Biological Report on the Des Lacs Migratory Bird Refuge
August, 1936

(A short report follows the Des Lacs Report that deal with the Lostwood Refuge)

NARRATIVE REPORT ON THE DES LACS
MIGRATORY BIRD REFUGE
August, 1936

The month of August brings to a close one of the most unusual summers ever known in this vicinity. The prolonged period of hot weather which has broken all known records coupled with blast furnace type of drying winds has had a deplorable effect on the refuge. Most of the barley that was planted has burned to a crisp. Practically all the small trees that were transplanted marginal to the pondsites have died. The transplanted trees that were amply supplied with water at the Des Lacs Headquarter's site suffered because the roots were unable to absorb water fast enough to offset the heavy transpiration from the leaves and young twigs which were wholly or partly dried up. The deadly effect of Botulism continued in the Upper Des Lacs Lake.

The latter half of August served as a catching up period. Much of the office work had not been kept up due to the fact that every effort was made to control this Botulistic form of duck sickness. It was impossible for one person to continue a close field check up, supervision, and control of duck sickness, and the other refuge duties at the same time. After control measures became a routine and the zone of infection seemed to be confined to a certain area, it was possible to take steps to catch up on office and administrative work. The assemblage and check up of tools was started. Temporary hay permits were issued which were replaced by U.S. Dept. of Agri. Special Use Permits.

The writer took leave from August 10th to August 22nd during which time Mr. Seth H. Low, Junior Refuge Manager carried on in a highly recommendable fashion. Low completed much of the back office work, changed around the office, revamped the files, completed assemblage and check of tools, made a check on fire equipment, supervised the placing of refuge signs, checked Botulistic conditions, and recontinued the banding of ducks.

In the report Mr. Low has contributed descriptions and explanations dealing with the changing around of the office and reorganizing the files, bird banding, fire fighting equipment, fencing program, and inventory of Biological equipment.

Mr. E. Bakken, CCC clerk and field man for this office, has explained the nature of the work done by the crew of 5 CCC's used by the assistant and junior refuge managers.

Mr. John A. Bergeron who was recently appointed Laborer-Patrolman has, in this report, told the nature of the work performed by him since he reported for duty on August 26, 1936.

Botulism in the Upper Des Lacs Lake

Western duck sickness continued to be a difficult problem during August. The zone of heavy infection did not spread further north. In pondsites #2,3, 4, and 5 occasional outbreaks of botulism were noticed. Mr. M. Welch, a farmer adjoining pondsite #3, lost his domestic ducks as a result of botulism. Rains and cooler weather during the latter half of the month lessened the number of casualties. Approximately 5000 ducks died during August as compared to 7700 in July.

The death of I3,700 ducks (a conservative figure) due to botulism makes it imperative that more should be done to control the disease. It is very probable that this disease will continue to be a problem for several seasons to come.

The picture of condition with which to work is discouring. The Upper Des Lacs Lake is in a meandering valley approximately 300 miles long. The lake itself averages about 600 yards in the width. During the ice age glacial drift effectively blocked the stream flow from the north just above the Canadian border, and thus prevented what is now the Souris River from continuing its flow down this valley. Just north of Kenmare there is a rise in the valley floor that cuts off the drainage of the Upper Des Lacs Lake from the South. The Western shore line is of

pulpy mulch while the eastern is mostly sand and gravel. The lake is very shallow- the maximum depth being about I8 inches at present. The water is brackish and badly roiled up with plankton, Daphnia, nymphs of numerous insects and the like. Experimental plot studies revealed that aquatic plants do not adapt themselves to this type of water enviroment. The main supply of water comes off of 15 coulees and several draws. Only one small seepage spring can be found along this lake.

Measures for the Control of Botulism

If part of the Upper Souris could be made to enter the Upper Des Lacs by digging a channel through the drift that was deposited by the glacier, Botulism could be controled. This is impossible since the work would have to be done in Canada, although the DesLacs and Souris valleys are quite close together a short ways above the border. It would hardly be practical to attempt to drain the Upper Des Lacs Lake because the valley is quite wide at the south end where the ditch would be dug. Numerous channels would have to be made to drain the lakes and ponds that would result as the water level was lowered.

Aheavy fall of rain, like a cloudburst, or cooler weather have been known to stop westernduck sickness. There is no means of controling the temperature, but it seems highly probable that a cloudburst effect could be produced if water was impounded inthe coulees by dams and suddenly released

when Botulism was first noticed. Gates similar to those used in dams of the lower pond sites would be satisfactory in these dams. The water backed up in the coulees in this manner would make the refuge more attractive for waterfowl. Suitable locations for these dams are shown on the map.

