

QUARTERLY NARRATIVE REPORT

for the period

Nov. 1, 1939 to Jan. 31, 1940



LOWER SOURIS MIGRATORY WATERFOWL REFUGE

UPHAM, NORTH DAKOTA

C. J. HENRY

ASST. REFUGE MANAGER

## TABLE OF CONTENTS

	<u>Page</u>
Personnel	1
General Conditions	2
Weather Conditions by months	2
Water Conditions by units	3
Wildlife	4
Waterfowl	4
Upland Game Birds	5
Predator Control	5
Fur	7
Other Animals	7
Deer	7
Rabbits	9
Predators	9
Muskrats	10
Beaver	10
Fish	11
Bird Banding	12
Refuge Development & Maintenance	14
Physical Development	14
Fencing	14
Upham-Willow City Road	14
Patrol Roads	14
Residences	14
Old fences	14
Razing	14
Timber Stand Improvement	15
Miscellaneous	15
Plantings--Wild Rice	15
Collection	16
Seed Distribution	16
Public Relations	17
Visitors	17
Violations	17
Economic Uses of Refuge	19
Grazing	19
Haying	19
Other Items--Easement Refuges	20
Photographs	21

P E R S O N N E L

Cordia J. Henry	Refuge Manager
Merrill C. Hammond	Biologist
Wilfred Anderson	Clerk
Harry A. Jensen	Patrolman
Thomas W. Lawson*	Patrolman
Ingvald J. Martinson	Patrolman
Arnold M. Bye**	Patrolman

\*Returned to duty from leave without pay on December 1, 1939.

At present employed on a two-thirds time basis, and receives compensation for partial disability.

\*\*Temporary employment terminated December 29, 1939.

# I. GENERAL CONDITIONS

In our last report we mentioned the drought, and the unfavorable outlook for 1940. The past three months were even worse, the total precipitation for this period being only three-tenths of an inch. According to the U. S. Weather Bureau, November was the fifth warmest on record, while December was the warmest December on record. November was the driest month of any name since state-wide records began in 1892! The first part of January was also warm, but was more nearly normal after the fifteenth.

This winter has been an excellent one from the standpoint of outdoor work. There has been no snow to hinder travel, and there have been but few days too cold for productive outdoor work. The fencing project continued all during January.

Summaries of weather conditions by months follow:

November.--Exceptionally warm. Total precipitation, .09 inches (Bot-tineau station). Temperature range, plus 5° to plus 64°.

December.--Exceptionally warm. Total precipitation, .06 inches. Temperature range, minus 14° to plus 63°. On only two occasions was the temperature below zero at 8:00 A.M.

January.--Exceptionally warm first half--normal last half. Total precipitation, .16 inches. Temperature range, minus 32° to plus 39°. On nineteen mornings the temperature was below zero at 8:00 A.M., while on twelve days the temperature was below zero at noon.

At the present time there is possibly an inch of snow.

The water conditions by units are as follows:

Rubble-masonry Unit.--Full.

Unit 320.--Radial gates wide open; some water trapped in west side of unit.

Unit 326.--Radial gates wide open for winter; still some water in unit backed up by Dam #332.

Unit 332.--Full. Water ran over radial gates up to the 6th of January.

Unit 341.--Lacks exactly two feet of being full, an increase of 1.1 feet since the last narrative report.

Unit 357.--Lacks 4.79 feet of being full.

Total receipts of water into the Lower Souris Refuge in 1939 are estimated as follows: (not including precipitation.)

Mouse River, January 1 to June 30 (Measured at Bantry Station)	34,496 acre-feet
Local Run-off, Boundary Creek and Deep River (estimated)	3,500 acre-feet
Mouse River, July 1 to December 30 (Estimated)	<u>5,000</u> acre-feet
Total	43,000 acre-feet

## II. WILDLIFE

### A. Waterfowl.

The unusually warm winter, along with the lack of snow, has induced many ducks to stay on the Lower Souris Refuge up to the present time. There is an abundance of grain available in the fields as the snow fall has been negligible, and the grain crops were fairly good. Up to the time of the annual waterfowl census, there were two water-holes, one in the 332 unit, and one in the 357 unit near the border. On the day of the census we kept the ducks out of the hole near the border so as to allow it to freeze over, and thus forced the ducks to leave. Most of them moved south to the other water-hole, while some apparently migrated. It is our opinion that under ordinary circumstances the birds should be forced to migrate by keeping them out of the water-holes long enough for them to freeze over. We intend to let nature take its course on this one water-hole in order to see just what will happen, and to see if we are able to secure an all-winter record for ducks. At this time there are between two and three thousand Mallards using this water-hole, along with one young male American Merganser.

