

ROUTING SLIP

DIVISION OF WILDLIFE REFUGES

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REMARKS:

Chautauqua Quarterly
February - April 1941

Return to:

Cook

QUARTERLY NARRATIVE REPORT
FEBRUARY, MARCH AND APRIL 1941

CHAUTAUQUA NATIONAL WILDLIFE REFUGE
HAVANA, ILLINOIS

Prepared by: Homer L. Bradley, Jr. Refuge Manager

WLB
TRANSMITTED BY REGIONAL OFFICE

VW
5-13-41

I N D E X

	<u>Page</u>
GENERAL	1 - 2
WILDLIFE	2 - 9
REFUGE DEVELOPMENT AND MAINTENANCE	9 - 14
PUBLIC RELATIONS	15 - 17
FIELD INVESTIGATION OR APPLIED RESEARCH	17 - 18
OTHER ITEMS	18

I. GENERAL

A. Weather Conditions

The following is a summary of the weather data taken from the records of the official Weather Bureau station at Havana, located ten miles from the Refuge Headquarters:

	<u>Snowfall</u>	<u>Rainfall</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
February	2.7	.60	58	1
March	6	1.48	66	8
April	--	5.25	89	33
	8.7	7.33	Extremes 89	1

In general, temperatures have averaged lower during this period than a year ago and less snow fell this season. The ice, which was not heavy this year, broke up during March, slightly earlier than last year. Snowfall for the period was less than last year and precipitation has been far below normal. Combined February-March precipitation this year averaged but 38 per cent of normal, being the lowest ever recorded for a like period. Similarly, the 19 months period, dating from September 1939 to March 1941, was the driest of record for any like period of time in the past 52 years of climatological history, amounting to but 70 per cent of normal; however, 5.25 inches of rain fell during April, which was nearly 50 per cent above normal for that month.

B. Water Conditions

Gauge readings have varied less this season than during 1940, due to lack of normal rainfall. Levels ranged from 4.84 to 5.72 during 1940, while readings have been from 5.04 to 5.30 this year.

River levels have remained high for a longer period this year, although never attaining a height which would permit water to enter the refuge over the spillways. Maximum river level to date has been approximately 436 feet. The

pool level was above normal and wave action eroded the south levee to such a degree that practically all of a good stand of willow cuttings, planted last year, were washed out and it is now necessary to make a bench fill along 2200 feet of this levee before the grade may be completed on a 5 to 1 slope. The floodgates were opened just as soon as the river level dropped enough to permit water to pass out of the pool and it was felt that the spring flood period was past. Due to frequent fluctuations in the river, the gates were closed and opened several times before the pool level could be lowered sufficiently.

C. Fires

No fires of any kind have occurred on the refuge area during this period.

II. WILDLIFE

A. Waterbirds

1. Population and behavior

(a) Species

Mallard: Census figures for this period have been considerably lower than the same period last year, with a decrease of at least 20 per cent. On February 4, 4500 birds were noted and the numbers increased very little until the 19th, when 150,000 were censused for the peak of the spring flight. This occurred about two weeks earlier than last year, but birds in numbers were present for only one or two days. The population gradually dwindled to 1500 on March 26 and to 19 on April 23 to complete the migration.

Black duck: Blacks have increased this season as compared with 1940. These birds never occur in numbers, but have increased 50 per cent this spring. On February 4, 600 were noted and these had increased to 1100 on the 12th. The number gradually tapered off to 190 on March 26 and to 3 on April 15 to complete the flight.

Gadwall: Gadwall are never plentiful and census figures indicate approximately the same numbers this spring as during 1940. Two birds, noted February 25, were the first noted and this occurred two weeks later than last year. Numbers increased to 350 on March 26, but had dropped to 25 on April 9 for our last record.

Baldpate: Baldpate have decreased approximately 20 per cent this year. Two birds, noted February 25, were the first arrivals and these increased to 215 on March 26 for the peak of the flight. Only 27 were noted April 15 for the last migrants.