When duck sickness is found in the area, daily drives should be made to keep ducks out of the infected zone. This method is very effective for keeping out broods of duckling, but is not so satisfactory for birds of flight since many fly back to the infected region. However, constant agitation greatly lessens the number of birds that will visit the infected area. Drives can be made by small crews on either shore and with a boat on the lake. Mr. Kalmback, Senior Biologist, spoke of the advantages of using a mud queen type of boat for the Upper Des Lacs since most of the lake is too shallow for a boat. The construction of a mud queen is a good winter project for E.C.W.

During the period when Botulism is present most of the ducklings will be well enough matured to fly to the infected zone. This evil can be offset by driving the ducklings into a corral for the purpose of taking them to be released in healthier waters where they will readilly attach themselves to other broods of ducks.

Banding of Birds Recovering from Botulism

As has been previously described, when the botulism broke out a crew of CCC boys were assigned to patrol the infected areas and to drive the ducks out of that part of the Upper Des Lacs Lake. These drives are still being continued daily except for Saturdays and Sundays.

In the course of the patrol each day the CCC detail would pick up from ten to a hundred sick birds. These we placed in crates and brought into camp. Each duck was given at least three doses of epsom salts a day. As soon as a bird was able to stand up and walk it was taken down to the Middle lake and released.

Between July 10th and 22nd Mr. Steenis banded 101 of the partially recovered birds before releasing them. The Junior Manager brought with him some more bands and from August 12th to the end of the month an additional 224 ducks and 23 shore birds were banded.

The birds were banded with the particular idea of trying to get some line on how effective our doctoring was proving to be. All the birds were released in one general locality at the Upper end of the Middle Lake. The townspeople were very good about turning in bands and the headquarter's detail canvassed the shores for dead birds several times.

From the first group 15 have subsequently been found dead near the point where they were released. From the August group of ducks 14 bands have been recovered to date. Just one bird has been recovered away from the point of liberation.

This was Pintail #35-526501 banded and released July 10th near the headquarters. On August 15th it was found dead at the Bowbells Bridge, nine miles north. This would indicate that the bird recovered sufficiently to fly, went back to the infected area, got another dose of botulism, and died.

The figures available for August are very interesting. In 16 drives 2,293 ducks were buried, an unknown number could not be reached, and 370 sick birds brought in. In 12 drives 1,075 shorebirds were buried and 103 sick ones brought in.

Our records are not complete on the ultimate fate of the birds brought in. Of the 370 ducks, 84 died and 225 were released, leaving 61 unaccounted for. The percentage of the ducks recovering sufficiently to walk was therefore apparently about 70 %. Most of the shorebirds died.

On the basis of the above data and the great amount of man-days of labor expended in making the daily drives, it would not seem that the drives as conducted were worthwhile. If the botulism breaks out another year during the "flightless" period it might be advisable to consider constructing a large corral, driving the birds into it and transporting them all over to the Upper Souris or Lower Souris Refuge. S.H.L.

Waterfowl Census

Census on waterfowl made during the month August shows a marked increase in spite of the ducks that died due to Botulism.

Census on Waterfowl on the Des Lacs Mig. Bird Refuge

Species	August 7, 1936 Des Lacs Refuge	Aug. 17-18, 1936 Des Lacs Refuge	Aug. 28 & Sept. 1, 1936 Des Lacs Refuge
Mallard	252	254	319
Number of ducklings	2	0	0
Gadwall	340	260	431
Baldpate	175	112	125
Green-winged Teal	20	169	165
Blue-winged Teal	757	864	608
Number of ducklings	8	0	0
Shoveler	488	1065	898
Pintail	2332	2078	1531
Number of ducklings	0	5	0
Redhead	1	0	0
Canvasback	3	10	7
Number of ducklings	11	3	0
Scaup	9	2	30
Ruddy Duck	1	45	35
Grebe, Horned & Eared	190	220	142
Number of ducklings	20	31	0
Grebe, Pied-billed	8	11	0
Grebe, Western	0	56	90
Coots (Mud hen)	208	313	278
Number of ducklings	93	15	0
Ducks, unidentified	4381	8863	9254
Number of ducklings	2540	2634	0
TOTAL	11,839	17,010	13,913

Seed Collecting Program

The dry hot summer has definitely limited the supply of seeds that otherwise might have been collected. This is particularly so of wild millet. No natural wild millet patches are to be found. However, the millet that was planted marginal to the lake and pondsite has come up surprisingly well and it will be possible to collect seeds of this plant in the more dense patches without interfering with next years growth.

