

ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

DATE: 8.23-1940☒ MR. SALYER JCS ☒☒ MRS. WOODIN JCS☒ MR. ELMER ACE☒ MRS. GARVIN☒ MR. DUMONT PAD

SECTION OF HABITAT IMPROVEMENT:

~~Mr. Kibickok~~☒ ~~Mr. Smith~~ RNR~~Mr. Griffith~~ BEG~~Miss Gook~~ JWC☒ SECTION OF OPERATIONS:☒ ~~Mr. Ball~~☒ ~~Mr. K. Williams~~ WK

Mrs. Watkins

Mrs. Kricun

☒ SECTION OF ERA:~~Mr. Regan~~ NR~~Dr. Bourn~~ WSB

Mrs. Fishman

☒ SECTION OF LAND MANAGEMENT:~~Mr. [unclear]~~ B~~Mr. [unclear]~~ WA☒ STENOGRAPHERS:☒ Miss Price☒ ~~Miss Whorley~~ VW☒ SECTION OF STRUCTURES:☒ ~~Mr. Taylor~~ WV☒ ~~Mr. Gustafson~~ RCH

REMARKS:

Snow Creek Quarterly Report
February-April 1940

Return to:

J. CookMiss Cook

IN REPLY REFER TO

Squaw Creek
Narrative Report

UNITED STATES
DEPARTMENT OF THE INTERIOR

~~BUREAU OF BIOLOGICAL SURVEY~~

FISH AND WILDLIFE SERVICE
500 National Building
Minneapolis, Minnesota

August 20, 1940

Director, Fish and Wildlife Service

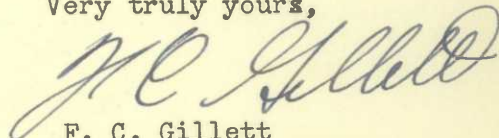
Washington, D. C.

Dear Sir:

There is enclosed the quarterly narrative report for the period February, March and April for the Squaw Creek National Wildlife Refuge as submitted by Mr. DePuy, Refuge Manager.

This narrative report is somewhat more than three months overdue and this office is now endeavoring to secure the later report which is also overdue.

Very truly yours,



F. C. Gillett
Refuge Inspector

Enclosure:

Squaw Creek quarterly report, Feb. Mar. & April, 1940



UNITED STATES
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BUREAU OF BIOLOGICAL SERVICES

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Refuge Inspector

Enclosure:
Squaw Creek quarterly report, Feb. Mar. & April, 1940



Squaw Creek National Wildlife Refuge

Quarterly Narrative Report

February, March and April, 1940

* * * *

United States Department of the Interior

Fish and Wildlife Service

Forest City, Missouri

*rec
v.w.*

I. General

A. Weather Conditions. Precipitation and temperature record

| | Precipitation Inches | Maximum Temperature | Minimum Temperature |
|----------|-------------------------|------------------------|------------------------|
| February | 1.52 | 54 | 4 |
| March | 2.24 | 76 | 18 |
| April | 2.83 | 88 | 21 |
| Total | 6.59 | Extremes 88 | 4 |

The past winter was unusual here in that the temperature did not fluctuate as much as is generally the case. The weather remained rather mild until late in December when it became cold and stayed that way until past the middle of March. It began snowing on December 23, 1939. The last of the drifts melted about March 24, 1940. Not once during the intervening three months was the ground entirely free of snow. This is something of a record for Missouri. The ground had a good blanket of snow throughout all of the month of February.

B. Water Conditions

Water levels were very low throughout this entire quarter. Our largest pool is the south one. The crest of the spillway to this pool is 855.00 feet above sea-level and the bottom of the outlet is 849.20. The gauge readings for this quarter varied between 848.54 and 849.96. Not once did it get within five feet of the bottom of the spillway. The level in the northwest

pool varied between 853.02 and 854.08. The bottom of the outlet is 853.96 and the crest of the spillway is 856.00. Never did it get within 1.92 feet of the bottom of the spillway. The north-east pool varied from insufficient water to read on the gauge to 855.60. The bottom of the outlet is 854.15 and the crest of the spillway is 857.00. The north-east pool had no water except a few inches in the borrow pits, the north-west pool had very little water except what is in the borrow pits and the south pool was not much better. Three thousand acres of what should have been water areas ^{was} were dry land.

