	2

*Two of the above beaver trapped were unfit for sale. One of these was caught last fall, escaped under the ice and was not recovered until this spring. The second beaver was left in the trap too long and started to spoil before taken care of properly.

We have not as yet received income returns from the Auction Company to which the furs were sent.

D. Timber Removal. None.

E. Commercial Fishing. None.

F. Other Uses.

The Link Belt Speeder, LS-80 dragline, with shovel attachment has been offered for sale as a trade in on the $\frac{1}{2}$ cubic yard Insley Crane received from surplus in January which seems to be in new condition.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH.

A. Progress Report.

Sharp-tailed Grouse Study

A census of dancing grounds was made to compute the population for the study program initiated by Messrs. Kirsch and Hammond in 1954. The Des Lacs survey was again conducted by the Refuge Manager and the Clerk with a total of 25 grounds being accounted for. These grounds are found both on and outside of the refuge. The results of counts for the past eight years will be found in Table II.

The total population is estimated at 590 birds for 1961. This represents a decline of 19 percent below the 730 calculated for 1960. In addition to counts of male birds and population figures, a detailed record of land use on the refuge and surrounding area is being made. This covers about 22,500 acres and is being made to determine the relationship existing between grouse population densities and land use types.

Last year the overall 18 percent increase in the population was made up entirely by a 31 percent gain for four study areas on the west side of the Upper Lake where all refuge land was idle at the time. The count that year for four study areas on the east side of the Upper Lake, where grazing and farming were permitted on the refuge, showed no change. The overall population decline of 19 percent this spring was found to be nearly the same for both sides of the Upper Lake. The east side containing seven grounds, was down 17.3 percent while the population for 18 grounds on the west side dropped 19.6 percent.

TABLE II - Des Lacs Grouse Dance Ground Counts (Male Birds)

Grnd No.	1954	1955	1956	1957	1958	1959	1960	1961
1	20*	NC	12	17	22	NF	(14)	7
2	30*	22*	NC	18	(18)	NF	NF	NF
3	18*	20*	NC	10	30	21	28	17
4	20*	16*	NC	22	21	17	10	(5)
4a	NF	NF	F-NC	(15)	21	14	22	19
4b				13	15	10	18	14
5	14*	8*	NC	(15)	NF	NF	10	14
6	24*	14*	17	9	(9)	7	6	3
6a	NF	NF	F-NC	4	12	14	15	17
6b					6	10	12	9
7	20*	NC	NC	16	21	21	19	7
7a						13	20	11
8	NC	NC	NC	NF	(3)	14	5	NF
9	NC	1	NC	11	12	12	14	5
10	18	12	17	23	23	13	21	(14)
10a							18	18
11	30*	NC	7	(12)	27	(12)	14	(11)
12			12	(16)	38	(16)	22	(24)
13			H-NF	(15)	NF	1*	NF	12
14			25	29	37	25	24	21
15			H	(15)	--	(7)	(17)	12
16			14	11	30	(9)	15	12
16a					(25)	(5)	NF	NF
17			H	1	NF	NF	NF	NF
18			12	(17)	17	9	8	6
18a					5	(13)	NF	NF
19			37	40	(45)	21	21	21
19a					25	6	6	7
20			NC	(3)	(18)	(9)	NF	NF
21			H	NF	--	NF	NF	NF
22			H	9	10	NF	NF	NF
23			H	NF	11	4	0	NF
24			16	21	29	10	9	1
25								11

Ave. Number/Ground	16.9	15.3	20.4	12.5	14.7	11.9
Grounds Counted	10	24	26	25	25	25
Total Males	168	362	530	312	368	298

Legend: * Total birds () = Estimated or computed from average
 H-NF = Heard, not found NC = Not counted NF = Not found
 H = Heard F-NC = Found, not counted

VI. PUBLIC RELATIONS.

A. Recreational Uses.

The Tasker's Coulee Recreational Area was opened to public use in mid-April, but with the cool weather prevailing, has not been used other than by a few members of the North Star Bowmen for archery practice.

Ice boating on the Middle Lake slowed down somewhat over last period due to snow cover on the ice and came to a complete halt by mid-February due to the roughened condition caused by melting snow and drifts.

B. Refuge Visitors.

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
1/18	Audrey Walk	FWS-Mingo Refuge	Deliver dragline
1/19	John Waters	FWS-Minot, N. Dak.	Re Jamestown meeting
2/2	James Laughlin	FWS-PRC-Bottineau, N.D.	Predator control
	Ernie Zahn	FWS-PRC-Grace City, N.D.	" "
2/16	John Waters	FWS-Minot, N. Dak.	Radio Program
3/9	Ernest Giese	FWS-Riverdale, N.Dak.	Predator control
3/24	Mr. Hoffman	Army Corps Eng., Minot	Security Proj. Lostwood
4/4	Hugh Cosby	SCS-Minot, N. Dak.	Forage Utilization
	Merle Huhner	SCS-Kenmare, N.Dak.	" "
4/10-14	M.C. Hammond	FWS-Lower Souris	Grouse counts-Lostwood
4/11	Hugh Cosby	SCS-Minot, N.Dak.	Forage Utilization
4/19	Bob Finley	FWS-Denver	Pesticide research at
	John Waters	FWS-Minot, N.Dak.	Lostwood
	John Dahl	FWS-Upper Souris	Several visits

C. Refuge Participation.

The Manager is a member of the Kenmare Bird Club, is also a member of the Association of Commerce and attended regular meetings of both organizations.

The Manager attended the Bureau meeting of North and South Dakota personnel at Jamestown on March 22-23 and the State Grass-hopper Control Conference at Rugby on March 30.

Messrs. Richwalski, Felch and Hoffman are members of the Kenmare American Legion Post.

All refuge personnel bowled in league competition under the banners of the Fish and Wildlife Service. The team ended up in 4th place for the season.

Mr. Hoffman is president of the Kenmare Bowling Association.

Spring arrival dates and other migration notes have been provided weekly to supplement the data compiled by Mrs. Ann Gammell for publication in the Minot Daily News. Bird notes for the winter season were provided to the Regional Editor for summarization in Audubon Field Notes.

The film, "Duck Hunters Dilema", was provided the Kenmare Public School for showing during the period March 27-30. This same film was shown by the Manager to the Kenmare Bird Club on March 25.

VII. OTHER ITEMS.

A. Items of Interest.

Safety meetings are held once each month. All staff members participate in this program and each person is responsible for a monthly meeting on a rotational basis. We are happy to report that 3,563 days have elapsed since the last lost-time accident.

B. Photographs. A total of six photos have been entered under the Des Lacs portion of this report.

C. Credits.

Mr. Hoffman prepared Sections III, IV, VI and VII, typed the Des Lacs, Lake Ilo and Lostwood portions and assembled the entire report.

SIGNATURE PAGE

Submitted by:

Homer L. Bradley
(Signature)

Refuge Manager
Title

Date: May 15, 1961

Approved, Regional Office:

Date: 5-24-61

[Signature]
(Signature)

Regional Refuge Supervisor

March 1961



61-6 New Hydraulic Post Driver obtained for Waterfowl Production Area fencing projects.

April 1961



61-3 Abnormal numbers of White Pelicans stopped at Des Lacs this spring.

April 1961



'61-4 View of low water conditions in Unit 7, water level 1.82

April 1961



'61-5 The water level is down to the borrow pit in Unit 8, water level 3.02.

April 1961



'61-1 Only a small amount of water was caught in this stock water dugout built last fall and--

April 1961



'61-2 Practically every pothole and slough are completely dry.

WATERFOWL

MONTHS OF January TO April, 19 61

[illegible]

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE	Des Laes	MONTHS OF										January	TO	April	, 19 61					
		(2)										(3)		(4)						
		Weeks of reporting period										Estimated		Production						
(1)	Arrival	:	:	:	:	:	:	:	:	:	:	:	:	:	:					
Species	Dates	:	:	:	:	:	:	:	:	:	:	:	:	:	:					
	II	:	12	:	13	:	14	:	15	:	16	:	17	:	18	:	:	:	:	:
		:		:		:		:		:		:		:		:	days use	seen	:	total
Swans:																				
Whistling	3/27				2		6		338		214		130				4,830			
Trumpeter																				
Geese:																				
Canada	3/21				55		62		165		85						2,569			
Cackling																				
Brant																				
White-fronted	4/7								9		16		6				217			
Snow																				
Blue																				
Other																				
Ducks:																				
Mallard	3/21		28		487		447		2035		2620		2385				56,014			
Black																				
Gadwall	4/7						4		20		90		130				1,708			
Baldpate	3/24		10				5		125		365		645				8,050			
Pintail	3/18		8		144		255		645		465		850				16,569			
Green-winged teal	3/31				6		24		40		430		105				4,235			
Blue-winged teal	4/19										10		25				245			
Cinnamon teal																				
Shoveler	4/5						8		100		185		130				2,961			
Wood	4/28												1				7			
Redhead	3/31				28		81		585		870		860				16,968			
Ring-necked	4/7						2		10		60		60				924			
Canvasback	3/31				1		6		550		1665		1840				28,434			
Scaup	3/24		3		2		38		1250		4370		5700				79,541			
Goldeneye	3/20		6		30		39		20		25		10				910			
Bufflehead	3/22				4				7		25		10				322			
Ruddy	4/19										35		330				2,555			
Other																				
Common Merganser	3/20		150		48		60		528		1515		425				19,082			
R.B. Merganser	4/19										5		4				63			
Coot:	4/19										165		365				3,710			
(over)																				