Pale smartweed has been stunted, but it will be possible to make a good collection of seeds from this plant. Field observation of this season show that this plant was one of the hardiest that was planted last year.

The luxuriant growth of rushes in pondsite #7 and 7a insures an abundance of seeds and rootstocks of praire bulrush and hard stem bulrush. The solid growth of hardstem bulrush can be greatly improved for waterfowl if the rootstocks are dug out along winding channels about 10 to 15 feet wide. Nesting studies of this summer revealed that two of the few canvas backs that nested on this refuge built their nests in the rushes marginal to the passages that had been cleared of bulrushes during the fall of 1935. Water remained in these channels until about the middle of the summer, but are now quite dry. If there are no heavy rains this fall, one man will

be able to dig up about 360 pounds of rootstocks of this bulrush a day.

Little care is necessary for storeing of bulrush rootstocks during the winter. Clogs of rootstocks with the soil left on can be piled marginal to the pondsite where it will be planted next spring.

Seeds of desirable vine plants, mock apple or prickly cucumber and wild hops can be found in several of the coulees bordering pondsites. Parts of Tasker's Coulee have abundant growth of such vines.

The collecting of seeds and berries of woody plants has already been started. Seeds of Caragana and Berries of Tartarian Honey Suckle were collected in the latter part of July.

Russian Olive seeds can be gathered in Kenmare and from farmer's windbreaks. A few cones of blue spruce can be gathered from the city park and the cemetary southwest of the Des Lacs headquarters site. During the late fall and early winter cuttings of willow, particularly golden willow, and quaking aspen should be gathered. Seeds and cuttings of woody plants should be sent to the Upper Des Lacs Refuge where they will be placed, cared for or planted in the nursery.

The following tabulation is an estimate of what seeds and rootstocks can be collected this fall.

Common Name	Scientific Name	Reproductive part	Pounds
Wild millet	Echinochloa crusgalli	Seeds	200
Pale smartweed	Polygonum lapathifolium	Seeds	800
Prairie bulrush	Scirpus compestris	Seeds	8,000
Hardstem bulrush	Scirpus acutis	Seeds	200
Hardstem bulrush	Scirpus acutis	Rootstocks	50,000
Mock apple	Micrampelis lobata	Seeds	20
Wild hops	Humulus Lupulus	Seeds	10
Silver berry	Eleagnus argentea	Seeds	100
Russian olive	Eleagnus Hortenisi	Seeds	30
Blue Spruce	Picea canadensis	Cones	

E.C.W. Projects on the Refuge

The C.C.C. have made nice processduring August. Good advantage was taken of Biological Survey and E.C.W. equipment. Dam #8 which became undermined last spring causing loss of water has been reenforced by wood piling and clay. The throwing up of additional earthwork was done in order to divert direct water movement away from the dam at the spillway. To date I5 miles of patrol road has been built marginal to the upper lake and pondsites.

At the Des Lacs headquarters the C.C.C. completed the work of painting the buildings with cement paint. The flag pole was erected, a flag stone walk to the Service building was completed, and the gasoline tank and pump was put in place. The stone walk by the living quarters and the well have not been completed. Transplants of junipers and red cedars from the Badlands are being gathered for filling out the landscaping program.

During the latter part of the month the fence project was started. To date over seven miles of fence have been put in place. Every effort will be made to hasten this project as it is imperative that the refuge should be fenced assoon as possible.

Bulrush Rootstock

The dense solid bed of hard-stem bulrush found on the Lower Des Lacs Lake has been improved for waterfowl by the digging out of rootstocks of this plant along winding channels.

58 Truck loads of these root-stocks with dirt left on have been piled marginal to pondsites where they will be planted next spring. Approximately 30 loads have been left in a reserve pile.

130 truck loads of rootstocks have been sent to the Upper Souris Refuge.

Part of these rootstocks have already been planted in the recently flooded pondsites at this refuge; others will be planted next spring.

In all 218 truck loads of rootstocks have been dug.

Habitat Improvements

Lean-to shelters: To date 20 lean-to shelters have been constructed. Various locations were chosen in open coulees having no cover, in coulees having clumps of brush, and within heavy brush and wood cover. The construction of these shelters is according to the specification ~~outlined~~ given by Mr. Salyer.