C. Fires

Six fires occurred during this quarter. ^{causes?} They burned over a total of 2,274 acres. The only thing that was destroyed was cover, most of which was tall grass and weeds. Some willow brush was burned. Much vegetation had accumulated since the last large fires which were in the spring of 1938. A fine growth of new cover came up immediately after the fires. It is believed that no birds or their nests were destroyed.

II. Wildlife

A. Water Birds

1. Populations and behavior.

Many kinds of water birds were not as numerous on the refuge as they were in the spring of 1939. This may very likely have been due to the fact that the water levels were much lower this spring than last. The decrease in numbers was noticeable among the coots, grebes and some other species but not among the ducks and geese.

what date?

*on this reason I argued for
a tabulation on fires giving
fire report, date, acres burned, causes,
& extent of damage PAD.*

A pied-billed grebe (Podilymbus podiceps) was seen on March 29. One or two more were seen in April. They used to be much more common than that. Two double-crested cormorants (Phalacrocorax auritus) were seen on March 29. On April 10, two of these birds were seen again. Twenty white pelicans (Pelecanus erythrorhynchos) were seen on April 2 and the same number on April 10. A flock of 100 pelicans was seen on April 30. They usually come through here in much larger numbers in the fall than in the spring. when?

American mergansers (Mergus americanus) visit the area in quite large numbers during the late winter and early spring. One hundred were seen on February 28. On March 5 and for two weeks thereafter, their numbers were estimated at 1,000. They soon disappeared after that.

- (a) The ice became thicker and remained longer last winter than it did the winter before. Apparently the ducks were unable to keep any holes open as they had during the previous winter. The last of them except one pair of mallards departed in January. This pair remained around the goose pen where we kept feed out for the captive geese.

Late in February, the mallards (Anas platyrhynchos) began returning. We saw five of them on February 25 and twenty-five on the 28th of the month. Their numbers increased rapidly after that. There was an estimated 25,000 on March 3; 35,000 on March 4; and 50,000 on the 13th, after which the numbers fell off just as

quickly with 35,000 on the 15th, 25,000 on the 16th, and 3,000 on the 17th. A few stragglers were around for the rest of the quarter but it is not thought that any of them nested here this year. A few did last year.

A few gadwalls (Chaulelasmus streperus) came through in the spring. I have a record of them on April 13.

Small flocks of American widgeons (Mareca americana) were seen during March and the first half of April. For a part of that time, about 200 of them fed on the wheat fields adjacent to the refuge.

Small numbers of green-winged teals (Nettion carolinensis) were seen during the latter part of March and during April.

Blue-winged teals (Querquedula discors) and shovellers (Spatula clypeata) are our most common ducks late in the spring. They were not as numerous this spring as last. My first note for the former was made on March 22, after which they became fairly common. The first shovellers were recorded on April 13.

The pintails (Dafila acuta) began returning late in February. There were approximately 1,500 on February 26, 8,000 on the 29th, 50,000 on March 3, 60,000 on March 4 and 25,000 on the 8th. A sudden blizzard seems to have brought the ducks back again on March 13. It was estimated that there were 200,000 pin-

tails and 50,000 mallards here on that date. Many of them were in the corn field and higer a field west of refuge headquarters where they were somewhat sheltered from the full force of the cold wind. The number of pintails soon dwindled to less than 1,000 as the weather warmed. A few remained throughout the quarter.

Our water has been shallow and rather unattractive to diving ducks this year. Not very many of them were seen. A few redheads (Marila americana) and canvas-backs (Marila valisineria) were seen in March and a small number of lesser scaups (Marila affinis) remained during March and April. A pair of American golden-eyes (Clangula clangula americana) were observed on March 10 and a pair of buffle-heads (Charitonetta albeola) on March 12 and a few ruddy ducks (Erismatura jamaicensis) were seen on March 29.

