

ANNUAL REPORT

OF THE

LOWER SOURIS MIGRATORY WATERFOWL REFUGE

UPHAM, NORTH DAKOTA

FOR THE

FISCAL YEAR 1940

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PERSONNEL

A summary showing present refuge personnel and changes made
during the fiscal year

Cordia J. Henry	Refuge Manager
Merrill C. Hammond	Biologist
Wilfred Anderson (Reported for duty September 22, 1939, replacing Andrew J. Meyer.)	Clerk
Harry A. Jensen	Patrolman
Ingvald J. Martinson (Reported for duty October 30, 1939)	Patrolman
Thomas W. Lawson (Returned to duty on December 1, 1939, on a 2/3 time basis, from leave without pay.)	Patrolman

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Andrew J. Meyer (Transferred to Regional Office, Omaha, Neb- raska, September 22, 1939.)	Clerk
Mike L. Dalebout (Under temporary employment from July 10, 1939, to October 14, 1939.)	Patrolman
Arnold M. Bye (Temporary appointment terminated December 29, 1939.)	Patrolman

I. WILDLIFE

(a) A special report on the "Birds of the Lower Souris Refuge", covering observations for the period July 1, 1935, to December 31, 1939, was recently submitted. This paper included notes on the status of 229 varieties of birds noted in this locality. In accordance with recent correspondence the report is now being revised to cover the five-year period July 1, 1935, to July 1, 1940, and will be submitted immediately following the annual report.

During this past spring seven new species of birds were added to the refuge list:

1. Ruddy Turnstone (*Arenaria interpres*) One bird on May 21 near the refuge headquarters, and eight birds on May 28 on the west end of Dam 320.
2. Olive-sided Flycatcher (*Nuttallornis mesoleucus*) One record, May 14, in the trees at the refuge headquarters.
3. Blue-headed Vireo (*Vireo solitarius*) One record on May 15 at the Skar place.
4. Black-throated Green Warbler (*Dendroica virens*) Several birds were observed at the Skar Place and the refuge headquarters, the first on May 15 and the last on May 25.
5. Blackburnian Warbler (*Dendroica fusca*) One record at the refuge headquarters on May 25.
6. Bay breasted Warbler (*Dendroica castanea*) Several birds observed at refuge headquarters on May 24 and 25.
7. Canada Warbler (*Wilsonia canadensis*) One record, May 25, at the refuge headquarters.

On the 11th of May we discovered the first nest of full-winged Canada Geese on the refuge. We could not see the birds well enough to determine whether or not they were banded. The nest, containing six

eggs, was found on Avocet Island. A second nest of a full-winged pair was located on Gravel Island on May 21st.

Another new nesting record was obtained when the nest of a pair of Red-headed Woodpeckers was discovered near the Hillman Bridge on June 20.

This last spring passed by without the usual heavy and spectacular wave of Mallards and Pintails that ordinarily follow the break-up. The migration of diving ducks was good, with Scaups almost doubling any previous concentration. Canvas-backs also showed an increase. During May the resident duck population filtered in, resulting in a gradual increase rather than any noticeable flight.

(b) During the peak period of the fall migration in mid-October it was estimated that there were roughly 750,000 ducks on this refuge. On the first of September it was the opinion that there were 100,000 coots. The third annual spring duck "census" yielded an estimated 64,400 ducks (plus 15,600 coots), as compared to 67,000 in 1939, and 26,060 in 1938. This census was taken on May 31, and a special report submitted on June 5.

In general, more geese passed through the refuge during this spring than in any previous year. Their behaviour was, however, more erratic and they did not stay as long as they usually do. There was a good increase for White-fronts, and a fair increase for Canada's and "Hutchin's". Maximum peaks for Snow and Blue Geese for the past five years are as follows:

1936	None
1937	600
1938	2,000
1939	15,000
1940	12,000

Many of the mammals have shown a great increase. Our November deer census resulted in a jump from 600 in November 1938 to 790 in November 1939, or an increase of 31.6%. A count of beaver lodges and food caches led us to estimate that we had between 400 and 500

beaver on the refuge in February. Snowshoe rabbits showed a very sharp increase during this past year. Of the fur-bearers, Muskrats and Mink increased very noticeably.