Studies made of desireable locations during subzero weather (15° - 20° below zero) after the recent heavy snows and blizzard showed that these shelters, built in open coulees having only scant cover, are not used by birds; in fact there are no signs of birds within a ¼ of a mile of some.

Most of the shelters placed within the woods and marginal to dense brush are being used by birds.

A possible exception to these statements is the lean-to shelter built by the corn field near Tasker's Coulee. Here nubbings of corn found in the field have attracted approximately 100 birds, mainly pheasants, some Hungarian Partridges, and few sharp-tailed grouse. However, the stream bottom marginal to both field and shelter has a dense growth of willow, weeds, and rose, that are well above the snow. Furthermore, the teepee type of hideout shelters are also used by the birds in the same manner that a thichet would be. Observations of the Camp Superintendent and his foremen varify the above statements.

Island Improvements

The severe weather during the latter part of December has seriously handicapped island improvement. The "Snake" island in pondsite #3 and the large island in pondsite #4 have been sufficiently gravelled.

John H. Steenis
Assistant Refuge Manager

*DUTIES OF THE CCC HEADQUARTER'S DETAIL

As one of the five members of the headquarter's detail assisting the refuge manager of the Des Lacs and Lostwood Refuges, I have been asked by Mr. Steenis, Assistant Refuge Manager, to write a report on the various duties which we are given to perform.

One of the major tasks with which we have been confronted during the month of August, 1936 was created by the malady known as Botulism. This condition made it necessary for us to patrol the area for dead and sick birds, make frequent census' on waterfowl, treat the sick birds, band and release them when they were well enough, keep banding records, and to tabulate the tallyes on the census of living, sick, and dead birds.

Mr. Fields has been assigned to the treating of sick birds. He gives them a dose of epsom salts three times a day. Mr. Johnson, Mr. Rychner,and Mr. Garros have been taking the waterfowl census, banding and releasing the birds, and tabulating the records. All four of them have, at some time or another during the month, been engaged in patrolling the area for dead and sick birds.

Another task which we have had during August, and on which we will undoubtedly spend considerable time on in September, is seed collecting. We spent two or three days at the Kenmare Park collecting mulberry, honeysuckle and caragana seeds for the nursery at Upper Souris. Every now and then, we go out and help the refuge manager examine various seeds for ripeness. During the latter part of August we began collecting millet seed.

Mr. Rychner has accompanied the refuge manager on a number of field trips to assist in estimating the hay cut on the refuge by persons who have been given hay permits. Mr. Rychner has had previous experience in estimating hay in the Forestry Service.

Other duties which we have performed are: assembled and stored machinery, erected refuge signs, oiled and greased government vehicles, cut weeds, kept the buildings clean, and checked government property.

During the month of August I have been engaged mainly in office work, such as typing vouchers, records, and letters; filing; assisting in taking inventory; etc., although in previous months I helped in the census work and planting of marsh and aquatic plants.

E.B.

Work performed by LAborer- Patrolman

Repaired all window latches in the office and service building. Cleaned out all floor drains. Went out on a duck patrol. Also made a check on all spillways, raising splash boards in two sections. Many of the connecting boards were broken, and I have made new ones to replace them. Serviced two pick-ups and one Reo truck. Had the tire carrier bracket on the pick-up welded. Planed off the bottom of the screem door so it would close properly. Assisted in storing the machinery in the service building. J.S.B.

Check List of People Living on the Des Lacs Refuge

A recent field check-up revealed that the following parties live within the refuge boundary.

Name of Party	Location	Comments
Mr. Landis & family	T.160 N.,R. 88 W. Sec. 33, Tract #143	Land paid for. House on Gov't property. House will be moved off in the immediate future.
H. Hoffman & family F. Hoffman & family	T. 160 N., R. 88 W. Sec. 33, Tract # 80a	Not paid for
Mr. M. Welch & family	T. 160 N., R. 88 W. Sec. 8, R. 89 W. Sec. 13, Tract #117	Not paid for
Mr. Talbert & family	T. 161 N., R 88 W. Sec. 30, Tract ' 84	Paid. Lease on land for coal mining.
Mr. D. Gadwell	T. 161 N., R. 88 W. Sec. 30, Tract #146	Not paid for
Mr. Pairier & family Mr. L. Mustis & family Mr. J. Hanson & family	T. 161 N., R. 88 W. Sec. 30, Tract # 82	Paid. Lease for mining coal.
Mr. E. Swanson	T. 161 N., R. 88 W. Sec. 5, Tract # 48	Paid

Water Levels

The water levels of the lake and pondsites have continued to go down. Large areas that were recently covered with water on the Upper Des Lacs Lake are now dry. Much of the area that dried up was in the zone of heavy infection of the botulistic form of duck sickness.