Pintail: Sprigs have decreased about 60 per cent this period as compared to 1940. On February 4, 375 were noted and this number increased to 5000 on February 25 for the peak of the flight, which was about two weeks earlier than last year. This number gradually tapered off to 600 on March 26 and practically all had moved north by April 15.

Green-winged Teal: Green-winged teal did not appear until March 26, when 55 were noted. These increased to 85 on April 1, but had dwindled to 19 on April 15 for the last record. Although never present in numbers, this species has increased 50 per cent this year.

Blue-winged Teal: Blue-wings have decreased approximately 50 per cent this spring, as compared to 1940. Three birds, noted March 26, were the earliest arrivals. These increased to 350 on April 15 for the peak and only 85 remained on the 23rd.

Shoveler: The few Shovelers passing through this area have decreased at least 75 per cent. Four birds, observed March 26, were the first arrivals. This number increased to 275 on April 15 for the peak and only 36 were noted on the 23rd for our last record.

Wood duck: Woodies have been present in about the same

numbers as last year. Seven birds were recorded on March 10 and these had increased to 75 on April for the peak of the flight. This species is difficult to census at this time of the year, since most of the birds are out in the wooded areas searching for nests. We have one report of a nest near Bath, Illinois during late March, which is an exceptionally early record. The Wood duck boxes have not been checked for nests, but the first brood of young ducks were noted on April 30, so it is apparent that the first eggs were laid during late March.

Redhead: Very few Redheads have been noted and this species has decreased by 90 per cent. Thirty-one birds, noted March 17, has been our only actual record of migrants. On two other occasions a single bird was seen.

Ringneck: Ringnecks have also decreased by 50 per cent and did not use the southeast corner of the refuge where a number of birds were trapped and banded last spring. Thirty-four birds, noted February 12, were the first arrivals. These had increased to 275 on March 10 for the largest number noted this season. The population gradually dwindled to 19 birds recorded April 23.

Canvasback: Cans have decreased fully 80 per cent as compared with 1940. The first birds, 600, were noted February 19, which was nearly two weeks later than last year. On February 25, a good count was made of 475 birds and only three of these were females. The numbers gradually tapered off until only 35 were present on March 26 and only two remained on April 23.

Scaups: Scaups have made a gratifying increase of 50 per cent. Four birds, noted February 12, were the earliest arrivals and this was nearly three weeks earlier than last year. The number increased to 480 on February 25, 3000 on March 26 and 5000 on April 1 for the peak of the flight. The last census on April 23 indicated that 1200 were present.

A. Goldeneye: Whistlers have decreased by 40 per cent

this year. migration occurred about three weeks earlier than last year. Sixty-five, recorded February 4, had increased to 135 by the 25th, but the population dwindled rapidly during March until only five were noted on the 26th. Thirteen, noted April 9, was the most recorded for that month and only one remained on the 23rd.

Bufflehead: Buffleheads occur only in very small numbers and the population has averaged approximately the same as last year.

Ruddy: Ruddy's have decreased 40 per cent this year and remained on the area only a very few days. On April 9, 800 birds were censused for our only record.

Hooded Merganser: Hoodeds have decreased on this area considerably. Eleven birds, noted February 4 and 9 on the 25th, are the only records for this season.

American Merganser: Saw-bill's have decreased slightly. Birds which winter in this vicinity had increased to 1050 on February 25, but tapered off rapidly during March until only 18 were recorded on the 26th. Very few were noted during April and the last record, one bird, occurred on the 15th.

Red-breasted Merganser: These birds occur rarely in small numbers. Five recorded March 17 has been the most noted this year.

Coot: Coot have decreased 75 per cent. Migration occurred about the same time as last year with the peak during April 1 and 9. The first migrants arrived March 10 and increased to 1200 by the 26th. On April 1, 3000 were noted and only 700 remained by the 23rd.