The following predators were taken on the Lower Souris Refuge during the fiscal year:

<u>Month</u>	<u>Skunk</u>	<u>Mink</u>	<u>Weasel</u>	<u>Coyote</u>	<u>Fox</u>	<u>House Cats</u>
July 1939	14	1				
August 1939						
September 1939						
October 1939						
November 1939	72	11	20	1	6	5
December 1939	54	24	24	1	3	5
January 1940	39	33	20	2	5	1
February 1940	55	20	7		2	
March 1940	1					1
April 1940	2	1	1			
May 1940	5					
June 1940	<u>9</u>	<u>—</u>	<u>2</u>	<u>—</u>	<u>—</u>	<u>—</u>
Totals	251	90	74	4	16	12

Total - 447

In addition to the above, one snapping turtle was taken, and also 79 adult crows, 16 nestlings, and 48 eggs were taken in connection with the crow-waterfowl relationship studies.

(c) Nesting Islands are gradually being used more each year by ducks, and this year Goose nests were found on two of them.

The use of Shelters is still being studied but we have as yet had no reason to believe that their benefits to the birds are nearly as high as is commonly believed.

Grain patches left standing by share-croppers are used by the birds from August to early June, but are used the heaviest during September, October, November, April, and May, when the ducks use them heaviest. Large concentrations of Upland Game birds feed in these patches, especially during the winter months.

Nesting boxes are used to a certain extent by Hooded Mergansers and Goldeneyes, but we have never had time to make a complete check.

II. WATER CONDITIONS

The runoff this spring was very poor and the water levels are not as favorable as they were last year. We still have plenty of water, however, for this year. The condition by units is as follows:

Rubble-masonry - Excellent; full, and running over.

Unit 320 - Good; lacks about a foot of being full.

Unit 326 - Fairly good, although it lacks three feet of being full.

Unit 332 - Excellent; lacks about two inches of being full.

Unit 341 - Good; lacks about sixteen inches of being full.

Unit 357 - Fair; lacks a little over five feet of being full.

Precipitation by months during the fiscal year was as follows:

July 1939	1.23	inches
August	1.90	"
September	.58	"
October	.33	"
November	.09	"
December	.03	"
January 1940	.16	"
February	.90	"
March	.73	"
April	1.09	"
May	2.61	"
June	3.12	"
Total	12.77	"
(Records from Bottineau station.)		

Precipitation departure from normal at the Bottineau station was minus 5.83 inches for the calendar year 1939, and the total for the year was 10.20 inches. Normal is about sixteen inches.

III. DEVELOPMENT AND ADMINISTRATION

(a) Improvements.

1. The Upham-Willow City Road job was one of the biggest during the fiscal year. Raising and grading is practically complete, and graveling operations will begin within a few days.

2. Some work on patrol roads was done, although road-building equipment has been concentrated primarily on the Upham-Willow City road. In addition to the regular road work, a large number of culverts have been placed and several bridges built.

3. Dams. Riprap has been added to the west end of Dam 320 (class C), and class A riprap relaid on the upstream side of the controls. The upstream face of Dam I was relaid with class A placed on a bed of gravel. A small out-off dike was constructed in the 320 unit.

4. Fencing was continued along the Johnson Bridge road, in isolated sections of the boundary, and on several stock easements to water. A total of about 180 miles of fencing has been completed to date.

5. The headquarters irrigation system was installed.

6. Residences. The T. S. Thompson place was completed and has been occupied since last November. The Mike Nilson house and the Bjorn Johnson house were moved to the headquarters site. Reconditioning work has been progressing on the Nilson house and it is now almost ready for occupancy.

7. A Kohler lighting plant was installed (by WPA) in the Skar place to replace a worn-out Delco plant.

8. A telephone line connecting the T. S. Thompson place with the main line from the Overnight Cabin to the headquarters was completed.

9. One granary was constructed, and two others reconditioned and painted.

10. A large number of wooden fence posts were made, in connection with the winter timber-stand improvement project, by both CCC and WPA. A large number of posts were creosoted, including 4,000 by WPA.

11. The fire-breaks system in the Sandhills was reconstructed, eliminating one break, and discing and smoothing out the other.

12. One island was gravelled to make it more attractive to bird life.

13. The cleanup and razing of old fences and buildings was continued whenever possible.

14. Work on the recreation area near Westhope was continued, and an area for fishing developed.

(b) Plantings.