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	4,830	338	
Geese	2,786	174	
Ducks	238,588	13,510	
Coots	3,710	365	

SUMMARY

Principal feeding areas Units 1, 4, 6 and 7

Principal nesting areas _____

Reported by Homer L. Bradley

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: 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.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge Des LaesMonths of January to April 195 61

(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>										
Horned Grebe	1	4/28	35	4/28						
Eared Grebe	2	4/19	80	4/28						
Pied-billed Grebe	1	4/29								
White Pelican	20	4/14	400	4/29						
D.-C. Cormorant	6	4/24								
Great Blue Heron	3	4/14								
B.-C. Night Heron	2	4/28								
Sandhill Crane	50	4/8	710	4/8	(All passing over - migration 4/8-9, 4/11 & 4/19)					2500
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	2	3/19								
Willet	1	4/30								
Lesser Yellowlegs	1	4/16								
Marbled Godwit	1	4/28								
American Avodet	8	4/19								
Ring-billed Gull	1	3/24	670	4/28						
Franklin's Gull	2	4/20								

(over)

(1)	(2)		(3)		(4)		(5)			(6)
III. <u>Doves and Pigeons</u> :	1	4/11								50
Mourning dove										
White-winged dove										
IV. <u>Predaceous Birds</u> :										
Golden eagle										
Duck hawk										
Horned owl										
Magpie										
Raven										
Crow										
						Reported by <u>Homer L. Bradley</u>				

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Des Laos Months of January to April, 19 61

(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	443 Agricultural 12,052 Upland 775 Marsh							10	Not more than 6 birds observed and/or heard
Gray Partridge	13,270 total							50	
Sharp-tailed Grouse								590	
									Decline of 19% below one year ago

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.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Des Lacs Year ending April 30, 1961

(1) Species	(2) Density	(3) Removals	(4) Disposition of Furs					(5) Total						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	Accidental	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
Muskrat	443 Agricultural						7*							20
Beaver	12,052 Upland			5	5			T-9284	3	2	2			15
Mink	775 Marsh			14	1			"	7	7	7			25
Raccoon	5,611 Water			5	5			"	5	0	0			100
Skunk	18,881 total			18				"	18	0	0			50
Weasel				0				"	0					20
Badger				2				"	2	0	0			25
Fox				9	1			"	9	0	0			75
Coyote								"						2
Porcupine					20									80
Cottontail														30
W.T. Jack Rabbit														50
Snowshoe Rabbit														50
Beaver				11			2**	T-9286	6	5	5			
Mink				4				"	2	2	2			
Raccoon				5				"	5	0	0			
Skunk				15				"	15	0	0			
Beaver***				2				T-9289	1	1	0			
Mink ***				1				"	1	0	0			
Raccoon				2				"	2	0	0			
Skunk				4				"	4	0	0			

List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: Seven muskrats accidentally taken in sets for Mink. 1 of these were damaged and 6 were turned over to the local State Game Warden as no open season on Muskrat. **One beaver that escaped with trap last fall was not found until spring, pelt worthless. Another small beaver damaged by predation and also of no value. ***Beaver disposed of "in the round" under this permit. Two beaver sold for total of \$10.00 cash which was divided on a 50-50 basis. The single mink taken was sold for \$12.00 and the proceeds divided in the same manner.

Reported by Homer L. Bradley

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

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NARRATIVE REPORT
JANUARY, FEBRUARY, MARCH, APRIL, 1961
LOSTWOOD NATIONAL WILDLIFE REFUGE

I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>This Month</u>	<u>Normal</u>	<u>Temp.</u>	<u>Temp.</u>
January	2.0	.11	.47	43	-29
February	16.7	1.58	.43	49	-15
March	2.0	.19	.76	63	- 2
April	10.8	2.08	1.23	70	7
Total	31.5	3.96	2.89	Extremes 70	-29

The weather during this period was warmer than normal. No serious blizzards occurred during the entire winter. The winter snow cover was very light and the major winter's snow had melted by March 14. Travel throughout the refuge was possible from March 20th to the end of the period. Light snows occurred in April, but they melted rapidly. The weather for this period can be summarized by saying it was a very mild and open winter.

B. Habitat Conditions.

1. Water.

The deepest snow cover this winter was eight inches recorded on February 24. This snow cover started melting the last of February, melted slowly, and was entirely gone by March 14. The snow melted slowly and went into the soil. A run-off was practically absent this year.

An estimated 75 percent of the potholes are dry at the end of this period. Frequent rains have maintained the water

levels, but these rains came too little and too late to help the potholes.

The larger lakes and the spring-fed potholes have held adequate amounts of water throughout the period.

The small potholes started thawing March 15 and were entirely open by April 1. Thompson Lake was the last water area to thaw on Lostwood and it thawed on April 21.

2. Food and Cover.

Waterfowl food and cover conditions have been excellent throughout the spring migration. Aquatic foods were plentiful in Thompson and Iverson Lakes. Many Mallards and Pintails were seen feeding in stubble fields near the refuge.

Grass cover on the grazing units is from good to excellent. The recent spring rains have helped to alleviate the dry conditions prevalent earlier this spring.

Food and cover for upland birds and deer were in ample supply this winter due to a general lack of snow cover.

II. WILDLIFE.

A. Migratory Birds.

1. Whistling Swan.

Whistling Swans were observed from April 10 to April 22 on both Thompson and Upper Lostwood Lakes. The highest number of Swan was recorded at 62 birds seen on April 18.

2. Geese.

The first migrant Canada Geese were observed flying over the headquarters on April 18. There were 16 geese in this flock. No geese were observed to stop on the refuge this period. The only other geese observed at Lostwood were 14 White-fronted Geese which passed over at a high altitude on April 14.

3. Ducks and Coots.

The first ducks were observed this period were 2 Mallards and 6 Pintails which were seen on March 26. The buildup proceeded slowly until April 28, then a sudden and favorable increase in waterfowl numbers was evident. Migrant duck flights were up considerably from 1959 and 1960. The following table gives comparison figures over a similar period for the past two years.

<u>Species</u>	<u>PEAK POPULATION</u>			<u>USE DAYS</u>		
	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Mallard	650	520	1610	14,676	10,430	27,930
Gadwall	200	120	2410	1,756	1,050	16,870
Widgeon	180	40	530	1,740	560	5,390
Pintail	800	480	920	14,694	9,030	14,581
GW Teal	100	20	840	1,710	140	7,490
BW Teal	150	0	60	750	0	420
Shoveler	250	60	1010	2,475	1,050	7,070
Redhead	100	60	870	1,270	700	8,470
Canvasback	60	20	950	594	280	8,050
Ringneck Duck	80	20	60	470	420	910
L. Scaup	1650	1240	7490	16,860	11,410	60,060
Bufflehead	50	30	50	630	280	630
Ruddy	50	40	390	600	280	2,730
TOTALS	3,280*	1,850*	17,190*	58,729	35,700	160,601

*These figures represent the largest concentration of ducks using the refuge at one time.

Lesser Scaup showed a marked increase over the past two years. An estimated 7,490 Scaup were using the refuge at the close of this period.

All waterfowl species showed a substantial increase this year except Blue-winged Teal, Ringnecked Duck, and Bufflehead.

Later census figures reveal the last week in April was the spring migrational peak for waterfowl.

Coot numbers were also up this spring. A peak of 3,260 coots was recorded for the period this spring as compared to 500 in 1960 and 2,000 in 1959.

4. Other Waterbirds.

Sandhill Cranes were abundant during the spring migration. An estimated 4,000 were observed by the author during April. Many more thousands undoubtedly went unobserved. An estimated 250 Cranes were seen feeding in a stubble field near the refuge.

Two Eared Grebes and two Western Grebes were observed on April 28. Horned Grebes were commonly seen at the close of this period.

5. Shorebirds, Gulls and Terns.

Killdeer were first observed on April 4 and were common by the end of April. Two Common Snipe and six Lesser Yellowlegs were recorded on April 28.

A peak of 13 American Avocets was observed on April 28. Ring-billed and Franklin's Gulls were common at the end of this period.

B. Upland Game Birds.

Sharp-tailed Grouse appear to be increasing from the lows during 1959 and 1960. Further details on Grouse dancing ground counts are given under Section V of this report.

The mild winter undoubtedly has helped the refuge grouse population. The winter loss was very low and the mild spring may have resulted in a more vigorous breeding population.

Gray Partridge have held their own at a moderate population level. The refuge population is estimated at 75 birds.

Ring-necked Pheasants may be present on Lostwood Refuge, but the writer has not observed a single bird during his tenure at this station.

C. Big Game Animals.

Due to lack of snow cover an aerial census was not conducted on Lostwood this winter. The winter was so mild and open that many of the White-tailed Deer did not "yard." White-tailed Deer were observed in scattered groups throughout the winter. All deer appeared to be in excellent physical condition. Predation on deer was much lower than during a bad winter. The refuge White-tailed Deer population is estimated at 300.