Canada Goose: Canadas decreased approximately 15 per cent. Although more birds were noted during February and April than during 1940, very few were seen during March. Most of these birds winter in this vicinity and the population ranged from 146 to 168 for February, 63 for March and from 160 down

to 11 for April. Apparently most of the birds moved north soon after April 15.

Great Blue Heron: The Heron population has been approximately the same as last year. The first migrants, 9 birds, were noted April 1. These had increased to 21 by the 9th and 15 were present on the 23rd when the last census was taken.

(b) Groups

Waterfowl: In general, it is estimated that waterfowl have decreased at least 15 per cent in this area. Migration, on the whole, occurred about two weeks earlier than last year. In many cases, birds have remained on the refuge for very short periods, as compared to last year. Since most of the food is cleaned up on the refuge during fall migrations and the normal water level leaves no shoreline exposed, the refuge does not provide as great an attraction to the birds as during the fall when hunting is permitted elsewhere. The river levels are always higher during the spring and this floods thousands of acres of ideal duck foods on areas which are dry during the fall. Under these conditions, the birds will naturally be more widely scattered. Stormy periods, with high winds, have occurred many times during the spring, and many of the birds move on at such times and most of the lake is too rough to attract any new migrants. It is believed that the decrease in waterfowl is not as alarming as the census figures would indicate and quite likely many birds passed over this area during storms and at night, which might have stopped had the weather conditions been favorable.

Waterbirds and Shore birds: Cormorants seldom use the refuge during the spring migration and then in only small numbers. Great Blue Herons have been noted in approximately the same numbers as last year. Shore birds have just appeared recently and only a few Spotted Sandpipers have been noted to date. No Woodcock have been seen and only an occasional Snipe.

Gulls and Terns: No Terns have been noted during this period and practically all of the Gulls moved out as soon as the ice broke up. As many as 1800 Gulls were noted, mainly Ring-bills, during late February, but this was a slight decrease as compared to 1940. The open water holes and portions of the borrow pits, which do not freeze, are the favorite feeding places for the Gulls and they will rest on the ice for hours at a time.

2. Food and Cover

In general, practically all of the duck foods are cleaned up during the fall migration and aquatic plants have not made sufficient growth to provide much food at this date; however, some Sagittaria always remain until spring and the few Canvasback using this area will always be found working on this food.

Willows and buttonbush have been planted along the shore lines of both the north and south levees where last year's planting did not survive or were washed out by wave action. These plants will eventually provide cover and also retard erosion along the levees, if they survive.

B. Upland Game Birds

1. Population and behavior

Due to the lack of snow and severe cold weather, no winter feeding was necessary during this period. Bobwhites have been noted, but occasionally, on the refuge as they move out onto adjacent farm lands where they remain during the summer.

Mourning doves are noted regularly, although in small numbers and the population remains approximately the same as last year.

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

It is estimated that the muskrat population totalled 4390 animals at the beginning of this period and only natural losses have occurred since that time. The water level has fluctuated even less than last year and conditions

thus far have been ideal for a good breeding season.

^c✓ racoon have been increasing on the refuge and the removal of surplus animals will be advisable during the next winter, by means of live trapping. This work is to be undertaken by the Illinois Natural History Survey in connection with the Racoon-Squirrel investigation in Illinois, a Pittman-Robertson project. Young racoon were noted during March, when the last Wood duck boxes were being cleaned and refilled with sawdust. We have a report from Mr. Brown, in charge of the Racoon-Squirrel investigation, that the three racoon, captured alive during January on the refuge, were released on areas where needed and which are protected.

Rabbits are increasing steadily on this area, particularly on the levee system where control may be necessary in the near future. It is noted that numerous small willows have been cut off and others peeled by rabbits. It is doubtful if many of these animals will make their way back to the bluff and out onto open hunting areas.