1. Quantities and species of trees and shrubs planted by CCC and WPA in the spring of 1940:

Tartarian Honeysuckle	7,191
Russian Olive	4,177
Green Ash	3,035
Choke Cherry	8,478
Caragana	2,688
American Plum	610
Juneberry	1,999
Highbush Cranberry	100
Flowering Currant	294
Buckthorn	405
Ginella Maple	126
Fragrant Sumac (R. aromatica)	40
Cotoneaster	111
Staghorn Sumac	605
Black Haw	22
Thornapple	59
Rose	818
Red-osier Dogwood	907
Aspen	1,148
Willow	643
Western Snowberry	100
Chinese Elm	55
Japanese Walnut	12
Cottonwood	210
Lilac	130

Virginia Creeper, or Woodbine	425
Red Cedar	1,512
Jack Pine	374
Ponderosa Pine	97
Scotch Pine	<u>40</u>

Total 36,474

Of the above total, 10,624 were wild stock transplanted from the Sandhills area; 1,350 were secured from the Shelterbelt Nursery at Mandan; while the balance of 24,500 were taken from the refuge nursery.

Of the above totals, 6,606 trees and shrubs were planted by WPA.

2. Refuge seedling stock lined out in nursery in the spring of 1940:

Tartarian Honeysuckle	30,000
Choke Cherry	20,000
Rose	2,900
Cotoneaster	635
Buffalo berry	<u>700</u>

Total 54,235

3. Refuge nursery stock transferred to other refuges:

To Arrowwood Refuge:

Red Cedar	1,200
Jack Pine	500
Caragana	1,000
Choke Cherry	1,000
Tartarian Honeysuckle	<u>2,000</u>

Total 5,700

To Upper Souris Refuge:

Red Cedar	1,400
Jack Pine	400
American Plum	400
Juneberry	200
Currant	100
Ginella Maple	150
Buckthorn	200
Highbush Cranberry	200
Caragana	1,500
Choke Cherry	1,000
Tartarian Honeysuckle	<u>3,000</u>

Total 8,550

To Des Lacs and Lostwood Refuges:

Red Cedar	1,400
Jack Pine	460
Tartarian Honeysuckle	5,400
Caragana	2,000
Choke Cherry	1,000
American Plum	600
Juneberry	600
Highbush Cranberry	200
Buckthorn	200
Currant	200
Ginella Maple-	150
Total	12,210

4. Seed planted in refuge nursery in the spring of 1940:

	<u>Pounds</u>
Red Cedar	67
Caragana	60
Russian Olive	150
Buffalo berry	100
Choke Cherry	85
Staghorn Sumac	60
Hazel	30
Tartarian Honeysuckle	17
American Plum	35
Red-osier Dogwood	6
Silverberry	15
Juneberry	3
Pincherry	6
Flowering Courant	3 oz.
Thornapple	10
Cotoneaster	2
Total	646 lbs.

5. Grasses. Approximately 35 acres of Crested Wheat Grass seed, with a nurse crop of Oats, was planted this spring.

6. Grain Crops. Local farmers, working under 32 separate cooperative agreements, have planted about 3,000 acres of refuge land. The crops planted are Durum Wheat, Barley, Corn, Oats, and Millet.

7. Aquatics planted on Lower Souris:

Wild Celery seed pods	50 lbs.
Wild Rice seed	450 "
Hard-stemmed Bulrush	15,000 " (rootstalks)
Sago Pondweed seed	200 "
(Plantings on easement refuges treated separately.)	

(c) Special Problems and Research.

1. Predator-waterfowl relationships are being studied for the fifth successive year. The activities this year are centered on the rubble-masonry area and on sample areas in the 326 and 332 units.

2. Upland game bird studies have been conducted whenever time was available and also in connection with other work. In addition to general information derived from these studies we are learning something of their diseases and parasites, principally through the work of Dr. Coburn with material supplied by this refuge.

3. Food habits material has been collected and observations made at every available opportunity. Large numbers of stomachs have been sent to both the Denver and Washington laboratories.

4. Bird banding has been continued as a spare-time activity during the proper seasons.

5. Migration. Detailed records of observations have been kept and have been periodically summarized and submitted in the form of a separate report. The refuge manager is also cooperating with the Bird-Lore magazine in compiling and summarizing ornithological information from the Northern Great Plains Region.

6. Inventory. Whenever we have had the time and whenever we have felt it necessary, we have conducted systematic inventories of certain species of wildlife. These have been treated separately in the first part of this report.

7. Vegetation. We are continuing to collect and classify the plants of the area and also to study the plant succession, especially in the flooded areas.