In the pondsites water has dropped leaving large areas of bare mud flats. However there is still sizable bodies of water in all pondsites. The four showers during the last two weeks of August has prevented pondsite #7 and #7a from completely drying up.

Inventory of Biological Equipment

An inventory was made of the equipment: farm machinery, tools, vehicles, refuge signs, fencing material etc. A card index file was started to show the status of each piece of property i.e. where stored, who is using it, or where it has been transferred to. This is an important part of the administration as this refuge is used as the receiving, storing, and redistributing center for supplies and equipment for all the refuges in the Montana-North Dakota District and in the case of certain materials such distant points as Burns, Oregon.

Fire Fighting Equipment

The six Indian back-pack fire pumps, which were received recently, were assembled and tested. These are kept filled at all times and have been placed together with six shovels and a sack full of sacks in a handy position in the

service building.

The tool boxes under the front seats of the two V8 pick-ups and the Reo truck have been stuffed with sacks so that they are always at hand wherever we go.

A wooden box is to be built to hold the six pumps, a number of shovels, sacks, two axes, hatchets, rope, and a first aid kit. Drums will be obtained for carrying extra water. These will be placed on the Reo truck which will be kept in readiness to go to any fire.

Fortunately we have had no fires, but a number of the enrollees had an opportunity to acquaint themselves with the use of the back-pack pumps. The camp has just finished painting the headquarters buildings. The white, lime-cement paint had to be kept wet for ten days after being put on. As there is no running water at headquarters, the pumps proved to be a very handy way of spraying the walls. S.H.L.

Fencing Program

A big feature of the month which received considerable space in the newspapers was the fencing program. Thirteen freight cars arrived in the Kenmare yards and were unloaded in record time by the CCC boys. The material consisted of:

415	steel corner, fence posts
77,760	Steel, line, fence posts
77,760	wire fence stays
188	bags of clamps

In addition to these we already had on hand:

8,000	Spools of barb wire
100	kegs of staples
13,000	refuge markers

A great part of these materials have already been distributed to various refuges. A fleet of seventeen trucks took steel posts over to Foxholm and another fleet of fifteen brought over several hundred wooden posts and hauled away more of the steel posts, stays, and clamps.

An impressive line of red topped steel posts already stretches down the west side of Highway #52 from Kenmare to Bayden and back up the west boundary almost to Headquarters.

S.H. L.

Cutting of Hay

Hay permits were issued out in accordance with the memorandums and letters on this subject from the Refuge Administrator, Mr. Maurek. Of the land that has been paid for on the Des Lacs Refuge, the only suitable stand of hay is found marginal to the Lower Des Lacs Lake. This hay is of excellent quality and the stumpage price has been placed at $1 per ton.

The following parties are receiving hay permits on the Des Lacs Refuge:

J. Alfana	Kenmare, N. Dak.
J. Bara	Kenmare, N. Dak.
O. Nordstrum	Kenmare, N. Dak.
A. Norrie	Kenmare, N. Dak.
J. Trulson	Kenmare, N. Dak.

* For more details and the hay cutting program see the Lostwood Refuge report.

Reorganization of the Office and Files

The Junior Refuge Manager, assigned to fill in while Mr. Steenis was on leave, was given the job of reorganizing the office and revamping the files. The entire office including cabinets and desk drawers were thoroughly cleaned. All the windows were washed and all the light woodwork and furniture was waxed.

The contents of the shelves, desks, and cabinets were rearranged so that there was a place for everything.

The files received special attention. Major and subdivisions were introduced and the material divided up into sepaate folders according to subjects. A card index property file was started.

Requisitions were sent in for additional supplies so that the office would be completely outfitted in all respects.

A check of the locks and keys was made. It was found that the contractor had mixed up the locks when installing them. One set of keys opened two doors of the office building and the north door of the residence. A second set unlocked two doors of the residence and the third office door.

