

BRANCH OF WILDLIFE REFUGES NARRATIVE REPORTS

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REFUGE

MISSISQUOI

PERIOD

May-August 1955

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## NARRATIVE REPORT

### MISSISQUOI NATIONAL WILDLIFE REFUGE

MAY, JUNE, JULY, AND AUGUST, 1955

#### I. GENERAL

##### A. Weather Conditions

The data in the following table is supplied through the courtesy of the U.S. Weather Bureau station at Burlington, Vermont, which is located about 40 miles south of the refuge. As a general rule the reports for the last month of the reporting period, are received too late for inclusion in the current report, therefore the months reported are April through July.

	<u>Recipitation</u>		<u>Snowfall</u>		<u>Temperatures</u>			
	<u>Total</u>	<u>Normal</u>	<u>Total</u>	<u>Normal</u>	<u>Max.</u>	<u>Min.</u>	<u>Mean</u>	<u>Normal</u>
Apr.	2.16	2.63	1.9	4.1	70	21	46.2	42.3
May	(No data received for the month of May)							
June	4.03	3.57	0.0	0.1	91	43	66.7	65.5
July	3.10	3.75	0.0	0.0	97	51	73.8	70.4
Total	9.29	9.95	1.9	4.2	Ave. 86	38.3	62.2	59.4

Much warmer weather than usual prevailed throughout July and most of August this year. The season was dry with the exception of several periods of rainfall during June and late August, which tended to relieve drought conditions locally. Many wells were dry this summer, and dairymen especially felt the dry spell, having to carry water for their stock. We had more sunny, hot weather than we have experienced in a long time.

##### B. Water Conditions

Water levels held up fairly well until the last of June, when dry weather caused a rapid lowering of lake and marsh levels. This lowering continued until the third week in August, when heavy rains fell as several hurricanes passed by to the south of us. The water has remained high up until this writing, with gauge readings of 94.38 feet above sea level at the end of the period.

##### C. Fires

Despite the very dry conditions which prevailed, there were very few fires in this area and none in the low land along the delta. The ground here remains fairly moist, being so low and being poorly drained for the most part. Heavy annual growths of grasses and rank weeds, helped to retain ground moisture on and in the vicinity of the refuge.

## II WILDLIFE

### A. Migratory Birds

#### 1. Populations and Behavior

a. Waterfowl - It was apparent from the start of the period, that we had a larger nesting population on the refuge than we had during the last few years. Black ducks were up somewhat, but Wood-ducks were about doubled over previous seasons. Mallards and Golden-eyes were about the same, with Blue-winged Teal down slightly. We never have more than a handful of the last three named species, so the ups and downs of these species is not significant. With the Black ducks, we cannot be certain whether there was a general increase in the area, or whether there were just more in the vicinity of the refuge this year. With water levels between a foot and 18 inches lower this year during the nesting season, we are inclined to think that more Blacks nested on the refuge instead of being scattered as usual throughout the farm areas. However, we still had the usual influx of young birds in late June and early July, and according to the concentrations as of this date, it would seem that the overall population of Blacks on the delta is up slightly over last year. The population of Wood-ducks is about doubled over the same period last year, but very few broods were seen during the annual survey. Many broods showed up after the brood data was forwarded to Boston. As we have stated before, the data shown on the survey does not reflect the true condition of population trends in this area, as it has to be submitted too early in the season. Very few Blue-winged Teal broods are ever seen until after the due date of July 20th. We have seen downy young teal in mid-August in other years.

During the early part of the period, the water was high enough so that sight records of ducks and broods were difficult to obtain. This was especially so after the ducks had started incubating and during the early part of the brooding season. Along about the middle of June when the early broods had begun to fly, the water dropped enough so that later broods were more readily observed (they had to leave the cover along the shoreline and move out into the marsh proper. Then there was another period after the vegetation began to get dense, and up until after the "eclipse", when ducks were not so apparent. It was not until the young birds began to flock together in mid-August that we knew for certain about the larger hatch in this area. There is always a considerable influx of broods and young ducks into the vicinity of the refuge, as many are hatched and partially reared in the many small potholes and wet meadows around the various farm lands. This year at least two broods of Black ducks were seen to come over the dam at Swanton. The fall is 5 to 6 feet from the top of the spillway to the bottom, and then they have the rapids to go through, but apparently this did not bother them in the least.

There were no broods of geese seen locally this year as far as we know, but we did see several pairs of geese in the vicinity last spring that were definitely on territory.



Nestlings of the puddle ducks are most vulnerable to predation while in the nest, whereas it appears that the only diver which we have, the Goldeneye, is most vulnerable after the broods are out on the water. After the Blacks or Woodducks are able to swim about, their numbers within the brood do not drop as do the broods of Goldeneyes. These last named, usually seek the open water of the lake or bays when disturbed, and it has been noted for several years that these broods while starting out with 5 to 7 in them, quite often reach flying stage with only 2 or 3 survivors. It would seem likely to suspect the large Northern Pike population to be the culprits, as the brood is quite difficult to approach with a boat, so it is improbable that humans are to blame. The whole brood usually dives and swims under water at the approach of a boat, scattering at the same time.