Immense numbers of snow and blue geese come through this part of the country every spring. The following table gives the estimated numbers of the two combined that were either on the refuge or in its vicinity on various dates this spring. From five to ten percent of these birds were snow geese. The percentage changed from time to time.

| <u>DATE</u> | <u>ESTIMATED NUMBERS</u> |
|-------------|--------------------------|
| ✓ Mar. 13 | 10,000 |
| " 15 | 25,000 |
| " 17 | 35,000 |
| ✓ " 18 | 50,000 |
| " 20 | 40,000 |

| <u>DATE</u> | <u>ESTIMATED NUMBERS</u> | (con't from page 5) |
|-------------|--------------------------|------------------------|
| Mar. 21 | 25,000 | |
| " 22 | 20,000 | |
| " 27 | 25,000 | |
| ✓ " 29 | 10,000 | |
| ✓ Apr. 13 | 1,000 | |
| " 18 | 2,000 | |
| " 30 | 300 | |
| ✓ May 1 | 300 | |
| ✓ " 19 | 7 | |

A flock of 50 white-fronted ✓ geese (Anser albifrons) remained on or near the refuge during the latter half of March.

A small flock of Canada ✓ geese (Branta canadensis) was reported seen on the refuge on March 29. A flock of 75 was seen at various times between April 13 and April 30.

(b) Groups

Geese and mallard and pintail ducks were more numerous during the spring of 1940 than during the spring of 1939. Most other kinds of ducks were less numerous. The numbers of shore birds were about the same as in 1939. Gulls, terns, cormorants and pelicans were less numerous than in 1939, due, no doubt to the shortage of water here.

2. Food and Cover.

(a) There was an abundance of food and cover for all kinds of water birds on the refuge but not all of it was readily available. It is believed that at least 2,000 bushels of wild millet (Echinoch-

loa crusgalli) seed matured last year that was not harvested. There were also hundreds of pounds of smartweed seed. Most of these seeds were on dry ground and were not as available for waterfowl as they would have been had the ground been flooded. There was still some corn left in our fields and those of neighboring farmers when spring came.

3. Disease

(a) Botulism

No evidences of this disease have been seen on this refuge.

(b) Lead poisoning ✓

It is estimated that 1,000 ducks died of lead poisoning here during the three months covered by this report. Most of the ducks having the disease this spring were pintails. Five ducks of this species were caught and sent to the Denver office on March 11. Reports were received on four of these birds, all of them either having lead shot in their gizzards or showing the symptoms of lead poisoning.

B. Upland Game Birds

1. Populations and behavior.

It is estimated that there were 150 ringnecked pheasants (Phasianus colchicus) on this area at the end of the winter. This is a slight increase over the previous year. They remain on the refuge throughout the year and are found only on the swampy and the lower agricultural portions of the refuge.

There are a few bobwhite quail (*Colinus virginianus*) in the north-east corner of the refuge and on the upland portions near Headquarters.

It is doubtful if either of the above species is sufficiently numerous to cause direct competition between the two. No evidence of such competition has been observed.

2. No stocking of upland game has been undertaken here within the past two years.

C. Big Game Animals

There are no big game animals on this refuge.

D. Fur-bearing Animals, Predators, Rodents and other Animals

1. Population and behavior

There may be ten or twelve raccoons (*Procyon lotor*) of all ages that use the refuge as a part of their hunting grounds. They have their dens in the hills adjacent to the refuge and come down to the water at night for food. On two occasions in the past, they have raided our duck traps when we were banding ducks but other than that we have seen no indications that they have caught and killed ducks.

Common skunks (*Mephitis mephitis*) are quite plentiful. They have been seen searching for grubs in piles of rotted drift wood and places where they have dug out nests of turtle eggs have been observed. We have no proof that birds have been killed by them. The little spotted skunk (*Spilogale interrupta*) is known to occur in this community but only two have been seen on the area recently.

One was found under a pile of willow cuttings that had been stored under some snow and hay until time to plant them.

✓
Minks (*Mustela vison*) have been seen occasionally and their tracks frequently. The low stage of the water last winter enabled these predators to enter the burrows of muskrats and kill the inhabitants. Many carcasses of muskrats ~~were~~ thought to have been killed by these carnivores were observed last winter.