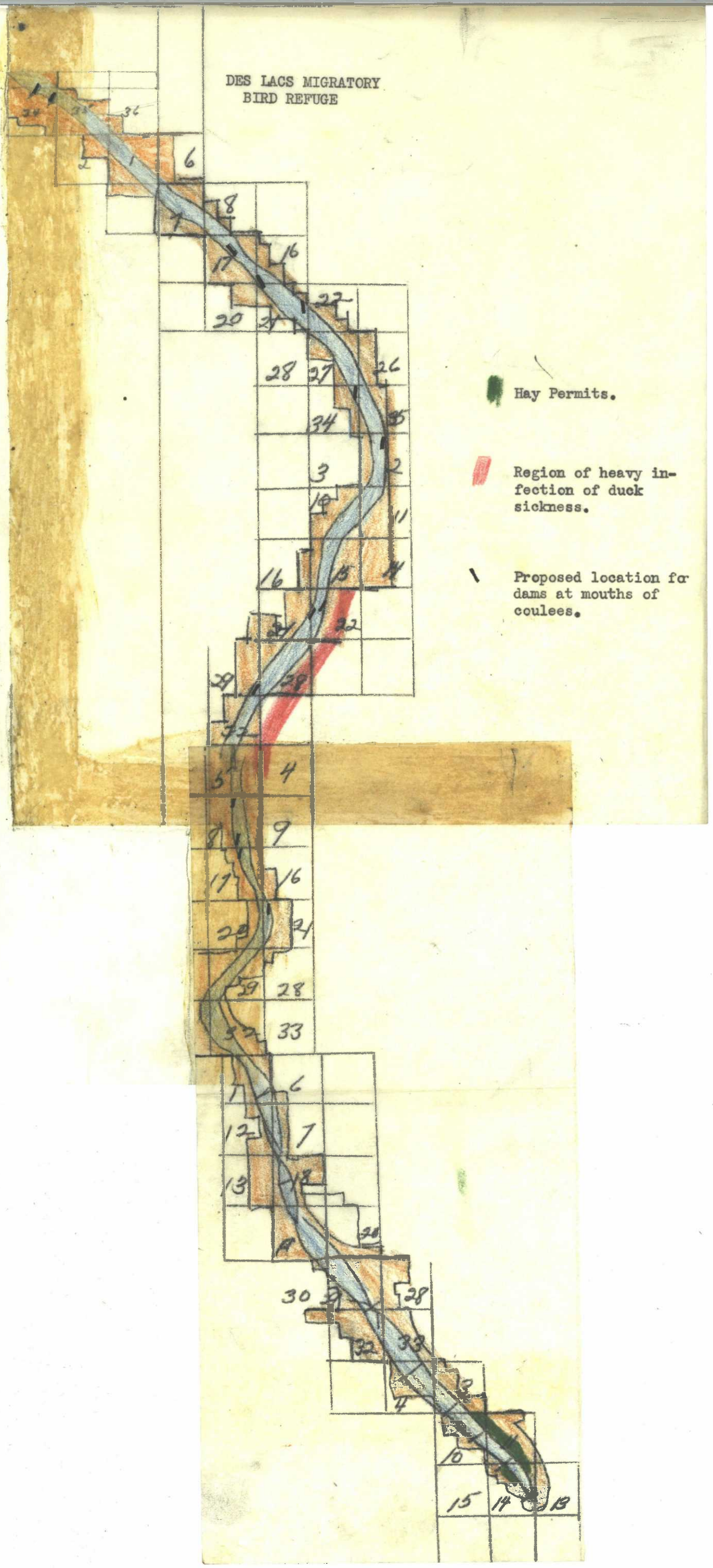
Mr. Bergeron's first job was to remedy the lock mix-up and to oil and adjust all the locks.

Biological Survey padlocks have been obtained for the slaughter house, well house, and seed cellar at Des Lacs and the Service Building and Barn at Lostwood. A regular lock is to be placed in the door of the Des Lacs Service Building. The camp Superintendent has been asked to draw up a project for

the installation of the locks and the purchase of hasps, locks, and screws.

Hooks were purchased and arranged on the back of one of the cubboard doors to form a key rack. A label was placed over each hook giving the key number, the total number of keys, and the doors they open. Below the rack a chart is posted showing to whom keys have been issued and how many should be on the hooks. S.H.L.

DES LACS MIGRATORY BIRD REFUGE



Hay Permits.

Region of heavy infection of duck sickness.

Proposed location for dams at mouths of coulees.

Fig.1
Des Lacs Headquarters from the tower, overlooking the middle Des Lacs Lake and the town of Kenmare.

Fig. 2
Living quarters at the Des Lacs Headquarters.

Fig. 3
Office laboratory building.

Fig. 4
Service building.

Fig. 5
A strip of wild millet along Dam number 4

Fig. 6
Wild millet grows upright when growing in a dense stand.