Of course, we lose a good many potential broods to the raccoon during the nesting season. There is very little land above water in the spring, and it is a simple matter for the concentrated 'coons to patrol these ridges that remain as possible nesting sites. Tree nesters like the Woodduck and Goldeneye are equally vulnerable to this predation, as are the ground nesters. We plan to correct this situation somewhat, by building nesting islands out in the marsh away from the tree line, where the ducks could have a little relief from the raccoons during this season.

The brood count this spring showed the following results:

<u>Species</u>	<u>No. broods</u>	<u>Ave. size</u>	<u>Total yg. birds</u>
Black duck	10	4.9	49
Wood duck	6	7	42
Goldeneye	2	5.5	11

As the coverage of the refuge in the above survey was about 50%, the results should be multiplied by two for total production.

It should also be taken into consideration, as we have already stated, that the above does not represent a true picture. There are the broods which we did not see, those that showed up after the survey was completed, and those hatched off the refuge and later arriving as partially grown young. It does how-ever, show the general trend of duck populations in this area. Last year we found 46.4 young Blacks, and only 2 broods of Woodduck which we couldn't count. There were only 6 Goldeneyes seen last year.

b. Other Water Birds - Great Blue Herons showed a slight increase over last year, but American Bitterns were down slightly. The Herons again nested on Shad Island this year, but there were only a few nests. We had the usual numbers of Eastern Green Herons, only a few seen now and then along the creek. Florida Gallinules were up in numbers, but very little. The usual small flight of American Egrets was lacking this year, as it has been for several years now. We had one lone individual here in April, but we only saw it on one occasion. No loons or grebes were seen this period, and there were no signs of Black-crowned Night Herons since the 5 which we saw in mid-April.



c. Shore Birds - Herring gulls and Black Terns are the most representative birds we have in this group. The usual number of gulls is present, usually out in the bays, but they use the river some during the early part of the period. There was a small increase in numbers of Black Terns this season, and this year we were able to locate enough nests to prove that they nest on the refuge. These nests were built on floating vegetation in the marsh and were just hollow depressions with 3 eggs in them (see photos). It took some leaning from a canoe to reach close enough for these snapshots.

A few more Wilson Snipe were seen this season than here-to-fore, usually along the shoreline or in the area where we are cutting brush at the edge of the marsh, but they are by no means numerous. A flock of about a hundred common terns were seen a few days ago on Goose Bay, feeding on minnows. They made quite a commotion. A few white-rumped sandpipers and a few killdeer were also noted.

## 2. Food and Cover

This was one of the best seasons we have had in four or five years for wild rice. The water stayed at just the right level during the growing season for best results. The plants are generally about six feet tall but some are nearly eight feet (see photo). A heavy crop of seed was produced and started casting about two weeks ago. The ducks cannot be found anywhere else at this writing, than in the wild rice areas. Other aquatics, such as sago pondweed, wild celery, watershield, and a few others also produced well, but the ducks aren't interested while the wild rice lasts.

Most of the migrants had left this vicinity before this period began, but there were a few ducks left which fed on the grain fields until the water receded. We only had 6 geese in field 1 on buckwheat plantings. This was the preferred food of the ducks also, but possibly this was caused by the buckwheat being the only crop which was still flooded during the early part of this period.

Cover was more than adequate during the entire period, as we found out during our brood surveys. The high water early caused ducks and broods alike to utilize the brushy perimeters of the marshes. Later as the water receded, and the birds moved out with it, the emergent vegetation had made a start, such as the various bulrushes, burreed, three-way sedge, and later the wild-rice.

## B. Upland Game Birds

Very few Ruffed Grouse were seen during the period, due to some extent to the very dense annual growth of weeds which we have on areas usually used by the grouse. No signs of reproduction were noted this summer. There are a few grouse on the newly acquired Tabor tract, mostly along the edge of the tree growth.



### C. Big Game Animals

We estimate that our herd of White-tailed deer at the present time is up to about 38 animals including the current fawn crop. The population has been increasing the past few years in spite of a larger annual kill in the area immediately surrounding the refuge. During the early part of the period, the herd is concentrated in the farming areas, where they feed extensively on the buckwheat stubble left from last year's planting, and also on the ladino clover fields. They stay in this general area while we are doing our spring planting, or about until the time when the fawns are dropped. Then they move out over the refuge, the water having receded, and go back to the edge of the marshes, where they make well-beaten trails through the higher ground sections of the marsh.

It was somewhat late this season when the fawns were dropped, it being about the middle of June or the third week before we saw any signs of fawns. There was at least one set of twins this year.