There are several reasons why we feel that the ducks should ordinarily be forced out of these holes, so they will have to migrate.

1. A severe storm would probably wipe them all out.
2. The predator pressure on these birds is very severe (especially by Golden Eagles, Falcons, Owls, Fox, and Mink).
3. Even if the ducks should successfully winter here, they are likely to receive permanent physical injury from the severe cold.

Most of these ducks are feeding in the refuge grain fields south

of the headquarters. Their presence is causing a great deal of comment among the people of this locality. Not even the oldest settlers can ever remember having seen ducks here in January before.

#### B. Upland Game Birds.

Because of the unusual weather, it is impossible to make a normal comparison as to the numbers and winter habits of the upland game birds. From general observations, however, we are of the opinion that there has been a great increase in the pheasant population, and a fair increase in the Hungarian Partridges. The Prairie Chickens have remained about the same, or may even have decreased, while there has been a slight increase in the numbers of Sharp-tailed Grouse.

Mr. Hammond is again conducting studies along the lines of those of the past two winters. A large number of blood smears have been taken in cooperation with Dr. Coburn in his studies with the blood parasite discovered in the Sharp-tailed Grouse last winter. Further experiments with feeding and trapping are being made.

At the present time we are actively engaged in trapping thirty six pheasants and thirty-six partridges for the Denver laboratory. These birds are to be used for experimental work with poisoned bait by Mr. Garlough.

#### C. Predator Control.

The outstanding feature of this winter's trapping has been the increase in the numbers of mink. We have already taken 68 mink as compared with 31 during the corresponding three months period of last winter. The status of the weasel has been just the opposite;

last winter we took 106 as compared to 64 this winter during the months of November, December and January. The weasels have not been nearly as common as usual. The skunk and fox population has been about the same, while there has been a sharp decrease in coyotes and house cats. The following is a record of predators taken during the past three months:

<u>Species</u>	<u>November</u>	<u>December</u>	<u>January</u>	<u>Total</u>
Skunk	72	54	39	165
Weasel	20	24	20	64
Mink	11	24	33	68
Fox	6	3	5	14
Coyote	1	1	2	4
House Cat	<u>5</u>	<u>5</u>	<u>1</u>	<u>11</u>
Total	115	111	100	326

The following chart is rather interesting, and illustrates as well as anything can, the general trend of predator populations during the past four winters:

Comparisons of predator take during the three-months period,  
November, December & January

<u>Predator</u>	<u>1936-37</u>	<u>1937-38</u>	<u>1938-39</u>	<u>1939-40</u>
Skunk	179	83	128	165
Weasel	103	154	106	64
Mink	19	13	31	68
Fox	0	14	14	14
Coyote	7	5	7	4
House Cat	<u>34</u>	<u>4</u>	<u>28</u>	<u>11</u>
Totals	342	273	314	326 (1255)



These figures cannot be taken at face value, however, because certain factors have varied each season. These would include such items as the size of area worked, intensity of effort, quality of trappers, weather conditions, etc.

In addition to the above predators, 72 Magpies were taken in No. 0 steel traps during the past three months. One badger and two porcupines were also taken during this period in traps set for foxes and coyotes.

#### D. Fur.

The fur take is essentially the same as the above predator chart, except that the pelts of House Cats are not saved, and occasionally a skin is ruined by some other predator eating the animal in the trap.

Partial returns were recently received for the pelts shipped to Denver last winter. For 124 skunk, 31 mink and 15 fox we received \$299.92 from the Seattle Fur Exchange. In our opinion we should have received between five and six hundred dollars.

#### E. Other Animals.

##### 1. Deer.

Our second annual deer census was taken on the 7th and 8th of November. The results, and comparisons with the 1938 census, are as follows:

	<u>1938</u>	<u>1939</u>
<u>1st Day:</u>		
Acres covered	960	920
Deer actually counted	52	55
Acres per deer	18.5	16.7

	<u>1938</u>	<u>1939</u>
<u>2nd Day:</u>		
Acres covered	2400	800
Deer actually counted	100	47
Acres per deer	24	17
<u>Totals:</u>		
Acres covered	3360	1720
Deer actually counted	152	102
Acres per deer	22	16.8
Acres of suitable deer cover	13000	13000
Estimated total deer south of Dam 320	590	774
Estimated total deer north of Dam 320	10	16
Estimated total deer on Refuge	600	790

The percent of increase was 31.6% more deer in 1939 than in 1938.