Squirrels came through the winter in good condition and the breeding stock has increased since last year. On February 28, while cleaning Wood duck boxes, three young Squirrels were found, which were about three days old; therefore, the breeding season for several mammals extends over a considerable period in this climate.

2. Control

✓ woodchucks have increased slowly and trapping operations were started during April to decimate their numbers. Most of these animals are living in the south and west levees with a few at the west end of the north levee. As portions of the levees are graded, the animals are driven out. The following animals were removed by trapping:

April 18 - - - 1

April 25	- - -	2
April 28	- - -	2 ⁵
April 18	- - -	1 Opossum accidentally taken.

E. Fish

General conditions for fish life on the refuge have been very good during this period. The lake was frozen over only for a short period during the winter, the ice was not heavy and many spring holes and water holes were open most of the time. No river water has entered the pool since March 1940 and although the water has been very turbid, we are sure the chemical content of the pool water is much better for fish life than the river water.

A complete list of species present is not available, as yet. This information was to have been furnished by the Illinois Natural History Survey after the fish investigation on this area during the spring of 1940; however, the final report of this study has not been received, as yet. This investigation covered the game or "fine fish" species mainly, because only small mesh nets were used. Additional data is urgently needed regarding the "rough fish" and it is recommended that an investigation of these species be made as soon as possible. Only large mesh nets should be used for this purpose.

III. REFUGE DEVELOPMENT AND MAINTENANCE

The following work has been accomplished during the period under the Service sponsored WPA Federal Construction Project, O. P. No. 165-3-54-235, which began operation on March 24, 1941:

Job No. 1 - Spillway Alterations

Approximately three-fourths of the 350 foot central section of the west spillway has been covered with gravel to prevent deterioration of the riprap, which is composed of at least 60 per cent soft sandstone and shale. Wet weather prevented moving gravel to the west spillway at times and at least

100 cu. yds. have been stock piled at the south spillway and bluff. Twenty-one thousand board feet of two inch oak has been made into Wakefield piling and moved to the south spillway where a 400 foot row is to be driven. A hammer and fairlead has been built for driving piling and this equipment moved to the spillway. At least half of the labor on this job has been used for road repairs due to weather conditions. Total cost of this work to date, covering 21 per cent of the job, was \$1828.00.

Job No. 2 - Reinforcing South Levee

A total of 822 cu. yds. of sand has been trucked out onto the levee, from a high point directly across Quiver Creek from the Laboratory site, at a cost of \$1062.00, for a unit cost of \$1.29. All of this material was used to build up a trail out to the south spillway. The levee is made up entirely of bottom land soils and cannot be used in the original condition for a road, except during the dryest periods.

Job No. - Levee Fixation

This included the completion of topping about half of the trees on the levee system, which was started last year. Trees are cut in strips at a 45 degree angle to the levee and a like amount of trees are left standing between each cut section. All tree trunks and brush are piled between the stumps, with butts upstream, to provide protection against wave action during periods of high water. A total of 10,220 willow and 11,130 buttonbush cuttings were planted along the pool side of the north and south levees. River levels remained too high to permit plantings on the borrow pit side of the south levee, but the 1940 planting at that location has made a fair stand.

Fifty pounds of Korean Lespedeza and 14 pounds of German Millet had also been planted on newly graded portions of the north and south levees by the end of the period.

Total cost of this work for the period, covering 35.75 acres, was \$1061.00 for a unit cost of \$29.64.

Job No. 8 - Landscaping

This included the cutting of trees and splitting of about 300 oak rails and cutting 60 posts for making a rail fence at the Laboratory. Ten small Elm trees were planted at the Laboratory, along the boundary fence. The bank in front of the building is being cut down to a uniform slope by the CCC and the landscaping job cannot be completed until the slope is finished. Total cost of this work, covering 52 per cent of the job, was \$230.00.