Fig. 7
Wild millet growing in a prostrate position on soil lacking in vegetation.

Fig. 8
A growth from a rootstock of swamp smartweed that was planted this spring.

Fig. 9
A rootstock of giant bur-reed planted in the spring resulted in this extreme growth.

NARRATIVE REPORT
ON THE LOSTWOOD REFUGE
AUGUST 1936

At the present time Lostwood is almost dry. Open water is to be found in three brackish lakes, a semie brackish lake, and a spring fed sleugh. A few ducks and a thousand Franklin gulls are to be seen on the brackish water lakes. The abundance of grasshoppers insures ample food for the gulls. The spring fed sleugh by Knutson's place is literally covered with ducks.

E.C.W. PROJECT
ON REFUGE

C.C.C. crews have been wrecking buildings, and salvaging as much good material as possible. An excellent job has been done of cement painting the buildings at the headquarters site.

A CHECK LIST OF PEOPLE LIVING ON LOSTWOOD REFUGE

People now living on Lostwood Refuge	Location	Comments
John G. Olson and Family	T.160 N.,R. 91 W., Sec. 23, Tract #196	Not paid.
John Thies and Mother	T. 160 N., R. 91 W. Sec. 21, Tract #253	Paid. Desires permit to remain for winter
Anton Berg and wife Clarence Berg	T. 160 N., R. 91 W. Sec. 30, Tract #19	Paid. Desires permit to remain for winter
L. W. Harris* and Family	T. 159 N., R. 91 W. Sec. 4, Tract #270	Paid. Desires permit to remain for winter
S. Edwards and Family	T. 159 N., R. 92 W. Sec.12, Tract #270	Not paid.
E. Seward and Family	T. 159 N., R. 92 W. Sec. 13, Tract #210	Paid. Plans to move first of September
S. Baragrey and Family	T. 159 N., R. 91 W. Tract #15, Sec. 29	Paid. Plans to move to Powers Lake soon
O. Lindell	T. 159 N., R. 91 W. Sec. 33, Tract #148	Paid. Has not moved as yet.
C. M. Hanson	T. 158 N., R. 91 W. Sec. 6, Tract #603	Not paid.

* Note: L. W. Harris recieved permit to live on land sold to the Government by another party. His own land Tract No. 94, T. 160 N., R. 91 W., Sec. 33 is not paid for.

PREDATOR CONTROL

The trapping and killing of predators has been progressing slowly. To date 43 weasels, 19 house cats, 29 skunks, 17 magpies, and 1 great horned owl have been trapped or shot down.

Next month plans are being made to have traps set out for coyote.

Carded Burn

HAY PROGRAM

To date 18 permits have been granted to parties, who previously owned land or lived on the refuge. People, who sold their land were given first choice to have permits on the land, they sold to the government. Several of the original owners had never lived on the land they had sold to the government. Parties, who had regularly rented or leased land now bought by the government were in part dependent on that land for their lively hood. In this sence of they had lived on the land within the refuge, consequently they recieved permits for cutting hay.

The map shows the land where hay permits were granted. Since this hay was short, scanty and often weedy a stumpage value of $.50 per ton was placed on the hay.

Estimates have been made on hay with the aid of Ralf Rychner of Camp BF-3. Previously Rychner had had considerable experience with this kind of work with the Forest Service. Temporary permits were made for cutting hay on the blanks accompanying the report. These temporary permits are being peplaced by the Spedial Use Permits (form Bn. -1385)

The following have been granted hay permits on the Lostwood Refuge.

Mr. Anton Berg, Coteau, N. Dak.

Mr. Clarence Berg, Coteau, N. Dak.

Mr. Martin bergstrom, Lostwood, N. Dak.

Mr. Martin Erickson, Coteau, N. Dak.

Mr. Harry Gleave, Coteau, N. Dak.

Mr. Lloyd Harris, Coteau, N. Dak.

Mr. J. B. Kelly, Lostwood, N. Dak.

Mr. Frank Lindberg, Lostwood, N.Dak.

Mr. Izaac Lindberg, Lostwood, N. Dak.

Mr. Frank Little, Powers Lake, N. Dak.

Mr. Arthur Mercier, Powers Lake, N. Dak.

Mr. Fingar Scardet, Coteau, N. Dak.

Mr. W. L. Stewart, Coteau, N. Dak.