We all feel that these figures are conservative. No allowance was made for any deer except those actually counted. The CCC boys used this year were of poor quality, and very difficult to handle.

Mortality Notes.--Three deer have been found dead this winter. During the deer census one old buck with deformed antlers was found. Coyotes, Magpies, and Skunks had devoured most of it so that cause of death could not be determined. (See photos.) A second buck was found dead and partially frozen in the ice. A bullet had gone entirely through the body just in front of the hind quarters. As the animal could have lived for two or three days with such a wound

it is impossible to tell whether or not it was shot on the refuge. It apparently had broken through the ice, and in its weakened condition was unable to get out. (See photo.) A third deer has recently been found frozen in the ice, with only a small part of one side showing.

Scientific Specimens.--We have just completed the collection of six deer specimens for Major Goldman of the U. S. Biological Survey. All of these animals were very fat and in excellent condition. Stomach contents showed that Buckbrush (*Symphoricarpos occidentalis*) is a more important food item than we had previously believed. A detailed examination of this material has not yet been made. The deer carcasses were given to the welfare boards of Bottineau and McHenry counties (three to each) for the use of relief clients.

## 2. Rabbits.

There has been a great increase in the Snowshoe Rabbit population. These animals are confined to the wooded areas in the south end of the refuge where they do considerable damage to young trees and shrubs. Great numbers were killed with a .22 rifle by the patrolman for that area while running his trap line. There has also been an increase in Cotton-tails, while Jack Rabbits are about the same. Many Jack Rabbits were killed by refuge personnel in order to protect the nursery and headquarters plantings. Of all the methods of control attempted, night hunting with bright lights and shotguns is the most successful.

## 3. Predators.

The predator situation has been about the same as before,

with the exception of the unusual condition created by the large number of Mallards that are still with us. These are being preyed upon quite heavily by Foxes, Mink, Golden Eagles, Duck Hawks, and probably also by Prairie Falcons, Great Horned Owls, and Snowy Owls.

During the duck nesting season of 1939, skunk damage had decreased to 2.9% as compared to 30.4% in 1936, 6.7% in 1937, and 13% in 1938. We feel that this was due, in part at least, to more intensive skunk control in some of the best nesting areas, especially in those studied.

Crow damage in the 1939 nesting season was 11.9% as compared to 1.7% in 1936, 3.5% in 1937, and 2% in 1938. This increase was due to the increased work in the Rubble-masonry area where the crows destroyed 28.8% of the nests under observation. Mr. Hammond's complete report on the 1939 nesting studies will be submitted in the very near future.

#### 4. Muskrats.

Muskrats have continued to increase until they have become a serious menace to our dikes. It is hoped that arrangements will be completed so that we may commence to remove some of these dam predators this spring.

#### 5. Beaver.

Beaver have also increased, but not as noticeably as the muskrats. Some damage has been done to timber in the wooded areas, but so far this has resulted in improved conditions for deer and other wildlife.

## 6. Fish.

The fish have continued to increase. During the past month there have been hundreds of thousands of fish just below Dam I, where they concentrated in solid masses. Approximately one-half million were captured and dumped into the water just above the dam to prevent them from suffocating.

Our estimate as to the numbers is as follows:

Miscellaneous Minnows	404,000
Suckers	80,000
Yellow Perch	15,000
Catfish	1,000
Total	500,000

The Catfish were mostly Common Bullheads (*Ameiurus nebulosus* n.) but there were also quite a few Common Catfish (*Ameiurus vulgaris*) which is a new species for our records. The present list of fish recorded on the Lower Souris Refuge since July 1, 1935, is as follows:

1. Common Catfish (*Ameiurus vulgaris*)
2. Common Bullhead (*Ameiurus nebulosus* n.)
3. Common Sucker (*Catostomus commersonnii* Sucklii)
4. Northern Dace (*Margariscus margarita nachtriebi*)
5. Common Shiner (*Notropis cornutus frontalis*)
6. Spot-tail Minnow (*Notropis hudsonius* h.)
7. South-western Straw Colored Minnow (*Notropis deliciosus missuriensis*)
8. Black-head Minnow (*Pimephales promelas* p.)
9. Johnny Darter (*Boleosoma nigrum* n.)
10. Iowa Darter (*Poecilichthys exilis*)
11. Brook Stickleback (*Eucalia inconstans*)
12. Trout-Perch (*Percopsis omiscomaycus*)
13. Yellow Perch (*Perca flavescens*)
14. Common Pike (*Esox lucius*)\*

\*The Pike was fairly common here in the winter of 1935 but has not been recorded since. It is entirely possible that the dams have excluded it from the refuge waters.

F. Bird Banding.

Birds banded during the past three months period are as follows:

Sharp-tailed Grouse	72
Pheasants	6
Golden Eagle	<u>1</u>
Total	79

Birds banded during the calendar year 1939 are as follows:

Ducks and other Game birds (15 species):

Mallards	918
Coot	382
Blue-winged Teal	87
Redhead	62
Green-winged Teal	39
Canada Geese	18
Pintail	16
Shoveller	9
Gadwall	4
Baldpate	2
Scaup	1
Blackduck	1
Sharp-tailed Grouse	184
Hungarian Partridge	21
Pheasants	<u>8</u>
Total	1752

Miscellaneous (7 species):

Marsh Hawks	37
Burrowing Owl	10
Peregrine Falcon	2
Golden Eagle	1
Rough-legged Hawk	2
Franklin's Gull	46
Crow	<u>48</u>
Total	146

"Dickie" birds (29 species):	185
Total birds banded in 1939	2083

### III. REFUGE DEVELOPMENT & MAINTENANCE

#### A. Physical Development.

Refuge development during the past three months has been favored by excellent working conditions. Many projects have been conducted that would ordinarily have been closed for the winter. Many types of work have been greatly reduced, however, because of lack of funds. At the present time we should be hauling gravel to the 320 Dam, and to the Patrol road to the Sand Hills. All gravel hauling has been suspended to conserve limited funds for more favorable working conditions in the spring.

1. Fencing has continued during the past three months. During this time fencing on the west side of the 332 unit was completed, and a great deal of fencing was done in the Sandhills area, especially along the Johnson Bridge road.

2. Upham-Willow City Road.--Work on the raising of this road was continued until dirt could no longer be effectively moved. This project will be started again in the spring.

3. Patrol Roads.--No work was done on this project because all equipment was concentrated on the Upham-Willow City road project.

4. Residences.--Work on the "Nilson House" at the headquarters site is progressing, although the place will not be ready for occupancy before spring. There is still considerable work to be done.

5. Old fences have been taken up by our WPA's up to the middle of January. Most of the old fences south of the CCC camp have now been removed (excepting the Sandhills extension).

6. Some razing of old buildings has been done by CCC.



7. Timber Stand Improvement work is now being done by both CCC and WPA. This is excellent winter work, and something that is sorely needed along the river bottom from Dam 320 on south.

8. Miscellaneous includes the construction of eight pheasant traps, thirty tip-top grouse traps, and a number of shipping crates; the cutting and peeling of wooden fence posts, construction of seven additional wildlife shelters, erection of snow fences, construction of a small dike in the 320 unit, overhaul of riprap around gates of Dams 320 and 332. All of the old paint was cleaned off of the water tank in the pump house in preparation for repainting.

Our patrolman-(mechanic), Mr. Jensen, assisted by a WPA mechanic, has overhauled the following pieces of refuge equipment:

1937 Pontiac sedan

1938 Ford sedan delivery

1939 Chevrolet pickup

1935 Chevrolet  $1\frac{1}{2}$  ton stake truck

The two Ford pickups were not overhauled as they are being turned in on new pickups in the spring. The installation of the Kohler light plant at the Skar place was completed, and the motor is now being overhauled.

At the present time, development work is being done by our CCC Camp BS-4, and by a crew of about 25 WPA's.

#### B. Plantings.

Wild Rice.---The balance of 150 pounds of this seed was secured from the Arrowwood Refuge on November 27th, and was planted on the same day. Previously we had secured and planted 300 pounds as stated in the last narrative report. This makes a total of approximately

450 pounds of Wild Rice seed planted in the fall of 1939.