No Mule Deer were observed on the refuge this year.

Prong-horned Antelope were sighted on several occasions a few miles east of the refuge, near Niobe, North Dakota. No Antelope were sighted on the refuge this period.

D. Fur Animals, Rodents, Predators and other Mammals.

Muskrat: The population is very low and none were observed this period.

Mink: The population remains low this year.

Weasel: The weasel population evidently is still very low. The only record this period was one Least Weasel observed in the manager's basement on April 23 and 24.

Skunk: This animal appears to have increased since 1960. Five skunks were trapped around the goose pens during April.

Raccoon: The population of raccoon appears moderate and is similar to 1960.

Badger: A moderate to high population of badger is found on Lostwood. Numerous diggings were seen this spring.

Beaver: Five active colonies are now found on the refuge. Control methods will have to be initiated to reduce beaver damage to aspen groves.

Fox: A high population of red fox are present this year. No control methods have been initiated for fox at the close of this period.

Coyote: The coyote population is low and is found mostly along the north and west refuge boundaries.

Porcupine: No porcupine damage to tree groves was noted, but the population remains at moderate or higher levels.

Rabbits and Hares: Snowshoe Hares are rare at the present time. White-tailed Jackrabbits seem to be slightly more numerous than the low year of 1960.

Mice: White-footed and Field Mice remain at a high population level. Meadow Mice are down from last year.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies.

One Golden Eagle was seen near the tower on March 22. No Bald Eagles were seen this period.

The first migrant Marsh Hawk was seen on March 28 and they were numerous by the end of April. Red-tailed, Swainson's, and Sparrow Hawks were observed during April.

One Horned Owl was observed on March 23.

Magpies were present throughout the period in moderate numbers. No ravens were seen this period.

The Crow migration was spectacular this year with an estimated 1,800 birds observed on April 4. An estimated 10,000 crows were observed during the migration in April. The crow migration appears to be somewhat higher than the past two years.

F. Other Birds.

Dates of first arrivals not included elsewhere are given below:

<u>Species</u>	<u>Date</u>
Robin	March 17
Meadowlark	March 28
Starling	March 30
Yellow-headed Blackbird	April 1
Red-winged Blackbird	April 3
Slate-colored Junco	April 4
Tree Sparrow	April 4

G. Fish. - None.

H. Reptiles. - Nothing significant.

I. Disease. - None observed.

III. REFUGE DEVELOPMENT AND MAINTENANCE.

A. Physical Development.

1. Stockwater Well.

One stockwater well was drilled in grazing unit G-13. The well is 162 feet deep and has a four inch casing. A windmill has been purchased, but has not been erected by the close of this period. This water development was accomplished with Soil and Moisture funds.

2. Dimond Township Road.

Several meetings were held with the Dimond Township Board, Refuge personnel and the Burke County Commissioners. All of these meetings involved discussions on the closure of the two mile portion of the Dimond Township road within the refuge boundary. The Township Board appears reluctant to close this road and no decision was reached by the end of April. A decision is expected on this matter before June 1.

3. Road Repair and Fence Moving.

The township road along the northern boundary of the refuge is scheduled to be improved this summer. The township is responsible for the fencing and has already started to remove the boundary fence for future relocation.

4. Sign Repair and Painting.

Eleven large wooden informational signs have been repaired and painted with the new blue and white colors. Only two of these signs have been lettered and erected at the present time. The refuge manager plans to letter and erect the remaining nine signs in his spare time.

5. Residence Repair.

The holes in the bathroom and kitchen wall plaster have been repaired and these rooms are being painted at the present time. New bathroom tile has been installed in the residence.

B. Plantings. - None this period.

C. Collections and Receipts.

The following seed was obtained this period from the refuges indicated:

<u>Seed</u>	<u>Pounds</u>	<u>Donor</u>
Crested Wheatgrass	105	Lake Ilo Refuge
Slender Wheatgrass	104	Lower Souris Refuge
Alfalfa	70	White Lake Refuge

This seed will be used to plant strips in the Shell Lake farming units and other retired cropland.

D. Control of Vegetation. - None.

E. Planned Burning. - None.

F. Fires.

No fires occurred on refuge lands this period. The April rains have minimized fire danger at this time. Roadside burning is common in this area, but no fires went out of control.

IV. RESOURCE MANAGEMENT.

A. Grazing.

Range forage conditions have improved since early spring. The April rains have helped the dry conditions which prevailed since last fall.

Stock water may be in short supply during the grazing season. Many of the potholes are dry and water distribution will not be at an optimum for the best distribution of grazing pressure.

Permittee Marvin Anderson's grazing rights were terminated this spring because of non-use. Grazing units G-7 and G-4 (formerly M. Anderson's) were reassigned to other parties.

A general reassignment of grazing pastures has taken place to allow for consolidation of former permittees and placement of several new permittees.

B. Haying. - None.

C. Fur Harvest.

None this period. No record of the sale of last fall's three mink pelts has yet been received.

D. Timber Removal. - None.

E. Commercial Fishing. - None.

F. Other Uses. - None.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH.

A. Sharp-tailed Grouse Dancing Ground Studies.

The entire refuge plus the off-refuge sample grounds were checked this spring. All old grounds were checked for activity and five new grounds were located. Several grounds were found to have moved from 100 yards to a quarter of a mile from last year's ground site.

Refuge Biologist M. C. Hammond helped with the counts for several days and instructed the manager on some of the finer points of grouse counting and data recording.

The number of males on each ground during the period 1957 through 1961 is as follows:

<u>Ground</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
1	0	0	0	0	0
1a	4	13	0	0	0
2	0	0	0	0	0
3	20	30	14	7	21
4	0	0	0	0	0
4a	16	2	4	2	9
5	0	0	0	0	0
5a	2	0	0	0	0
6	(13)	34	0	8	20
7	0	25	6	3	0
7a	20	12	0	2	3
8	29	42	0	8	29
8a	10	0	0	0	0
9	5	0	0	0	0
10	12	19	0	0	0
11	(13)	14	0	2	0
12	21	23	5	4	4
12a	0	2	0	0	5
13	9	23	0	8	31
14	11	28	0	0	0
14a	12	9	0	0	0
15	0	0	0	0	0
16	0	22	3	0	32
17	0	2	0	0	9
18	0	33	7	7	19
19	0	27	2	8	21
20	0	47	0	8	35
21	0	40	13	4	12
22	0	38	0	0	20

Ground	1957	1958	1959	1960	1961
23	0	33	0	0	11
24	0	23	1	0	20
25	0	6	0	0	14
26	0	8	9	6	14
27	0	22	13	14	19
28	0	20	0	0	0
29	0	12	0	0	10
30	0	25	0	0	0
31	0	2	10	0	22
32	(13)	N.C.	N.C.	12	13
33	0	N.C.	N.C.	N.C.	5
34	0	N.C.	N.C.	N.C.	11
35	0	N.C.	N.C.	N.C.	8
36	0	N.C.	N.C.	N.C.	9
37	0	N.C.	N.C.	N.C.	13

Average males per ground	13.1	21.2	7.2	6.4	15.7
No. of Active grounds	16	31	13	16	28
Total males	210	657	94	103	439

() = estimated or computed from average N.C. = not counted

These figures show an increase in the number of males of 400 percent since 1960. The 1961 count is still below the all-time high during 1958.

The past four years counts broken down by the land use study type are given below.

Land Use Type	1958		1959		1960		1961	
	Grds.	Males	Grds.	Males	Grds.	Males	Grds.	Males
Intensive (Less than 2.5 acres/AUM)	3	39	0	0	0	0	2	15
Moderate (2.5 acres/AUM)	6	138	1	19	1	7	3	52
Light (5 acres/AUM)	7	153	5	22	6	37	8	136
Ungrazed	8	137	3	19	5	21	5	82

The intensively grazed area was taken from an off-refuge sample. Each land use type is composed of approximately 5,800 acres. Eight grounds on the refuge are not included in any of the study blocks.

The last four years data seems to indicate a grouse preference for the lightly grazed and ungrazed areas. The heavily grazed area has never been used much by the grouse. The moderately grazed area was well used in 1958 and has not been used much since. There are so many other factors entering into a study of this type that it will take a few more years to reach a positive conclusion.

B. Canada Goose Restoration Program.

The 49 captive geese were kept in the barn during the winter. On good days the geese were herded out into a covered wire pen. No mortality occurred during the wintering period.

On March 21 Manager Bradley, Clerk Hoffman and I released all of the geese into the appropriate pens. Flock V consisting of 33 immature geese and one wild cripple was released into the pen south of the office building. Flock IV consisting of nine males and six females was released into the large pen with the nesting islands. The six females were wing-clipped and the nine males were left unclipped.

Pairing occurred by most geese in Flock IV in the large pen. However, no nests have been found by the close of this period.

At the end of April two of the six females have been lost to predators and one other female is missing. Four skunks and one porcupine have been trapped by the manager around the goose pens. Even with this trapping program the clipped females readily succumb to predators.

One factor undoubtedly is partly responsible for the predation loss and the lack of nesting. This factor is the extreme shallowness of the water in the large goose pen. All of the islands have been completely out of water all spring. Two artificial islands were constructed out of hay bales to help make up for the lack of earthen islands. Four hay bales were tied together and staked down for each island. These hay bale islands looked good to me, but evidently not to the geese. These islands have been used only as loafing sites by the geese and ducks.