Job No. 9 - General Project Expense

This covers all supervisory and clerical employees, Tool Repairman, Auto Mechanics and Drivers for the transport trucks, also supplies used in connection with transportation of workers. Three stake trucks are used in transporting men from Havana to Headquarters or the job sites daily, a distance of from 7 to 14 miles. All stake trucks are also used to haul materials when needed and for other incidental work, as required. Cost of this work for the period, covering 100 man work periods, was \$1833.00.

Job No. 10 - Unforeseen Item - Fencing

Due to the lack of the WPA work schedule, Form P-60, when the project started, work was started on the fencing job by mistake, as this job was not scheduled to start until July; therefore, it was necessary to carry this work as an Unforeseen item in order to meet WPA requirements. Approximately three-fourths mile of fence was built along the public road through the Roundtree tract. This was not quite completed because work was stopped as soon as our copy of the P-60 arrived. Cost of this work for the period was \$323.00.

The following work has been accomplished by CCC enrollees under a working agreement between the Service and the Soil Conservation Service. Enrollees are

furnished from the Camp at Havana and work started on the refuge January 6, 1941. The following will cover all CCC work to date, since data for January was not available in time for our previous Quarterly Report:

Job No. 1 - Reinforcing North Levee

From two to eight dump trucks, depending on the number of available CCC drivers, have been used to haul sand out onto the levee and the D-6 tractor has been used only occasionally due to the lack of qualified operators. Dump trucks have been used a total of 310 truck days and the Caterpillar Bulldozer was used 24-1/2 days, all six hour days. From 10 to 50 enrollees have worked on this job, but actually very little work has been accomplished. All of the sand hauled has been used to repair the trail or dumped along the sides of the levee and none of the grade has been completed. Considerable material is now in position where the new grade will shape up quickly, providing work is continued by the CCC.

A total of 3000 cu. yds. of sand has been trucked out onto the levee, from the pit at the bluff, at a cost of \$877.19 for a unit cost of \$0.292. This includes only operating supplies and equipment repairs.

Job No. 2 - Suspension Footbridge Construction

This covers construction of a footbridge across Quiver Creek at the Laboratory site. The area was cleared and the foundations for A frames and anchors poured. All of the lumber and timber has been fitted and has been pressure treated by a commercial concern. All necessary material is now on hand to complete the structure, but all available labor has been used for construction of a boat ramp and bank improvement recently. All material for this job is to be furnished by the State Natural History Survey. The job is approximately 22 per cent completed and costs will be reported when the bridge is completed.

Job No. 3 - Bank Improvement

This included the dynamiting of a sandbar, which had accumulated

below a sunken barge, along the south levee, opposite the Laboratory. The old barge was dynamited and removed and logs and sand bags placed in the channel to divert the water away from the south bank where much erosion had already occurred. Then a line of sand bags was placed parallel to the new channel to create a quiet water area along the south bank. The bank was cut down and surplus earth moved out toward the creek channel. A concrete ramp and marine railway has nearly been completed from the creek up into the basement of the Laboratory. This will permit moving boats into the basement for storage, painting or repairs. Approximately 80 cu. yds. of black dirt has been stock piled at the Laboratory for use in covering the area for a lawn and the bank in preparation for landscaping. This job is approximately 65 per cent complete. All materials are to be furnished by the State Natural History Survey and cost will be reported when the job is finished.

B. Plantings

3. Trees and shrubs

<u>Species</u>	<u>No. Planted</u>	<u>Location</u>
Salix sp. (cuttings) ✓	10,220	north and south levee
Cephalanthus occidentalis ✓ (cuttings)	11,130	north and south levee 10 at Laboratory
Ulmus americana	11	1 Headquarters
Juglans nigra	1	Headquarters
Sabina virginiana	40	Headquarters
Rosa sp.	21	Headquarters
Malus sp.	24	Headquarters
Rhus typhina	7	Headquarters
Rhus canadensis	8	Headquarters
Celastrus scandens	12	Headquarters
Cornus alternifolia	8	Headquarters