### C. Collection.

The only report under this activity is for the cleaning, treatment, or stratification of certain items as follows:

- 77 lbs. Red cedar - cleaned, stratified
- 30 lbs. Sumac - stratified
- 6 lbs. Dogwood - (part treated  $H_2SO_4$ ), stratified
- 100 lbs. Buffalo berry - cleaned, part stratified
- 3 lbs. June berry - stratified
- 6 lbs. Pin cherry - stratified
- 35 lbs. Choke cherry - stratified (part treated  $H_2SO_4$ )
- 35 lbs. American Plum - stratified (part treated  $h_2SO_4$ )
- 60 lbs. Russian Olive - cleaned

We have continued to save all predator stomachs that contain food. All other scientific material of interest is saved where practical, and when we have time to prepare it.

### D. Seed Distribution.

#### 1. Receipts.

Russian Olive seed, 1000 lbs. (uncleaned) from the Sand Lake Refuge.

Buffalo Berry seed, 300 lbs. (uncleaned) from the Waubay Refuge.

#### 2. Distribution.

Prairie Bulrush seed, 200 lbs. to Sydney Smith, Austin, Texas.

#### IV. PUBLIC RELATIONS

##### A. Visitors.

During the past three months we were honored by visits from the following:

Mr. Burnie Maurek, Regional Director, Biological Survey, Omaha, Nebr.  
 Mr. F. C. Gillett, Regional Inspector, Biological Survey, Omaha, Nebr.  
 Mr. J. Lloyd Stone, NYA Official, Bismarek, North Dakota  
 Mr. Victor Sorensen, NYA Official, Bottineau, North Dakota  
 Mr. Robert W. Dougall, Hydraulic Engineer, Biological Survey, Minot, N. Dak.  
 Mr. L. T. Cheney, Division of Rodent & Predator Control, Biological Survey, Fargo, North Dakota  
 Mr. D. T. Ritchey, State Highway Department, Bismarek, North Dakota  
 Mr. E. M. Lee, State Chief Game Warden, Bismarek, North Dakota  
 Mr. Leo R. Childers, U. S. Game Management Agent, Biological Survey, Aberdeen, South Dakota  
 Mr. H. A. McCully, WPA Area Engineer, Bottineau, North Dakota

On the 16th of January the refuge manager gave a talk on conservation to the boys of CCC Camp BS-4 on this refuge.



##### B. Violations.

On the sixth of November, three hunters, H. Rex Olson, Cal Gilmore and Bert Brandt, were apprehended by the refuge manager and patrolman, Harry A. Jensen, hunting after 4:00 P.M. They were taken before the local Justice of Peace where each plead guilty and was fined \$10.00. They paid costs of \$4.50 each in addition to the fine.

On the third of December a boy (Melvin Brandt) entered the refuge and stole a cache of three dead skunks that had been hidden by one of our CCC trappers. Upon questioning he admitted the theft. The

skunks had been hidden in his father's granary. His case will come up for trial in the very near future.

On the night of December thirty-first, four CCC boys from Camp BS-4 stole a dead mink that was in the possession of one of our CCC trappers. These boys were brought before the company commander for trial on January 5th and were all given dishonorable discharges. This case took quite some time as there was practically no evidence at first to help us.



## V. ECONOMIC USES OF REFUGE

### A. Grazing.

The following table gives a complete summary of grazing during the 1939 season:

<u>Pasture No.</u>	<u>Acreage</u>	<u>Cattle Months</u>	<u>Period</u>	<u>Effect on Range</u>	<u>Revenue</u>
21	800	175	Aug. 1 - Nov. 15	O.K.	\$ 87.50
22	1250	210	July 16-Nov. 15	O.K.	105.00
23	320	15	July 16-Nov. 15	O.K.	5.25
7	160	51	July 1-Nov. 15	O.K.	14.10
6	<u>400</u>	<u>85</u>	July 16-Nov. 15	O.K.	<u>35.50</u>
Totals	2930	536			\$247.35

### B. Haying.

During the 1939 season we disposed of 1575-5/6 tons of hay under 44 special-use permits. The total income derived was \$2,354.75. The quality of the hay, and the yield, could probably be classed as about average.

VI. OTHER ITEMSA. Easement Refuges.

A complete report on the twelve easement refuges under our care was given in the last narrative report. Nothing of value can be added at this time.