No geese have been observed to return to Lostwood out of the 12 captive birds that were released last spring.

All of the 33 birds in Flock V will be released in the spring of 1962 as a last ditch attempt to establish geese at Lostwood Refuge.

VI. PUBLIC RELATIONS.

A. Recreational Uses.

Three visitor days were recorded by local bird enthusiasts. No other recreational uses occurred this period.

B. Refuge Visitors.

<u>Name</u>	<u>Date</u>	<u>Organization/Address</u>	<u>Purpose</u>
John R. Waters	1/19	USGMA-Minot	Refuge patrol discussion
Lee Gorder	2/28	P&RC-Stanley	Courtesy call
Hugh Cosby	4/11	SCS-Minot	Grazing unit check

Name	Date	Organization/Address	Purpose
M. C. Hammond	4/10-14	Lower Souris Refuge	Dance Grd. Counts
Hugh Cosby	4/18	SCS-Minot	Courtesy call
John R. Waters	4/19	USGMA-Minot	Pesticide study
Robert Finley	4/19	FWS-Denver Research Lab.	Pesticide study

Numerous visits occurred from permittee grazers and prospective grazers.

C. Refuge Participation.

The refuge manager attended the Fish and Wildlife Service Conference in Jamestown, North Dakota, on March 22 and 23.

The refuge manager gave a movie and lecture on March 28 to the following groups:

School	Grades Involved	No. of Students
Bowbells School	5-12	195
Powers Lake School	6-12	213
	Total	408

The refuge manager attended a North Dakota State Grasshopper Control Meeting in Rugby, North Dakota, on March 30.

D. Hunting. - None this period.

E. Violations. - None detected this period.

VII. OTHER ITEMS.

A. Items of Interest.

1. Trespass Livestock.

Trespass sheep, cattle, and horses were seen in the refuge on several occasions near refuge headquarters. The owner was contacted several times to remove the offending animals. Each time the owner was contacted he came and removed the trespass livestock. However, in a few weeks the animals were allowed to run loose and they would enter the refuge again. After seeing the futility of contacting the owner, the North Dakota State Patrol was contacted. The owner of the livestock was given strict orders by a patrolman not to allow livestock to graze on the right-of-way. Since the contact by the State Patrolman, no trespass livestock have been observed within the refuge boundary. If trespass occurs again, the instructions in part 3727 of the Wildlife Refuge Manual will be followed to eliminate this problem.

2. Refuge Well.

The new refuge well was turned on in early March and was found to still pump a large quantity of sand and clay. The water was

pumped into the shelterbelt for several days until a major portion of the sand and clay had stopped flowing. Then the lawn was watered nearly every day with water from the new well. At the close of this period the water pumped from the well is almost perfectly clear.

The water from the new well will be used to water lawns until it clears up perfectly. All appearances indicate that the new well may be used for the residence in a few weeks.

3. Credits.

Refuge Manager Donald N. White is credited with the drafting of this narrative report. Des Lacs Refuge Clerk Lowell Hoffman receives credit for the typing.

B. Photographs.

The photographs are located at the rear of the text of this report.

DISTRICT IVa WATERFOWL PRODUCTION AREAS

LAKE ZAHL

I. General.

Slightly less snow fell in this area than at Lostwood. Seven inches was the maximum on the ground at any one time this winter.

Water conditions appear good in Shirley Lake and several of the larger potholes. The smaller potholes are dry or nearly dry at this time. Lake Zahl proper is low at the present time. The gauge reads 3.94 which is one and a quarter inches below last fall and 25 inches below the June 14, 1960 reading. Lake Zahl may go dry during late summer or early fall unless precipitation is well above normal.

The grass cover and forage conditions appear good at the present time. Stockwater may be a problem on grazing unit G-2 this summer.

Waterfowl food and cover appears excellent on the government-owned portions of the refuge.

II. Wildlife.

A. Migratory Birds.

Two censuses were conducted prior to April 30. Results of these counts are given below:

<u>Species</u>	<u>April 20</u>	<u>April 26</u>
Canada Geese	156	0
Mallard	670	337
Gadwall	8	44
Pintail	372	306
GW Teal	48	110
BW Teal	0	24
Am. Widgeon	50	49
Shoveler	46	67
Redhead	471	59
Canvasback	599	227
Ringneck Duck	7	27
L. Scaup	1,598	416
Bufflehead	6	15
Total Ducks	3,882	1,681
Coot	6	34

Other migratory birds seen are listed below.

<u>Species</u>	<u>April 20</u>	<u>April 26</u>
Horned Grebe	2	11
L. Yellowlegs	0	2
American Avocet	0	4
Ring-billed Gull	6	15
Franklin's Gull	2	3

B. Upland Game Birds.

Moderate populations of Sharp-tailed Grouse and Gray Partridge are reported in the area by reliable observers. A few Ring-necked Pheasants have been sighted this spring near the southern end of the refuge.

C. Big Game Animals.

Four White-tailed Deer were observed on the area during the April 20 waterfowl census. The total refuge deer population is estimated at 30 animals.

D. Fur Animals, Predators, Rodents, and other Mammals.

Coyote and Beaver have not been sighted on this refuge and none have been reported by the local farmers. Mink and Muskrat are at a very low population level. Fox, Raccoon, and Skunk are reported at a high population.

III. Refuge Development and Maintenance.

A. Physical Development.

The Lake Zahl Refuge boundary is scheduled for fencing in the summer or fall of 1961.

An interim land use plan was written for Lake Zahl this period. This plan has set up two farming units and four grazing units on the refuge. A complete land use plan will be written when the soil capability surveys and range site surveys are completed by the Soil Conservation Service.

B. Plantings.

1. Cultivated Crops.

Two cooperative farming agreements were issued for Lake Zahl Refuge this period. Data concerning these cooperative

agreements is given below:

<u>Farming Unit</u>	<u>Crop</u>	<u>Cooperators' Share</u>	<u>Govt. Share Unharvested</u>
A-2	Wheat	40 acres	0
A-2	Barley	4.7 acres	22.3 acres
A-2	Summer Fallow 41 acres		
A-1	Wheat	20.7 acres	0
A-1	Barley	14.4 acres	17.6 acres
A-1	Summer Fallow 15 acres		
	Totals	79.8 acres	39.9 acres

IV. Resource Management.

A. Grazing.

Four grazing units have been authorized by the new land use plan. All of these units will be opened for use if water and fencing conditions permit.

Forage conditions are from fair to good. Stock water may be a problem on some of the units.

B. Haying.

Hay cutting is not authorized for the Lake Zahl Refuge.

C. Fur Harvest.

No trapping for fur-bearing animals occurred this period.

A fox drive covering several townships was conducted on January 28 in the Lake Zahl area. I was contacted by one of the local farmers for permission to include the refuge in the fox drive. I informed the party I would check over the matter and inform him if it were permissible. Evidently our conversation was interpreted to mean a verbal O.K. by the farmer involved. A few days later I received an enthusiastic telephone call relating the success of the drive to the refuge and nearby private farms.

The leader of the fox drive assured me he had misunderstood and that there was no malicious intent involved. Later when I drove to the Lake Zahl area, I contacted several persons regarding the drive. Everyone was highly enthusiastic about the results of the drive. A total of 43 fox and 6 skunk were taken. Sixteen of the foxes were taken on refuge land.

It seems that everyone felt the refuge was harboring predators and this drive eased their fears considerably. It appears this fox drive did more to foster good farmer-refuge relations than I had ever done by making personal contacts.

SHELL LAKE

I. General.

The water level is holding up well in Shell Lake. The springs in the north end of the lake seem to provide adequate water even during dry years.

There were 56 acres of unharvested barley left from a cooperative farming agreement last year. This barley was utilized by waterfowl last fall and is still being utilized at the close of this period.

II. Wildlife.

A. Migratory Birds.

Two censuses were made at Shell Lake this period and the results are shown below:

<u>Species</u>	<u>Number Seen April 17</u>	<u>Number Seen April 27</u>
Canada Goose	78	0
White-fronted Goose	44	0
Mallard	1,278	1,740
Pintail	647	1,018
GW Teal	14	652
BW Teal	0	25
Gadwall	0	36
Am. Widgeon	163	150
Shoveler	7	27
Redhead	24	9
Ring-necked	12	0
Canvasback	43	8
Lesser Scaup	337	18
Common Goldeneye	10	0
Bufflehead	2	0
Hooded Merganser	2	0
Common Merganser	72	0
Total Ducks	2,611	3,683
Coots	4	16

Other migratory birds observed are listed below:

<u>Species</u>	<u>April 17</u>	<u>April 27</u>
Horned Grebe	0	3
Sandhill Crane	0	300*
Killdeer	1	4
Avocet	0	3
Ring-billed Gull	2	12

*Reported by James Moen on April 24.

III. Refuge Development and Maintenance.

A. Physical Development.

Title to Tract 18 has been conveyed to the United States. This tract is 53.5 acres in size and is located on the NE side of Shell Lake.

Fencing the entire refuge boundary is planned sometime during this year.

A land use plan was written this period for Shell Lake. Cooperative farming is authorized under this plan. Haying and grazing were not allowed.