✓
Coyotes (*Canis latrans*) and red foxes (*Vulpes fulva*) that have their dens in the hills range across the refuge without doing much damage to the bird life. Apparently their numbers are not large and they feed mostly on the abundant rabbits and rodents. They , as well as the other predators, are trapped quite intensively just outside the refuge during the open season.

✓
Woodchucks (*Marmota monax*) are beginning to cause trouble on our levees where they are built of sandy alluvial soil. It appears that we shall be forced to carry on a constant control campaign along the Davis Creek Levee and both levees of the proposed Sqaw Creek Ditch through the refuge.

2. Control

No control measures were undertaken during this quarter.

E. Fish

✓
Large numbers of carp and buffalo fish and smaller numbers of croppies, shad, blue catfish and gars were killed by suffocation during the winter. It is likely that these species were almost exterminated for the time being on this area. Large numbers of bullheads still remain. No fishing was permitted during the period

covered by this report.

III. Refuge Development and Maintenance.

A. Physical Development.

1. A total of 1,178 cubic yards of rock were quarried and hauled 14 miles to the refuge. It was used to riprap 6,665 lineal feet of levee to protect it against wave erosion. A poultry house was remodeled at Headquarters and an old granary moved, remodeled and mouse-proofed to provide a storage place for various kinds of seeds.

B. Plantings.

1. Aquatics and Marsh Plants. On April 5, 1940, we planted 28[✓] pounds of American pondweed (*Potamogeton americanus*) seed and on April 5 and 22, we planted a total of 300[✓] pounds of sago pondweed (*Potamogeton pectinatus*) seed. These seeds were planted in the borrow pits because they were the only places where we had water that was more than a few inches deep. The seeds were planted in widely scattered locations with the hope that we might find some place where the conditions were favorable for their growth. These locations are shown on the accompanying map²

2. Cultivated Crops. No farming was done by refuge personnel.

3. Trees and shrubs. The following trees and vines were planted during April.

| | |
|---|--------------------|
| Hackberry (<i>Celtis occidentalis</i>)..... | 1,000 [✓] |
| Hawthorn (<i>Crataegus</i> sp.)..... | 1,635 [✓] |
| Osage orange (<i>Maclura pomifera</i>)..... | 8,000 [✓] |
| White mulberry (<i>Morus alba</i>)..... | 1,000 [✓] |

received from
LCS
Hawthorn Kemo.
suc

ROCKPORT
ATCHISON CO.
MANYVILLE
NODAWAY CO.
HOLT CO.
BISELOE
SQUAW CREEK
M.V. REFUGE
HAPIER
FOREST CITY
ORISON
SAUNSWAY
DONIPHAN CO.
TROY
ST. JOSEPH

NEBRASKA
KANSAS
BROWN CO.