8. Scientific specimens of various animals are saved and preserved whenever feasible.

(d) Law Enforcement.

The following is a brief resume of law enforcement cases disposed of during the fiscal year:

Theodor Lovly--Stealing Government property (a small building); charge, petty larceny; disposition, fine \$50, costs \$6, 30 day jail sentence; 30 day jail sentence and \$35 fine suspended.

Don Coss--Stealing Government property (barbed wire); charge, petty larceny; fine \$25, costs \$6, 15 day jail sentence; fine and jail sentence suspended upon payment of costs.

Aldon Lazier--Stealing Government property (barbed wire); charge, petty larceny; fine \$25, costs \$6, 15 day jail sentence; fine and jail sentence suspended upon payment of costs.

Henry Shong--Hunting ducks with rifle after 4:00 P.M. without duck stamp; fined \$25, costs \$4, gun confiscated.

Robert Hunsakor--No duck stamp; 20 days jail sentence (suspended), costs \$3.75.

Verl Wyman--Hunting after 4:00 P.M.; fined \$25, costs \$3.75.

Joseph Hallner (Chicago)--Hunting with resident license after 4:00 P.M.; fine \$50, costs \$3.

E. L. McDonald & R. C. Orndorf--Hunting after 4:00 P.M. No prosecution recommended.

H. Rex Olson--Hunting after 4:00 P.M.; fine \$10, costs \$4.50.

Cal Gilmore--Hunting after 4:00 P.M.; fine \$10, costs \$4.50.

Bert Brandt--Hunting after 4:00 P.M.; fine \$10, costs \$4.50.

Melvin Brandt (Juvenile)--Stealing Government property (skunks); 45-minute lecture by the Justice.

Four CCC boys--Stealing Government property (mink); dishonorable discharge from camp.

Wm. G. Tallack--Shooting after 4:00 P.M.; fine \$35, costs \$10.

Geo. W. McIntyre--Shooting after 4:00 P.M.; fine \$35, costs \$10.

John Schiele--Shooting after 4:00 P.M.; fine \$10 (suspended), costs \$6.

Herbert Booth--Shooting after 4:00 P.M.; fine \$10 (suspended), costs \$6.

Summary:

Total fines imposed	\$215
Total fines suspended	105
Total costs	78
Total jail suspended	80 days.

IV. PUBLIC RELATIONS

(a) Recreational use. Considerable use has been made of the recreation area near the Freeman Bridge, especially since the season was opened to fishing there the middle of June. The results of the fishing efforts have been very poor with only a few Bullheads being caught. The stocking of some game fish is highly desirable. The recreation area near Westhope is not complete, and is not yet open to the public. Furthermore the water levels are very low in that vicinity.

(b) Economic uses.

1. Cooperative farming is being conducted by local farmers, working under 32 special-use permits. Approximately 3,000 acres of Durum Wheat, Barley, Corn, Oats, and Millet have been planted.

2. Haying. During the 1939 season 1,575-5/6 tons of hay under 44 special-use permits were cut by local farmers. The total income was \$2,354.75.

3. Grazing of 2,930 acres of refuge land for 536 cattle-months gave the refuge a total revenue of \$247.35.

4. Fur. Income from fur taken by refuge personnel was \$1,124.15 with eight foxes still to be sold by the Seattle Fur Exchange. Muskrats

taken under special-use permit were sent to both New York and Seattle Fur Exchanges. Seattle has not yet sold, while returns from New York were \$57.52.

Total received to date for haying, grazing, and furs is \$3,783.77.

(c) Improved relations with the local people is developed primarily by daily contacts. This is brought about by an understanding and sympathetic attitude on the part of the refuge personnel. In other words when we meet the farmer, we do so on common ground. The same is true in our contacts with others, as with the sportsman. Activities of refuge personnel in the Wildlife Federation have also helped, as have activities with various social groups, as sports, community singing, and so on. Talks are given whenever the request is made, and visiting groups are given every opportunity for an educational and enjoyable tour on the refuge.

V. EASEMENT REFUGES

During the fall of 1939 all of the easement refuges in North Dakota were divided into groups and allotted to certain refuge managers. Twelve of these refuges were added to the responsibilities of the personnel of the Lower Souris Refuge. A brief summary of the status of each is as follows:

Snyder Lake Refuge. Although the lake was far from full there was still plenty of water in it last fall. No runoff was received into the lake this spring, and it is now becoming somewhat low, although there should still be plenty of water to carry through the summer. The dam is in good condition. Some work has been done on the replacing of damaged boundary markers. There were plenty of ducks on this lake last fall with a maximum of about 2,000. The breeding population is just fair. This lake is on the western edge of the big goose flight and has large numbers of geese on it during late April and early May.