B. Plantings.

Small grain crops will be grown on the four refuge farming units. The government's share will be left standing. The cooperative agreement was not completed by the end of this period.

IV. Other Items.

Trespass cattle were observed on the April 17 trip to Shell Lake. Several of the local farmers were contacted and informed to have the owner remove the cattle. The April 27 trip revealed all of the trespass cattle had been removed. Trespass may be a problem on this area until it is fenced.

SIGNATURE PAGE

Submitted by:

Donald W. White
(Signature)

Date: May 11, 1961

Refuge Manager
(Title)

Approved, Regional Office:

Date: 5/24/61

Donald W. Carpenter
(Signature)

Regional Refuge Supervisor



'Sharp-tailed Grouse dancing ground. Notice the heavily worn areas.



'Skunk and other predators are a constant threat to the captive geese.

WATERFOWL

MONTHS OF January TO April 30, 19 61

[illegible]

3 -1750a

Cont. NR-1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE Lestwood MONTHS OF January TO April 30, 1961

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling						46	62		756	
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard				20	180	700	1480	1610	27,930	
Black										
Gadwall								2410	16,870	
Baldpate						40	200	530	5,390	
Pintail				13	80	380	680	920	14,581	
Green-winged teal							230	840	7,490	
Blue-winged teal								69	420	
Cinnamon teal										
Shoveler								1010	7,070	
Wood										
Redhead										
Ring-necked					10		840	870	8,470	
Canvasback							60	60	910	
Scaup							200	950	8,050	
Goldeneye						170	920	7490	60,060	
Bufflehead							40	50	630	
Ruddy								390	2,730	
Other										
Coot:							40	3260	23,100	

(over)

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	756	62		Principal feeding areas <u>Thompson and Iverson Lakes and</u>
Geese	0	0		<u>nearby private stubble fields.</u>
Ducks	160,601	17,190		Principal nesting areas _____
Coots	23,100	3,260		
				Reported by <u>Donald N. White</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: 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.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Lostwood Months of Jan. to April 30 1961

(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>										
Horned Grebe	2	4/20	27	4/23	5	4/30				200
Eared Grebe	2	4/28	(only observation)							
Western Grebe	2	4/28	(only observation)							
Sandhill Crane	60	4/4	1,000	4/19	250	4/23				4,000 est. (seen in flight)
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	2	4/4	18	4/30	18	4/30				400
Common Snipe	1	4/28	(only observation)							
Lesser Yellowlegs	6	4/28	(only Observation)							
American Avocet	1	4/20	13	4/28	3	4/30				50
Ring-billed Gull	3	4/4	25	4/28	10	4/30				300
Franklin's Gull	1	4/16	8	4/30	8	4/30				100

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	1	4/10	12	4/28	12
White-winged dove					200
IV. <u>Predaceous Birds:</u>					
Golden eagle	1	3/22 (only observation)			
Duck hawk					
Horned owl	1	3/28 (only observation)			
Magpie	Permanent Resident - common				
Raven	Permanent Resident - not common				
Crow	12	3/13	1,800	4/4	35
Red-tailed Hawk	1	4/23 (only Observation)			4/30
Swainson's Hawk	1	4/4	6	4/28	6
Marsh Hawk	1	3/28	12	4/28	2
Sparrow Hawk	1	4/8	6	4/28	6
Reported by <u>Donald H. White</u>					10,000
					200

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752

Form NR-2

(April 1946)

UPLAND GAME BIRDS

1613

Refuge LostwoodMonths of January to April 30, 19 61

(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.
Sharp-tailed Grouse	24,341 acres of uplands							800	estimated from dancing ground counts
Gray Partridge	" "							75	
Ring-necked Pheasant	" "							2	none observed in last 8 mos.

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.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Lostwood

Year ending April 30, 1961

(1) Species	(2) Density	(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion		
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Muskrat														50
Mink				2				T-9296	1	1	1			75
Skunk				5	8			"	5					200
Badger				1				"	1					150
Raccoon				2	2			"	2					40
Red Fox				2	1			"	2					80
Beaver														25
Coyote														6
Porcupine					9									150
White-tailed Jack														100
Snowshoe Hare														20
Mink				2				T-9297	1	1	1			
Skunk				2				"	2					
Red Fox				1				"	1					
Skunk				1				T-9298	1					

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: Removals under the predator control column were
made by the Refuge Manager.

Reported by Donald N. White

INSTRUCTIONS

Form NR-4'- SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge District IVa Easements

Year ending April 30, 1961

(1) Species	(2) Density	(3) Removals						(4) Disposition of Furs						(5) Total Popula- tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest		Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
				Permit Number	Trappers Share				Refuge share						
<u>Lake Zahi</u>															
Muskrat				1					T-9299	1	1	Sold			6
Mink				1					"	1					15
Raccoon				1					"	1					10
Skunk															30
Weasel															2
Badger															4
Red Fox				1					"	1					20
Coyote															0
Raccoon				1					3-1100	1					
Skunk				3					Esterby	3					
Red Fox				2					"	2					
<u>Shell Lake</u>															
Mink				6					3-1100	6					
Red Fox				4					Sherva	4					

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

NARRATIVE REPORT
LAKE ILO NATIONAL WILDLIFE REFUGE
JANUARY, FEBRUARY, MARCH, APRIL, 1961

I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>This Month</u>	<u>Normal</u>	<u>Temp.</u>	<u>Temp.</u>
January	<u>1.0</u>	<u>.03</u>	<u>.43</u>	<u>46</u>	<u>-20</u>
February	<u>8.0</u>	<u>.95</u>	<u>.46</u>	<u>57</u>	<u>-22</u>
March	<u>1.0</u>	<u>.25</u>	<u>.82</u>	<u>72</u>	<u>14</u>
April	<u>10.0</u>	<u>2.50</u>	<u>1.33</u>	<u>72</u>	<u>13</u>
Total	<u>20.0</u>	<u>3.73</u>	<u>3.04</u>	<u>Extremes 72</u>	<u>-22</u>

The above data was obtained from the weather station at refuge headquarters.

Mean temperatures were above the seasonal normal for January, February and March and below during April. The highest temperature was 72 on both March 24 and April 18. The coldest day was on February 2 with a reading of minus 22. The winter was considered mild with no severe storms occurring. There was a 10 inch snowfall on April 23, this being the largest snowfall during the winter.

Precipitation was below average during January and March and above average during February and April. Total moisture received during the period was 3.73 inches which was 23 percent above the long-term normal. Snow fall was below normal for the winter months. The 10 inch snowfall on April 23 was the greatest amount at one time during the entire winter season.

As the light snowfall melted at various times during the period practically all of the moisture went into the ground. Surface water has been scarce and the subsoil is still extremely dry. Rain and snow falling since mid-April made up more than one-half of the total precipitation for the period. This has greatly improved soil moisture conditions and prospects for crops this year.

B. Habitat Conditions.

1. Water

The water level was 30 inches below the spillway crest on January 1 and it remained at that level until the first week in March. The level then raised slowly as follows, all readings below spillway: 24" on March 11, 22" on March 18 and 21" on March 25. The stage later dropped to 22" below the spillway on April 22. Precipitation during late April caused the level to raise to 18" below the spillway the last week of the period. This is the lowest level recorded for the spring season since the lake was established in 1939. During all of this time there has been only two other years when water did not flow over the spillway during the spring run-off. In 1940 the level was 15 inches below the spillway on April 30 and in 1956 it was 10 inches below the spill crest on the same date.

The ice was 13 inches thick at the beginning of the period and increased to 20 inches on February 6. Mild weather caused the ice to decrease in thickness after that date and it all disappeared on March 31. This was the earliest that the ice has ever left the lake.

2. Food and Cover

The refuge supply of food and cover for upland game birds was very good. Snowfall was relatively light and it did not remain on the ground for any length of time. The greatest amount of snow cover at various times was 4 inches in January and again in February and 10 inches the latter part of April, most of which had melted by the end of the period. A good supply of standing corn and barley was available in the fields for wildlife during the winter months.

The corn and barley that was left standing in the fields last fall was cut with the rotary mower this spring. This made ideal feeding conditions for waterfowl. Ducks and a few geese cleaned up the corn in a short time. Most of the barley that was near the corn was also taken. On the other hand, utilization by waterfowl was not good on the barley located on the Donohoe tract. This new land lies west of the old refuge boundary and it is expected that it will take some time for the birds to become accustomed to this unit. Pheasants did use the Donohoe tract extensively

during the period. It is estimated that all of the corn, 90 percent of the barley on the old crop units and 30 percent of the barley on the Donohoe tract was consumed by wildlife.

For some unknown reason the waterfowl did not feed in the 7 acres of millet on one of the older crop units. This crop was poor because of dry weather but it did produce some grain. Good utilization was expected as the straw was short and the field was free of weeds.

II. WILDLIFE.

A. Migratory Birds.

1. Waterfowl

Waterfowl use was more than three times greater this period than it was for the same period one year ago. The total was also the largest for that season of the year since 1953' when use day records began.

Overall use by geese was more than double that recorded for the same period in 1960. Large Canada Geese were more plentiful this spring as were the White-fronts. Use by Small Canadas was down but this reduction was more than made up by Blue and Snow Geese which have been absent for several years.