LOCATION MAP
SCALE
0 5 10 20 30 MILES
FIFTH PRINCIPAL MERIDIAN

T. 62 N.
T. 61 N.

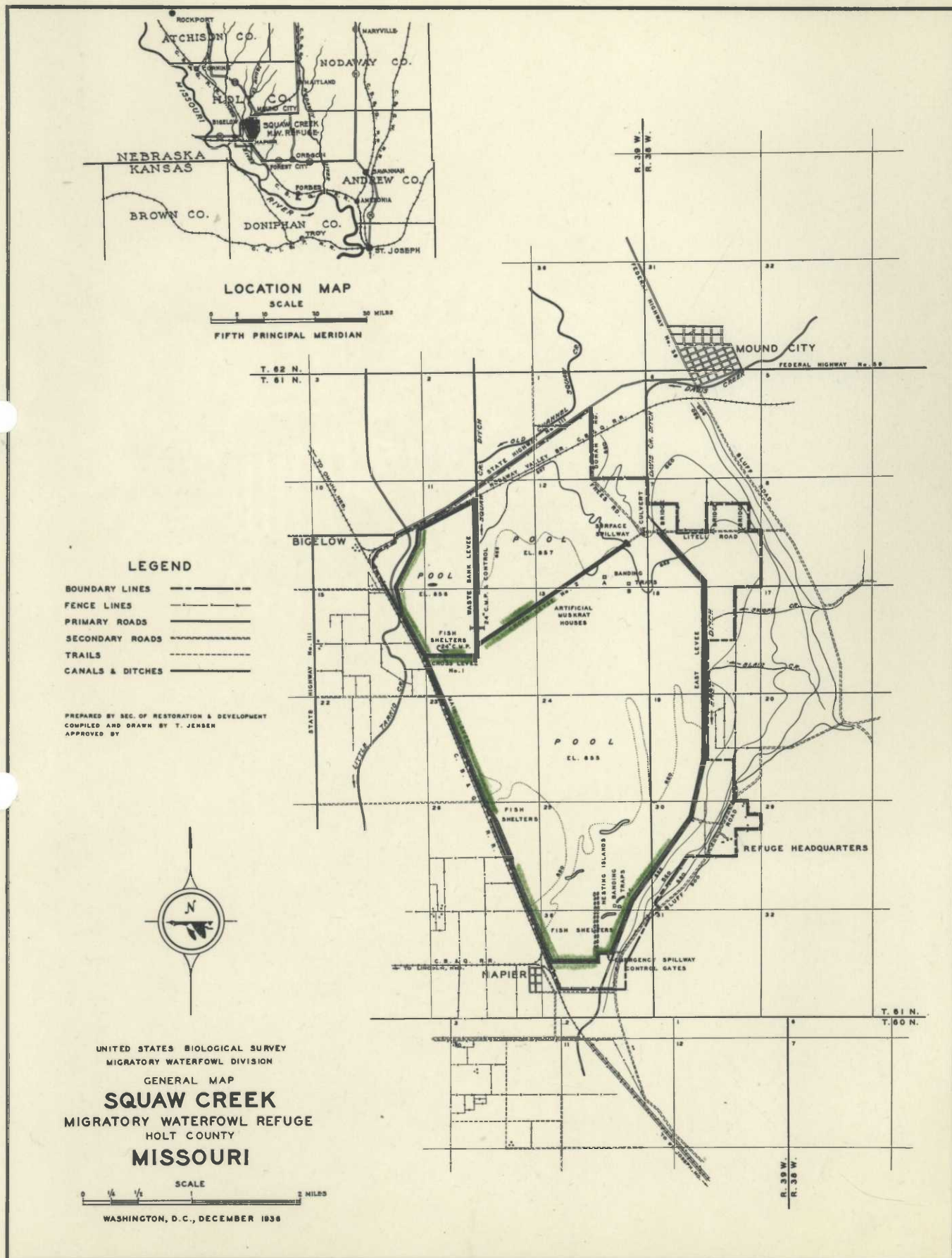
LEGEND
BOUNDARY LINES
FENCE LINES
PRIMARY ROADS
SECONDARY ROADS
TRAILS
CANALS & DITCHES

PREPARED BY SEC. OF RESTORATION & DEVELOPMENT
COMPILED AND DRAWN BY T. JENSEN
APPROVED BY

UNITED STATES BIOLOGICAL SURVEY
MIGRATORY WATERFOWL DIVISION
GENERAL MAP
SQUAW CREEK
MIGRATORY WATERFOWL REFUGE
HOLT COUNTY
MISSOURI

SCALE
0 1/4 1/2 1 2 MILES
WASHINGTON, D.C., DECEMBER 1936

Plantings of sago pondweed made April 5 and 22, 1940 shown in green pencil.