We had planned to repair boundary markers on these refuges in the spring, but will not be able to do so unless funds are allotted for this purpose. A request for additional funds has just recently been submitted.

Respectfully submitted, February 2, 1940

*C. J. Henry*  
C. J. Henry  
Asst. Refuge Manager

P H O T O G R A P H S





Canada Geese



Wild Canada Geese landing with refuge flock

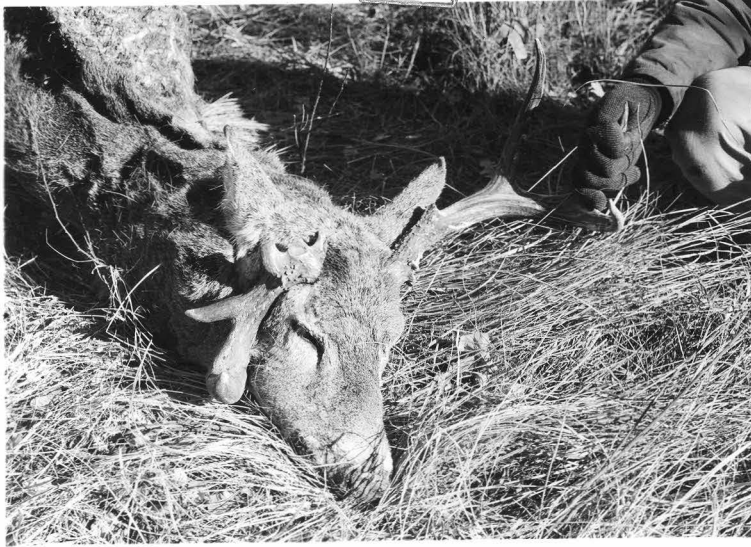




The goose pen and refuge flock in November. Mallards quickly clean up any grain not eaten



Mallards landing in field of Duram Wheat in January. Just a few moments before this picture was taken, a Golden Eagle picked a duck out of this flock.



Freak White-tailed deer found dead on the refuge in early November.  
The animal had been eaten by Coyotes and Magpies, and we were unable  
to determine cause of death although it very likely was from fighting.





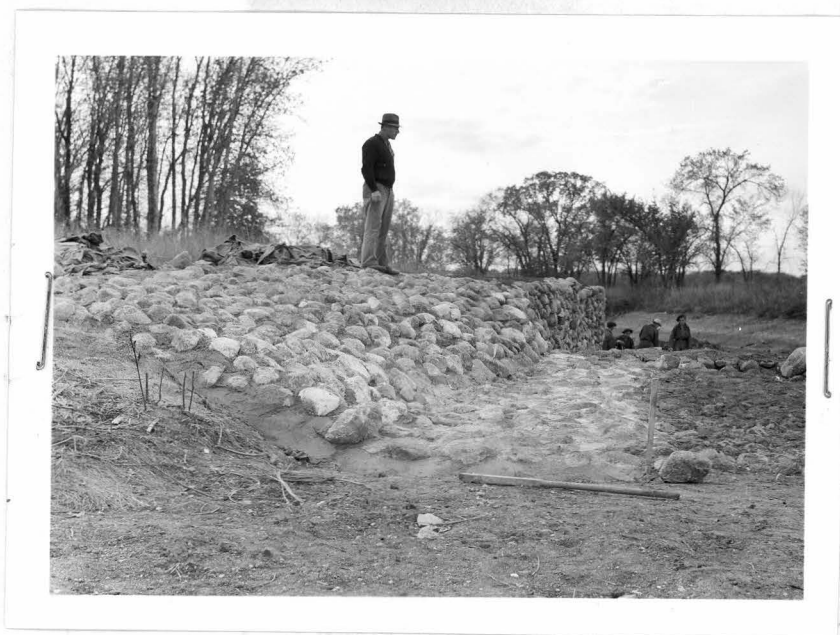
Deer found frozen in the ice on the refuge in early December 1939.  
Bullet hole completely through body as indicated by arrow.  
Animal could or could not have been shot on refuge.



One of specimens collected for Major Goldman



Bridge constructed by CCC on Boundary Creek.  
Messrs. Schaefer and Vroman examining structure.



Considerable improvement work was done on Dam I last fall. Rubble-masonry wing walls were added on the upstream side



Additional photos of work on Dam I. Class "A" rip-rap  
was placed on upstream side



Class "C" was jetted in between the large rocks