The greater part of all waterfowl use is always contributed by ducks. This use was more than three times the figure recorded for the same period one year ago. The greatest change was for dabblers as a group where the use was five times that of the previous spring period. Increases were noted for every species common to this area. Diving duck use also showed a favorable gain, increasing more than twice over the 1960 figure. In this group more use was recorded for every species present except Redhead which were down about 10 percent. Both Canvasback and Scaup made significant gains at Lake Ilo.

Coot were present in about average numbers as compared to recent years. Overall use was about 10 percent less than it was last year for this period but higher than that recorded for 1959.

A comparison of period Waterfowl Use for the past three years will be found in Table I on the following page.

TABLE I - Comparison of Waterfowl Use Days 1/1 - 4/30

Species	1959	1960	1961
Canada Geese (lge.)	2,464	2,142	3,941
Canada Geese (sm.)	133	707	455
White-fronted Geese	280	294	882
Snow Geese	- -	- -	1,064
Blue Geese	- -	- -	7
Subtotal - All Geese	<u>2,877</u>	<u>3,143</u>	<u>6,349</u>
Mallard	170,100	42,021	203,350
Gadwall	4,200	2,800	11,900
Widgeon	64,890	7,700	76,545
Pintail	158,200	49,182	230,350
CW Teal	11,200	7,350	12,460
BW Teal	4,200	4,900	5,600
Shoveler	5,810	7,700	62,734
Subtotal - Dabblers	<u>418,600</u>	<u>121,653</u>	<u>602,939</u>
Redhead	2,030	2,660	2,310
Canvasback	5,425	3,612	12,145
Scaup	28,700	35,000	84,700
Common Goldeneye	420	196	280
Bufflehead	490	189	238
Ruddy	1,050	700	1,400
Common Merganser	924	2,744	6,818
Subtotal - Divers	<u>39,039</u>	<u>45,101</u>	<u>107,891</u>
Grand Total - All Ducks	<u>457,639</u>	<u>166,754</u>	<u>710,830</u>
Coot	14,350	24,500	21,140

2. Water and Marsh Birds.

The population of birds in this class was below average and very few were present this period. It is believed that the cool weather during April was responsible for the delay in arrivals and the small numbers involved.

Mr. Lee Grow, a local farmer, reported that he saw 10 large white birds on April 21 that he thought were Whooping Cranes. Upon investigation these birds could not be located. Another farmer living six miles north of the refuge later reported that he had seen 10 white birds on the same date. Another report on these birds which could not be verified was that by Dave Riley who lives on the west side of the refuge. He reported that he saw one Whooping Crane fly over his place but did not record the date. He did state that this occurred around the 20th of April. The assumption that "10 large white birds" were Whooping Cranes is undoubtedly incorrect as these birds are not known to travel in groups of more than 5 or 6.

3. Shorebirds, Gulls and Terns.

Only a very few of these birds have been present during the latter part of the period. Killdeer, Common Snipe and Marbled Godwit have been represented as well as Ring-billed and Franklin's Gulls.

4. Doves.

The first Mourning Dove was observed on April 5 -- eleven days earlier than last year. An estimated 20 birds were present by the end of the period, the same as a year ago.

B. Upland Game Birds.

Ring-necked Pheasant

It is estimated that 150 birds were present until the latter part of the period. The worst storm of the period occurred on April 23 when 10 inches of wet snow fell. It is believed that some hen pheasants were lost during this storm and immediately thereafter. Up until this time weather conditions had been exceptionally good for upland game birds.

Gray Partridge

The population is estimated at 100 birds -- the same as one year ago. A good number of pairs have been observed since March.

Sharp-tailed Grouse

The grouse population has dropped to about 20 birds as compared to 30 last year during the same period.

C. Big Game Animals.

Deer

Both Mule and White-tailed Deer are common in the vicinity of the refuge. Three Male Deer were counted on the refuge this spring although none were observed during the winter.

Antelope

No Antelope have been found on the refuge but they are common in the vicinity. Several bunches were feeding close to the refuge on several occasions during the winter and spring.

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

Muskrat: Population very low as compared to past years but believed to be on the upward trend. A total of 100 is estimated at present.

Mink: The population seems to be down from that of past years. None were trapped and less than the usual amount of sign has been observed. The total is estimated at 10 as compared to 20 one year ago.

Raccoon: None were seen during the period but tracks were numerous along the lake shore this spring. Population is on the upward trend but none removed by trapping.

Skunk: The number is believed to be about the same as it has been for the past several years. A total of 8 were disposed of during the past year.

Weasel: Relatively scarce and none were taken during the fur season. A few tracks were observed and 2 animals were seen on the refuge during the year.

Badger: The population is about the same as usual, estimated at 6 animals. Two were removed during the last year.

Beaver: It was believed that from 6 to 10 animals were using the refuge last fall. It is known that 4 were taken below the refuge. These apparently had been using the refuge as the population is now down to one or two.

Red Fox: The population remains at a high level. Only one was removed from the refuge but 27 were taken outside and within one-half mile of the boundary during the past year. It is believed that 10 to 20 dens could be found and destroyed within a ten mile radius of the refuge.

Coyote: Only one seen near the refuge and the population is considered very low.

E. Hawks, Eagles, Owls, Crows and Magpies.

A small number of Rough-legged and Marsh Hawks, Prairie Falcons and Sparrow Hawks used the refuge during migration. Two Golden Eagles were observed several times during the period. Two Bald Eagles also appeared at the refuge this spring on March 26 and remained on the area for several days. Three Horned Owls were present during the period as compared to four birds during the same months last year. Snowy Owls were not recorded during this period. Crows were plentiful and it is estimated that a larger number passed through on migration than was the case one year ago. A few were still present yet at the end of the period.

F. Fish.

Conditions for fish were very good at Lake Ilo this past winter. There was very little snow cover at any time, the ice was clear and it did not become as thick as usual. The water level was lower than usual but this condition is not serious when other limiting factors are favorable. Spawning conditions were poor for Northern and Walleyed Pike as could be expected with low water. Another unfavorable condition was the lack of run-off in the creek which supplies water to the refuge.

The winter fishing season opened December 15 and closed on March 15. Fishing was considered poor for Northern Pike as compared to the past. Success on Perch was good the last half of December but poor after that time. The Perch taken were larger than usual, a large percentage of them being over 11 inches in length. Fishing pressure was fairly heavy during December and early January. This activity declined after that time because the fish did not bite readily. There was a peak of 38 fish houses on the lake the first part of January.

G. Reptiles.

None at this season of the year.

H. Disease.

No evidence of disease among waterfowl, upland birds or mammals during this period.

III. REFUGE DEVELOPMENT AND MAINTENANCE.

A. Physical Development.

Roads and Trails

Maintained refuge roads with Ferguson tractor and blade. Installed auto gate into Fishermen's Parking Area.

Land Use

Contacted cooperators and completed five farming agreements. Cut standing corn and barley for waterfowl food. Measured and marked roadside shelterbelt on Unit A-6 and seeded 35 acres to grass-legume on same unit which just came under management this year. Prepared seed bed and planted $11\frac{1}{2}$ acres of barley. Mowed 5 acres of sweet clover with rotary mower on Unit A-10.

Buildings

Painted new outside doors at residence.

Miscellaneous

Made wage rate and grazing fee surveys.

Serviced and made minor repairs on Pickup truck, Dump truck, Ferguson tractor and farm implements.

Cleaned 1100 pounds of alfalfa seed and 2500 pounds of crested wheatgrass seed.

B. Plantings.

1. Aquatic and Marsh Plants. - None.
2. Trees and Shrubs. - None.
3. Upland Herbaceous Plants. - None.
4. Cultivated Crops.

Five cooperative agreements were issued for farming 301 acres of cropland. The new Unit 6 was staked out in 9 rod strips and one-third of the acreage was seeded to grass for retirement and to provide some undisturbed cover.

Units A-2 and A-3, containing 23 acres, and the 7 acre field #9 in Unit A-5 will be farmed by refuge personnel in order to provide more food for waterfowl at preferred locations.

C. Collections and Receipts.

1. Seed and Other Propagules.

A total of 210 pounds of Slender wheatgrass was obtained from the Lower Souris Refuge via Des Lacs for use at the Lake Ilo, McLean and White Lake Refuges.

2. Specimens. - None.

D. Fires.

No wild fires occurred on the refuge during the period.

IV. RESOURCE MANAGEMENT.

A. Grazing. - None this period.

B. Haying. - None this period.

C. Fur Harvest.

Trapping under permit was completed during the previous period. Unfortunately, no animals were taken.

D. Commercial Fishing.

A free use permit was issued in December 1960 for the removal of Bullheads, Suckers and other rough fish except Perch, from December 1, 1960 to March 25, 1961. During this period the permit was amended to extend the expiration date to May 26.

The results of removal operations under this permit are listed below:

<u>Species</u>	<u>Pounds Removed</u>
Bullheads	30,000
Suckers	1,000

Other fish found in the nets and returned to the water were as follows: 300 Northern Pike, most of these were about 20 inches in length; 2 small Carp, 4 inches long; and 3 Large-mouthed Bass, 2½ pounds each.