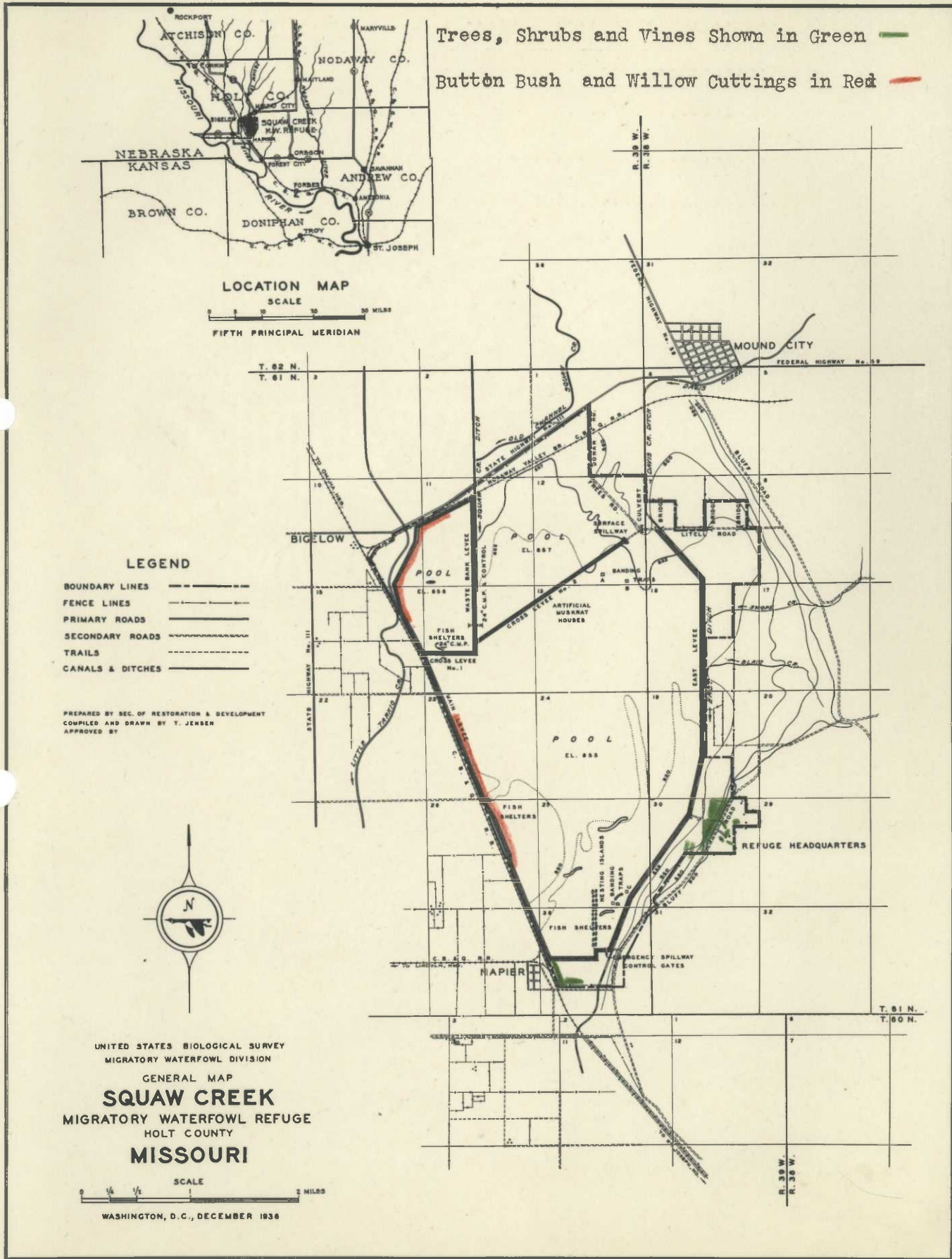
| | |
|--|---------|
| Wild plum (<i>Prunus americana</i>)..... | 8,000 ✓ |
| Fox grapes (<i>Vitis vulpina</i>)..... | 1,000 ✓ |
| Wild grapes (<i>Vitis</i> sp.)..... | 1,000 ✓ |
| Red cedar (<i>Juniperus virginiana</i>)..... | 1,500 ✓ |
| Red bud (<i>Cercis</i> sp.)..... | 260 ✓ |

Most of these trees were planted in cover strips but some were planted in clumps. The cover strips consist of three rows each. The center row contains osage orange set $2\frac{1}{2}$ feet apart in the row. One of the outside rows is composed of wild plums set five feet apart in the row. The other outside row contains a mixture of the various species listed above with the exception of the osage orange, set five feet apart in the row. One of these cover strips starts near the west end of the south levee and extends south to the southwest corner of the refuge and then east along the south boundary of the refuge for about 300 yards. Other cover strips of this kind were planted on the contour in the two fields just across the highway west of the headquarters area. One of these fields is north of the Goose Pen Road and the other is south of it.