<u>Species</u>	<u>No. Planted</u>	<u>Location</u>
Cornus stolonifera	25	Headquarters
Sambucus canadensis	23	Headquarters
Taxodium distichum	40	Headquarters

4. Grasses

The following were planted on the lawn at Headquarters, newly graded portions of the north and south levees, which were completed too late for seeding last year, and one location where sand had been removed along the bluff:

<u>Species</u>	<u>Amount Planted</u>	<u>Location</u>
Lespedeza	50 lbs. ✓	North and south levee
German Millet	14 lbs. ✓	north levee and sand pit
Kentucky Blue Grass	6 lbs. ✓	Headquarters
Dutch Clover	2 lbs. ✓	Headquarters

C. Collections

No collections of any kind were made during this period.

D. Distribution of Seed and Nursery Stock

1. Receipts

<u>Species</u>	<u>Amount</u>	<u>Where Secured</u>	<u>Delivery</u>	<u>Date</u>
Scirpus validus	100 lbs. ✓	Mud Lake Refuge	freight	3/4/41
Sabina virginiana	40 lbs.	State Natural History Survey, Urbana, Ill.	auto	4/ /41
Rosa sp.	10 lbs.	"	auto	4/ /41
Malus sp.	24 lbs.	"	auto	4/ /41
celastrus scandens	12 lbs.	"	auto	4/ /41
Cornus stolonifera	25 lbs.	"	auto	4/ /41
Sambucus canadensis	23 lbs.	"	auto	4/ /41
Taxodium distichum	40 lbs.	"	auto	4/ /41

IV. PUBLIC RELATIONS

A. Recreational Uses

1. Recreational Areas

The only portion of the refuge open for public recreation during this period is a 700 foot portion of the north borrow pit, from the bluff out to the floodgate. Public fishing is permitted at this location at any time. Springs flowing from the bluff always keep part of the borrow pit open, even during the coldest weather, and this is a favorite fishing spot. During the last two months from two to ten boats of fishermen could be found using the area each weekend and quite a number of persons came during the week when the weather was fair.

2. Fishing

It is estimated that at least 200 persons fished on the refuge during this quarter. The principal species taken are Croppies with Bluegills and Sunfish making up the balance of the catch. We do not have sufficient records to make a reliable estimate of the fish taken.

4. Number of visitors

<u>Name</u>	<u>Date</u>	<u>Time Spent</u>
Mr. Joe Davidson, SCS office, Kewanee, Ill.	3/3	3 hours
Mr. Smith, SCS office, Kewanee, Ill.	3/3	3 hours
Mr. F. V. Olson, Engineer, Minneapolis, Minn.	3/6-13	5 days
	3/22	1-1/2 hrs.
Mr. Vroman, CCC Inspector, Minneapolis, Minn.	3/31	1/2 day
Mr. Wycoff, State Forestry Dept. Forest City, Ill.		
and group of 40 Boy Scouts and Scoutmasters	4/3	1/2 hour
Mr. Paul Smith, Asst. Chief Inspector, Conservation Dept. Mt. Zion, Ill.	4/8	2 hours
	4/11	1/2 hour

<u>Name</u>	<u>Date</u>	<u>Time Spent</u>
Mr. Swaim, Inspector, Conservation Dept. Bloomington)		
Mr. McDaniels, Investigator, Conservation, Havana)	4/11	7 hours
Mr. Kohler, Investigator, Conservation, Havana)		
Mr. Swanson, Federal Aid, Minneapolis, Minn.	4/18 }	2 hours
Mr. Yeager, Ill. Natural History Survey, Urbana	4/19 }	2 hours
	4/18 }	
Mr. C. S. Cook, Land Acquisition Div., Minneapolis	4/28	1/2 hour
Mr. Putman, Land Acquisition, Minneapolis	4/28	1/2 hour
Mr. Nelson, Land Acquisition, Minneapolis	4/28	1/2 hour
	4/28-/29	2 days

B. Violations

No violators have been apprehended during this period; however, 22 hoop nets, used by commercial fishermen, were seized at Liverpool Lake on April 8, because they had no State license attached. These nets range in size from 30 inches to 5 feet and are stored at Headquarters at present because they have not been claimed. A few other nets have been taken since that time, when accompanied by State Officers and all nets, except one, have been turned over to them.