E. Other Uses.

The following buildings, acquired with the land on Tracts 42

and 44, were offered for sale and sold to the highest bidders:

<u>Item No.</u>	<u>Tract No.</u>	<u>Article</u>	<u>Sale Price</u>
1	44	House, frame, 32x32	252.00
2	44	Granary, 15x20	10.00
3	44	Chicken House, 12x24	48.00
4	44	Barn, conc. wall, 26x32	17.00
5	42	Garage, frame	11.10
6	42	Barn, frame	107.00
7	42	Stock shed	10.00
8	42	Milk house	1.00
9	42	Lean-to, 10x18	6.20
10	42	Stock corral	75.00
11	42	Granary, 12x16	32.00
12	42	House, frame	110.00
Total sale price			\$679.30

V. FIELD INVESTIGATION OR APPLIED RESEARCH.

A. Progress Report.

Nothing to report under this category.

VI. PUBLIC RELATIONS.

A. Recreational Use.

The Recreational Area, which is maintained by the Dunn County Park Board, was used very little during this period.

Sport fishing was permitted until March 15 and an estimated 1600 visitor-days was spent on that activity. This represented a drop of 250 visitor-days below the figure recorded a year ago.

B. Refuge Visitors.

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
1/16	Homer L. Bradley	FWS-Des Lacs Refuge	Inspection
1/20	Thomas Dardis	Killdeer, N. Dak.	Sale of Buildings
1/23	Gerald Felch	FWS-Des Lacs Refuge	Deliver Equipment
1/23	Jack Murphy	Killdeer, N. Dak.	Sale of Buildings
1/23	J. & M. Krank	Dickinson, N. Dak.	" " "
1/23	Steve Schwindt	Killdeer, N. Dak.	" " "
1/28	Harold Benz	Killdeer, N. Dak.	" " "
1/30	Gerald Felch	FWS-Des Lacs Refuge	Deliver Equipment
2/3	Mr. McKenzie	State G&F Dept.	Gas for plane
2/3	Mr. Petterson	State G&F Dept.	" " "
4/18	Elmer Peterson	FWS-Minneapolis	Land Acquisition

A number of fishermen and the commercial fisherman called at the headquarters several times during the period.

C. Refuge Participation. None this period.

D. Violations. No apprehensions were made during this period.

VII. OTHER ITEMS.

A. Land Acquisition.

Title to Tract 9a, containing 126.72 acres, was conveyed to the Government for refuge purposes on February 27. The former owner's reservation for farming will not expire until the end of 1961.

B. Credits.

Mr. Chesley M. Dinkins, Wildlife Technician, Lake Ilo, supplied practically all information for the Lake Ilo and District IV Easement and Waterfowl Production Area reports.

DISTRICT IV EASEMENTS AND WATERFOWL PRODUCTION AREAS

HIDDENWOOD

I. General.

Snowfall was below normal in this area for the period and also for the entire winter season. Precipitation this year to date for Parshall, located about 18 miles northwest of Hiddenwood, has been only 1.58 inches. That amount is probably about one inch below average.

The water level at freeze-up time last fall was at .10 on the gage or 1.10 feet below the outlet culvert. By April 28 the level was up to .78 on the gage.

Gage records obtained for the period are as follows: (1.00 on the gage equals the flow line of the outlet culvert)

<u>Date</u>	<u>Gage Reading</u>	<u>Relation to Outlet Level</u>
4/6	.50	-.70*
4/28	.78	-.22

*Gage reset April 28, formerly reading of 1.20 equalled outlet culvert level.

II. Wildlife.

The area was visited twice during the period and the following waterfowl and other birds were recorded:

<u>Species</u>	<u>April 6</u>	<u>April 28</u>
Mallard	3	68
Gadwall		16
Widgeon		32
Pintail		60
Shoveler		2
Redhead		117
Ringneck		13
Canvasback		20
Scaup		1000
Ruddy		3
Common Merganser		2
Coot		75
Pied-billed Grebe		1
Black-crowned Night Heron		1
Marbled Godwit		1

No upland game birds were seen on the refuge. It is estimated that a few Pheasants, Gray Partridge and Sharp-tailed Grouse do use the area at times as all of these birds are found in the general vicinity.

Muskrats are very scarce at Hiddenwood and no houses were present during the winter. Signs indicate that a few Mink, Raccoon, Skunk, Badger and Fox do use the refuge.

White-tailed deer use the refuge at times during the year but no fresh tracks were found this period.

A 3-11400 permit was issued last period to allow the removal of furbearers. Only one Mink was removed under that permit.

McLEAN

I. General.

Snowfall was below average for the period as it was for the entire winter season. Surface moisture was well below normal until late April when a good rain and snowfall improved conditions. The water level was $-.25$ on the gage or 1.95 feet below the spillway at freeze-up time last fall. Water did not go over the spillway this spring and on April 28 the level was 1.34 or .36 below the spill crest.

Gage records obtained this year are as follows: (1.70 on gage equals spillway level for record purposes)

<u>Date</u>	<u>Gage Reading</u>	<u>Relation to Spillway Crest</u>
4/6	1.10	-.60
4/28	1.34	-.36
5/2	1.35	-.35

II. Wildlife.

This refuge was visited twice during the period and the following waterfowl and other birds were observed:

<u>Species</u>	<u>April 6</u>	<u>April 28</u>
Mallard	2500	120
Widgeon	250	18
Pintail	4000	198
GW Teal	12	14
Shoveler	- -	4

<u>Species</u>	<u>April 6</u>	<u>April 28</u>
Redhead	8	6
Canvasback	42	47
Scaup	90	95
Bufflehead		2
Ruddy		6
Coot		45
B.-c. Night Heron		6
Marbled Godwit		1

No upland game birds were observed on this refuge during the period. It is believed that a few Pheasants, Gray Partridge and Sharp-tailed Grouse did use the area occasionally as small populations are present in the vicinity.

The Muskrat population is very low with not more than 25 animals present. Signs indicate that a few Mink, Skunk and Fox also use the area. One formal trapping permit was issued last fall to cover the Government-owned portion of the refuge. One 3-1400 permit was also issued for trapping on the easement portion. Trapping conditions were favorable but no animals were caught.

III. Physical Development.

A. Miscellaneous.

The recognition sign was refinished with the new blue and white colors by Des Lacs personnel.

Land Use Plan prepared and submitted by Des Lacs.

Measured and staked off farm land in 10 and 20 rod strips on Units A-1 and A-3.

Seeded 14 acres with grass-legume mixture on odd plots of farm ground that was left over after Units A-1 and A-3 were laid out in equal width strips. Seed mixture contained 3 pounds crested wheat, 3 pounds slender wheat and 2 pounds alfalfa per acre.

B. Plantings.

Two cooperative agreements were issued for a total of 128.2 acres in Units A-1 through A-5.

IV. Resource Management.

A. Fur Harvest.

No animals were removed under either the formal trapping permit or the 3-1400 permit on the easement land.

PRETTY ROCK

I. General.

Snowfall was below normal for the period and the entire winter season. Precipitation was far below average for the first three months of the year and about normal for April.

The impoundment was dry at the beginning of the period. When visited on March 22 there was an estimated two acres of water that was only a few inches deep. This is the lowest level recorded for this time of the year since the refuge was established.

II. Wildlife.

It is possible that a few waterfowl may have used the area during the spring migration but at present the area is not attractive to these birds. Three Killdeer were seen on March 22. No upland game birds were found on the refuge at the time it was visited but it is believed that a few Pheasants, Gray Partridge and Sharp-tailed Grouse have used the area.

Mule Deer and Antelope were not seen on the refuge this period either but both species are common in the vicinity.

A few Mink, Raccoon, Skunk and Fox generally make use of the area at various times.

One 3-1400 permit was issued to the farmer residing on refuge for the removal of furbearers but he did not catch anything.

III. Physical Development.

None this period.

WHITE LAKE

I. General.

There was very little snow during the winter in this area. Precipitation was reported to be below average for January and March and above normal for February and April. However, only 1.87 inches of precipitation has been received this year to date.

The water level was 31 inches below the spillway at the beginning of the period. There was very little run-off but the level did raise to 18 inches below spillway at the highest point. This is the lowest level recorded at this time of the year since the refuge was established in 1941.

II. Wildlife.

The refuge was visited several times during the period but waterfowl were present only in March and April. Two censuses were made and the following birds were recorded:

<u>Species</u>	<u>March 22</u>	<u>April 25</u>
Canada Geese	25	0
Mallard	50	2000
Gadwall		12
Widgeon		200
Pintail	22	1000
GW Teal		30
BW Teal		30
Shoveler		10
Redhead		4
Canvasback	10	20
Scaup		200

Mr. Roland Dubisar, the farmer living near the refuge, reported that from 5,000 to 10,000 ducks, mostly Mallards and Pintail, and from 100 to 200 Canada Geese used the refuge the last week of March and the first three weeks of April.

Mr. Dubisar also reported that 7 "Whooping Cranes" were on the refuge from March 30 to April 1. Owing to the number of birds involved here there is little doubt but what this is another case of incorrect identification.

It is estimated that more waterfowl, both ducks and geese, used the refuge this spring than ever before during a spring migration. The corn and barley that was left standing for wildlife last fall was dragged down in March. All of the corn and most of the barley was consumed by waterfowl during the spring migration. Utilization was much better than expected as this was the first supplemental food ever to be available on this refuge.