Brumba Lake Refuge. Brumba Lake was even lower than Snyder Lake last fall, and also received no runoff this spring. Brumba lies in the same watershed as Snyder and above it. The dam is in good condition as are the boundary markers, some of which have been replaced this spring. The maximum number of ducks on the lake last fall was about 600, plus a nice flock of Canada geese. The spring population of ducks is not very good, but this is to be expected as the water levels are so low. If this should prove to be a dry summer it would not surprise me in the least to see this lake dry up. Brumba, like Snyder, has large flocks of geese on it during the spring migration. Seventy-five pounds of Prairie Bulrush seed were planted on this lake this spring.

Rock Lake Refuge. Rock Lake has been absolutely dry ever since we took it over. The dams are in good condition. The boundary markers last fall were in very poor condition but the worst of the damage has now been repaired.

School-section Lake Refuge. School-section Lake was quite low last fall and was improved only slightly by winter snow and spring rain. There should be enough water to carry through the summer. Boundary markers here were repaired last fall and again this spring. The duck population on School-section Lake last fall varied from 1,000 to 2,500, but there is not a very high population during the breeding season. This lake is entirely surrounded by woods and, therefore, it is not the best type of nesting territory. One hundred pounds of Wild Millet seed and 150 pounds of Prairie Bulrush seed were planted on this refuge during May.

Willow Lake Refuge. Willow Lake was terribly low last fall but seems to have improved more from the snow and rains than some of the others. It is still far below normal levels but, nevertheless, it should have plenty of water to carry through the present season. Of all the

lakes in the Turtle Mountains, Willow Lake seems to be best suited for waterfowl. This lake was used by a maximum of about seven or eight thousand ducks last fall and also has a good nesting population this spring. The cabin, buildings, and tower are in good condition. The tower was provided with lightning rods in June. Boundary markers were repaired in late September and again this spring. One hundred pounds of Wild Millet seed were planted in this lake in May.

Rabb Lake Refuge. The water in this lake is quite low but even with plenty of water the lake is too small to be of much value. Boundary markers are in good condition.

Lord's Lake Refuge. This lake is still absolutely dry as has been the case for quite a few years.

Wintering River Refuge. This refuge has been dry ever since we took it over except for a little water this spring. Unless we have very good rainfall, I anticipate that it will be entirely dry again before the first of August. Boundary markers were repaired this spring.

Camp Lake Refuge. Camp and Strawberry Lakes are joined together by a narrow channel. These lakes are spring fed and even during the driest years do not drop more than a few inches during the summer. There is quite a summer resort with cabins, swimming and fishing on these lakes, and they are not especially good for waterfowl production. By far the greatest value of this refuge is its use during the fall migration. Maximum number of ducks observed there last fall was about 6,000. The dam is in good condition, and the boundary markers were repaired this spring.

Lake Nettie Refuge. This lake was dry last fall except for a few springs which harbored about a hundred ducks. The rains this spring flooded the entire lake bed so that it was a beautiful sight in late May. The water is, however, quite shallow and it is very doubtful that it will

last through the entire summer. Boundary markers were repaired this spring.

Sheyenne Lake Refuge. This lake has been absolutely dry for about three years but the rains this spring put quite a quantity of water into it so that it is now in excellent condition. This lake has an exceptionally fine stand of Hard-stemmed Bulrush. Boundary markers were repaired this spring.

Cottonwood Lake Refuge. Cottonwood Lake, like most of the others, is quite low but still there is plenty of water left to last through the year. We never have seen very many ducks on this lake, and there seems to be more here in the spring than last fall. We now have a WPA project on this refuge and the work that is being done there now includes repairs to the diversion ditch, construction of a number of rubble-masonry check dams, considerable class A riprap in the ditch, and improvements to the bowl type dam at the edge of the lake. Boundary markers were repaired this spring and at the same time, 100 pounds of Wild Millet seed and 75 pounds of Prairie Bulrush seed were planted on this refuge.

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Respectfully submitted,
July 3, 1940

C. J. Henry
C. J. Henry
Refuge Manager