V. ECONOMIC USES OF REFUGE

E. Fur Harvest

Trapping of muskrats on this refuge was permitted for the first time from December 15, 1940 to January 15, 1941.

<u>Permittee</u>	<u>Permit No.</u>	<u>Permittee's Share</u>	<u>Value</u>	<u>Average Price per Pelt</u>
John High	3838	72	\$109.60	\$1.52
Charles W. and Charles Eager	3839	3	3.00*	1.00
Wilton Elgin	3840	247	381.75	1.55
John McCarty	3841	Did not appear - Permit canceled		

<u>Permittee</u>	<u>Permit No.</u>	<u>Permittee's Share</u>	<u>Value</u>	<u>Average Price per Pelt</u>
Fred Noe	3842	Did not appear - Permit canceled		
Robert Baker and Otis Whitehead	3843	6	\$ 9.00*	\$1.50
Walter Widner and William Fletcher	3844	4	4.00*	1.00
Oral Stockman	3845	228	350.00	1.53
Harry Rudolph, Sr. and Clyde Payne	3846	109	159.00	1.46
Paul Riddle	3847	114	182.40	1.60
Virden Himmel	3860	86	137.60	1.60
John Lane	3861	<u>186</u>	<u>316.20</u>	1.70
Sub total		1055 ✓	\$1655.55 ✓	\$1.56 ✓
Refuge Personnel		960	1605.12	1.67
Refuge Personnel		<u>96</u>	Unsold	
Sub total		<u>1056</u>		
Grand total		2111		

* Value estimated.

Twenty-five animals were confiscated by State Conservation Officers from Messrs. Harry Rudolph, Sr. and Clyde Payne for illegal trapping methods. These, together with one specimen which was badly cut up and turned over to the Illinois Natural History Survey, make a total of 2137 muskrats removed from the refuge.

VI. FIELD INVESTIGATION OR APPLIED RESEARCH

B. Bird Banding

Bird banding is carried on entirely by the Illinois Natural History Survey. Several traps were set after the ice broke up, but all records indicate that most species of ducks passed through this area very quickly this season. Not a single bird was captured in one trap, where over 250 ducks were

banded last spring. Authority was received for trapping six Ringneck ducks for shipment to Michigan, but none were captured. Less than 30 birds were banded during this period and these will be reported later, as well as the records of recoveries.

VII. OTHER ITEMS

A. NYA Assistance

Up until April, we have had two NYA employees available for work at this station. Generally, these boys work their allotted time of 72 hours each month; however, one employee resides on a nearby farm and, due to extra farm work at this season, he did not appear for work during April and probably will not be available again until fall.

A total of 43 man-days have been worked by NYA employees. These boys were kept busy in the garage until the WPA project started during late March. Planting shrubs and trees and landscape work at Headquarters have been carried on since that time. They also assisted in cleaning the Wood duck boxes and refilling them with sawdust.

B. Photographs

Negatives of all photographs are the property of the Refuge Manager.



New channel dynamited in Quiver Creek opposite Laboratory



Sand bags and logs placed across old channel to divert water



Old channel sandbagged to create quiet water in preparation for filling



Pouring anchors for footbridge



CCC enrollees loading sand at pit near north levee



Reinforcing north levee



Driving Wakefield piling on south spillway



Showing abrupt levee bank on pool side between south and west spillways

MAY 15 1941
U.S. ARMY
ENGINEER OFFICE
WAKEFIELD, MASS.

MAY 15 1941
U.S. ARMY
ENGINEER OFFICE
WAKEFIELD, MASS.