A few water, marsh and shorebirds used the refuge also but their numbers were less than usual because of cool weather during April.

A number of Pheasants and Gray Partridge have been seen regularly during visits to the refuge. The Pheasant population is estimated at 25 birds as compared to 50 last fall. About 20 Gray Partridge have used the area during this period. Sharp-tailed Grouse are scarce in this territory and none have been seen.

Three Mule Deer and 7 Antelope made use of the refuge during this period. Both species are common in the vicinity.

Muskrat and Mink are both found on the area in small numbers. It is believed there are about 10 Muskrat and 4 Mink. Signs indicate that a few Raccoon, Skunk and Badger are also using the area. Red Fox are numerous in the locality. Two animals were removed during the fur season last fall.

III. Refuge Development and Maintenance.

A. Physical Development.

Fencing - Labor funds were not provided for over 20 miles of fence planned for this spring on McLean, Lake Ilo, White Lake, Shell Lake and Lake Zahl. At White Lake the fence lines have been marked and equipment moved in for a limited amount of fencing. By fencing $1\frac{1}{4}$ miles one grazing unit can be made available for use this year.

B. Plantings.

Cultivated Crops - Two cooperative agreements were issued for farming 163.6 acres on this refuge with the Government share to be left standing in the field for wildlife.

IV. Resource Management.

A. Other Uses.

The following buildings, acquired with the land on Tract 7 were offered for sale and sold to the highest bidders:

<u>Item No.</u>	<u>Article</u>	<u>Sale Price</u>
1	House, frame, 18x36	61.00
2	Barn, frame, 30x70	376.00
3	Granary, frame, 18x42	10.00
4	Chicken House, 8x12	25.25
5	Chicken House, 12x24	16.00
6	Bunk House, 7x15	6.00
9	Cow Barn, 12x24	20.00
	Total sale price	\$514.25

STEWART LAKE

I. General.

Snowfall was light for the entire winter period. Precipitation was below average the first three months but above normal for April as the result of good rains.

The water level was 30 inches below spillway crest at the beginning of the period. The level raised only 2 inches and was standing at 28 inches below the spillway on May 4.

II. Wildlife.

The following birds were observed when the refuge was visited on the dates indicated:

<u>Species</u>	<u>March 2</u>	<u>March 22</u>	<u>May 4</u>
Canada Geese (lge)		24	
Mallard		40	30
Gadwall		100	8
Pintail			20
BW Teal			100
Shoveler			120
Redhead			4
Canvasback			6
Scaup			50
Coot			30
Spotted Sandpiper			4
Willet			2
Lesser Yellowlegs			30
Wilson's Phalarope			60
Golden Eagle	1		

It is believed that a larger number of waterfowl did use the area during migration than the above figures would indicate.

No upland game birds were seen on this refuge during visits to the area. Pheasants, Gray Partridge and Sharp-tailed Grouse are all present in the locality. It is believed that a few of each species used the refuge at times during this period.

Mule and White-tailed Deer and Antelope were not observed on the refuge this period but they are all common in this locality.

Furbearers and other mammals are present in only small numbers on this area. Muskrats are scarce as they have been for several years. Mink, Skunk, Badger and Fox are all represented in limited numbers. A few Cottontails, White-tailed Jack Rabbits and occasional House Cats completes the list for this refuge. Two 3-1400 permits were issued to local farmers for trapping last fall but no animals of any kind were taken.

III. Physical Development. - None.

WATERFOWL

MONTHS OF January TO April, 1961

[illegible]

3 -1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE Lake IleMONTHS OF January TO April, 1961

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling Trumpeter				7						
Geese:										
Canada	103	200	196			8	8		3,941	
Cackling Brant										
White-fronted	35					75	16		882	
Snow						32	220		1,064	
Blue							1		7	
Other Small Canada			75						455	
Ducks:										
Mallard	50	600	4,000	6,000	6,000	6,000	6,000		203,350	
Black										
Gadwall						800	800		11,900	
Baldpate		35	300	300	500	3,000	6,000		76,545	
Pintail	150	600	6,000	8,000	8,000	6,000	4,000		230,350	
Green-winged teal		150	300	300	300	400	300		12,460	
Blue-winged teal							200		5,600	
Cinnamon teal										
Shoveler		12	20	40	40	4,000	4,000		62,734	
Wood										
Redhead			30	50	50	100	100		2,310	
Ring-necked										
Canvasback		25	250	300	300	400	400		12,145	
Scaup			1,500	2,000	2,000	3,000	3,000		84,700	
Goldeneye			10		10	10	10		280	
Bufflehead			4		4	10	8		238	
Ruddy									1,400	
Other Common Merganser	74	200	200	150	200	100	50		6,818	
Coot:						20	1,000		21,140	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	49	7		Principal feeding areas
Geese	6,349	245		
Ducks	710,530	24,668		Principal nesting areas
Coots	21,140	9,000		
				Reported by

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: 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.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Lake IleMonths of January to April 19561

(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>										
Eared Grebe	2	4/30	10	4/30						
White Pelican	30	4/19	150	4/20-30						
Double-Crested Cormorant	11	4/19	30	4/20-30						
Great Blue Heron	1	4/17	10	4/20-30						
Sandhill Crane	26	3/26	2000	4/10-20						
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	6	3/26	100	4/20-30						
Common Snipe	2	4/19	20	4/20-30						
Marbled Godwit	2	4/30	2	4/30						
Ring-billed Gull	1	3/25	50							
Franklin's Gull	50	4/16	200	4/20-30						

(over)

(1)	(2)		(3)		(4)	(5)			(6)
III. <u>Doves and Pigeons</u> :									
Mourning dove	1	4/5	20	4/20-30					
White-winged dove									
IV. <u>Predaceous Birds</u> :									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow									
					Reported by.....				

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

(April 1946)

1613

Refuge **Lake Ilo & District IV Easements** Months of **January** to **April**, 19 **1961**

(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.
<u>Lake Ile</u>									
Ring-necked Pheasants								150	
Gray Partridge								100	
Sharp-tailed Grouse								20	
<u>McLean</u>									
Ring-necked Pheasants								10	
Gray Partridge								10	
Sharp-tailed Grouse								10	
<u>Hiddenwood</u>									
Ring-necked Pheasants								5	
Gray Partridge								10	
Sharp-tailed Grouse								10	
<u>Pretty Rock</u>									
Ring-necked Pheasants								25	
Gray Partridge								25	
Sharp-tailed Grouse								10	
<u>White Lake</u>									
Ring-necked Pheasants								25	
Gray Partridge								20	
Sharp-tailed Grouse								0	
<u>Stewart Lake</u>									
Ring-necked Pheasants								10	
Gray Partridge								20	
Sharp-tailed Grouse								20	

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.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Lake Ile & District IV Easements Year ending April 30, 1961

(1) Species	(2) Density	(3) Removals	(4) Disposition of Furs						(5) Total Popula- tion					
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
<u>Lake Ile</u>														
Muskrat				0					T-9287					100
Mink				0										10
Weasel				0										6
Skunk				2	6					2	0			20
Badger				0	2									8
Raccoon				0	0									20
Fox				0	1									10
Coyote				0	0									0
Cotton-tail Rabbit														20
Jackrabbit														20
House Cat														4
<u>Hiddenwood</u>														
Muskrat									3-11400					10
Mink				1					#61-59	1				6
Raccoon														8
Skunk														8
Fox														4
Badger														4

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Lake Ile & District IV Easements Year ending April 30, 1961

(1) Species	(2) Density	(3) Removals						(4) Disposition of Furs						(5) Total
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
<u>McLean</u>														
Muskrat				0						T-9285*				25
Mink				0						also				6
Skunk				0						3-1400				6
Fox				0						#61-58				6
<u>Pretty Rock</u>														
Muskrat				0						Bi-1400				6
Mink				0						No. 123				2
Skunk				0										12
Fox				0										2
Badger				0										2
Raccoon				0										4
Jackrabbit				0										10
<u>White Lake</u>														
Muskrat				0						T-9288				10
Mink				0										4
Skunk				0										10
Fox				2							2			8
Raccoon				0										6
Jackrabbit				0										10
House Cat					2									2

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: *No animals taken under Permit #T-9285 at the McLean Refuge.

Reported by _____

INSTRUCTIONS

Form NR-4, **SMALL MAMMALS** (Include data on all species of importance in the management program; i. e., muskrats, beaver, muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- SPECIES:** (1) **SPECIES:** Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- DENSITY:** (2) **DENSITY:** Applies particularly to those species considered in removal programs. 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, bottom land 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.
- REMOVALS:** (3) **REMOVALS:** Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- DISPOSITION OF FUR:** (4) **DISPOSITION OF FUR:** On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- TOTAL POPULATION:** (5) **TOTAL POPULATION:** Estimated total population of each species reported on as of April 30.
- REMARKS:** Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Lake Ilo & District IV Easements

Year ending April 30, 1961

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
	<u>Stewart Lake</u>			0				BI-1400						10
Muskrat				0										6
Mink				0	1									9
Skunk				0										10
Fox				0										4
Badger				0										15
Jackrabbit				0										10
Cotton-tail Rabbit				0										2
House Cat				0										

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.