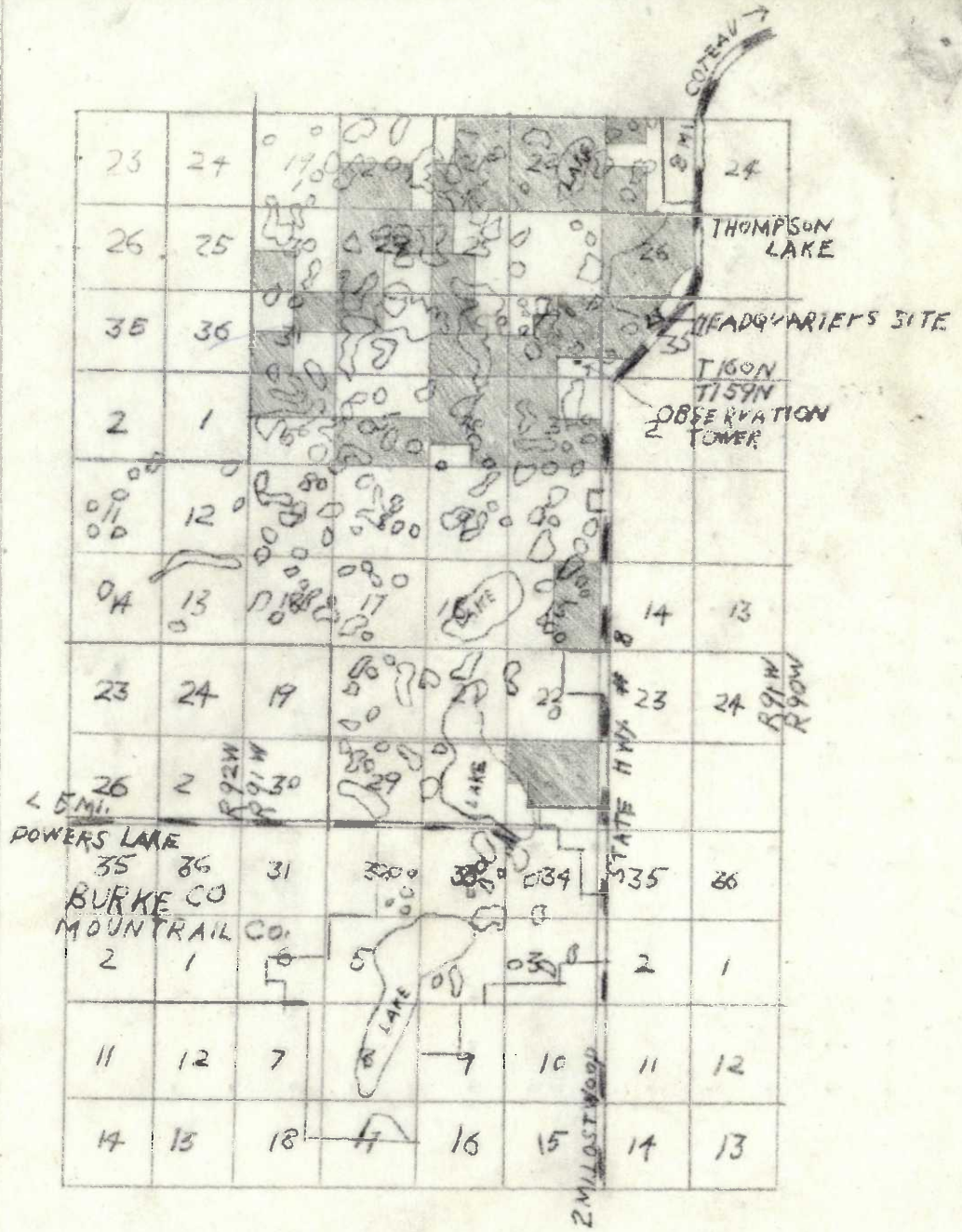
MR. C. E. Swanson, Lostwood, N. Dak.

Mr. Nels Solin, Lostwood, N. Dak.

Mr. John Thies, Coteau, N. Dak.

Mr. George VanVorst, Lostwood, N. Dak.

Mr. John N. Welsh, Coteau, N. Dak.



LOSTWOOD
MIGRATORY BIRD REFUGE

Penciled areas have been signed out for hay permits. Only a few of the sloughs had hay woth cutting.

Fig. 1
Lostwood Headquarters from the tower overlooking Thompson Lake.

Fig. 2
House and barn that is about to be salvaged.

Fig. 3
After the wrecking crew has finished.

Fig. 3
After the wrecking crew has finished.