Some red buds, red cedars and mulberries were planted in the angles of the rail fences west of Headquarters. Some were planted in the headquarters area. Two large clumps of trees were planted in the pasture north of the barn. Two hundred red cedars were planted on the look-out hill and 200 on the high point northeast of Headquarters.

Two thousand button bush (*Cephalanthus occidentalis*) and 12,700 ✓ sandbar willow (*Salix* sp.) cuttings were planted in a double row along those levees on the west side and in the northwest corner

Trees, Shrubs, Vines and Cuttings Planted in 1940



of the refuge where no riprap work has been done. This planting was also done in April. These cuttings were secured locally.

The locations where the trees, shrubs, vines and cuttings were planted are shown on the accompanying map. The map is too small to show each individual cover strip.

4. Grasses. Seventy-three pounds of mixed grass seed were sown on the headquarters area this spring. This seed was mostly Kentucky bluegrass and white clover. Two-hundred-eighty pounds of lespedeza seed were sown on the headquarters area, the pasture north of the headquarters area and a piece of unoccupied land across the highway northwest of the headquarters area. Both grasses and legumes are lumped together in this report. Very little of the grass grew but the lespedeza is doing well.

C. Collections.

1. No plant materials or specimens of animals were collected during this quarter.

D. Distribution of Seed and Nursery Stock.

The following table gives the requested information of the seeds and nursery stock used on this refuge.

| <u>COMMON NAME</u> | <u>SCIENTIFIC NAME</u> | <u>NO. RECEIVED</u> | <u>RECEIVED FROM</u> | <u>HOW RECEIVED</u> | <u>DATE</u> |
|--------------------|-------------------------------|---------------------|----------------------------------|---------------------|-------------|
| Hackberry | <i>Celtis occidentalis</i> | 1,000 | SCS Nursery, Manhattan, Kans. | Express | 4-1-40 |
| Hawthorn | <i>Crataegus</i> sp. | 1,635 | " " " " | " | " |
| Osage orange | <i>Maclura pomifera</i> | 8,000 | " " " " | " | " |
| White mulberry | <i>Morus alba</i> | 1,000 | " " " " | " | " |
| Wild plum | <i>Prunus americana</i> | 8,000 | " " " " | " | " |
| 13 Fox grape | <i>Vitis vulpina</i> | 1,000 | " " " " | " | " |
| 1 Wild grape | <i>Vitis</i> sp. | 1,000 | SCS Nursery, Elsberry, Mo. | " | 3-26-40 |
| Red cedar | <i>Juniperus virginiana</i> | 1,500 | SCS Nursery, Winona, Minn. | " | 4-10-40 |
| Sago pondweed | <i>Potamogeton pectinatus</i> | 300 lbs. | Bear River Refuge, Brigham, Utah | Freight | 2-24-40 |

IV. Public Relations.

A. Recreational uses.

1. Recreational areas. We have no recreational areas on this refuge.
2. Fishing. There was no fishing on this refuge during the quarter in question.
3. Hunting. Hunting is not permitted on this refuge.
4. Number of visitors. The weather and the roads were not conducive to much visiting of the refuge during this quarter and not over a dozen visitors came.

(a) Mr. Salyer was on the refuge for about five hours on March 8.

B. Violations. There were none.

V. Economic Uses of Refuge.

There is nothing to report under this heading.

VI. Field Investigations or Applied Research.

- A. There is nothing to report under this heading.
- B. Bird Banding. The bird banding results will be included in the annual report.

VII. Other Items.

There is nothing to report under this heading.





There is nothing to report under this heading.

III. Other Items.

B. Bird Banding. The bird banding results will be included in the annual report.

V. There is nothing to report under this heading.

VI. Field Investigations or Applied Research.

There is nothing to report under this heading.

A. Economic Uses of Wildlife.

B. Observations. There were none.

(a) Mr. Gifford was on the refuge for about five months on March 8.

at various times.

When starting of the refuge during this quarter and not over a dozen

4. Number of visitors. The weather and the roads were not conducive to

3. Hunting. Hunting is not permitted on this refuge.

question.

5. Planting. There was no planting on this refuge during the quarter in

1. Recreational areas. We have no recreational areas on this refuge.

V. Recreational uses.

VI. Public Relations.