### D. Fur Animals, Predators, and Other Mammals

#### 1. Fur Animals

As very few muskrats were taken during the spring trapping season, we started the ~~XXXXXX~~ breeding season with an abundance of breeders. Signs seen throughout the summer indicate a large number of young muskrats. More were seen by various individuals this summer while fishing and boating in the river and the lake. Very few eat-outs were noted, so we do not apparently, have an excess population. Some wandered off to other marshes, no doubt, but we expect most of the last winter's population is still here, plus the annual increase. The water levels were receding at a rapid rate until the heavy rains of late August raised the level nearly a foot. This acted to prevent driving the muskrats out of the refuge to deeper water, as is the case during very dry falls. Feed is plentiful, and shows no signs of being depleted. Some rats have moved back into areas we have opened up through ditch blasting and clearing of brush. Emergent marsh vegetation is beginning to make an appearance in some of this cleared area.

Skunks aren't so noticeable now as during the high water in early spring when they are concentrated on the higher ridges. They make their presence known though, by their numerous diggings.

The usual numbers of weasels are present, but these are rarely seen. They can be heard more often, if one pauses for a few minutes near a brush pile.

There are a pair or two of mink and otter, but the signs of these are rarely seen this time of the year.

There is a small colony of beaver on the refuge side of Dead Creek. They're doing a fair job of clearing the poplar along the stream bank, some of the trees being up to about 8-9 inches in diameter. Signs are not as numerous now as they were last spring. One has wandered down to the area of Shad and Metcalf Islands.



## 2. Predators

Our number one predator during the past period is without question the raccoon, of which we have too high a population. We took out a few last spring during high water period in the area around the goose decoy pen, but you cannot see any reduction in the number of tracks along the channels and streams. As the pelts are practically worthless commercially, we will try to organize a hunt this fall with the help of local sportsmen. The state has now changed the law regarding this animal. According to the liberalizations, they have practically branded the coon as a predator statewide.

We did some gassing of fox dens last spring about the time the pups were whelped, and there has been a noticeable scarcity of foxes this summer. We only located about 15 or 20 dens, some were questionable as to current use, but we treated them all to be sure.

We've had no trouble with dogs running deer this period as we had last period, with the exception of one old hound that made it almost a daily habit near our headquarters area. We put a couple of 22 slugs into this one, with no apparent effect at the time, but we note that we have not been bothered since. We were close enough to see the little pellets strike, so we know we didn't miss. If only we had something adequate in the way of firearms. We've had several dogs run away after being shot with the 22 rimfire.

## 3. Rodents and Other Mammals

We have the usual population of deer and field mice on the higher portions of the refuge when the water is high, and everywhere during low water period. Shrews and moles are also present.

Rabbits are on the increase locally, but not on the refuge. It is rare even to see any signs of them. We have the usual squirrel population of about 30 greys and 40 reds, mostly along the high, hardwood ridges. They fared poorly last winter though, as the acorn crop was very poor. Woodchucks are on the increase as was to be expected with the development of our agricultural lands.

## E. Predacious Birds including Crows

The usual number of nesting crows were here during the nesting season. The young birds could be heard by mid-summer with their hoarse imitation of the parent.

Marsh hawks were scarce until mid-summer, when they began to show up in more like the usual numbers of several years ago. They have been low in numbers for two years now.

A few Great Horned Owls can be heard in the evenings or early mornings. They are not often seen.

Redwings, starlings, and grackles compete with waterfowl for the grain we leave standing as wildlife food. They descend in droves and consume a lot of grain, but there is always enough left so far for the ducks and geese. In the future there probably will be direct competition as waterfowl build up in numbers with the development of the refuge. Only one osprey and no bald eagles seen this period.



## F. Fish

The usual fish life was present in the marshes this spring, including Pike, Wall-eyes, Perch, Bullheads, Garpike, Carp, and a few Bass. After the water recedes, there is very little fish life within the refuge other than perch and bullheads. We are lucky that the carp leave us after they spawn, and do not remain in refuge marshes except for a very short time.

Frogs were not as numerous this spring as usual, although several spots were found, usually in flooded meadows, where they were quite thick.

## III REFUGE DEVELOPMENT, MAINTENANCE

### A. Physical Development

The annual posting of the water boundary was started on May 2nd, and went along much faster with the new scow and the earlier starting date. The greater depth of water at this time allows the use of a motor at all times, instead of poling and paddling as we usually have to do other years.

Spring plowing started on the 16th of May. The planting was all completed by the last of June. In all we planted 20 acres of clover, 8 acres of corn, 34 acres of buckwheat, and 34 acres of Jap millet. In addition we had 22 acres in previous clover plantings, and 4 acres in winter wheat which we have left standing from last fall's planting. This left 8 acres which we didn't plant and 2 acres in the old goose pen which was not in crop. All crops grew well with the exception of the corn and some millet which was in low undrained areas. Ten tons of lime were spread and over  $5\frac{1}{2}$  tons of fertilizers. The handling of this material is very time consuming, as it has to be loaded on the barge, moved across the river, and then unloaded again on the other side. Frequently the field to receive the lime or fertilizer is not located near where we can land with the barge, and then this entails additional handling.

The barge had to be jacked up for caulking and painting, another slow job. Some repairs will be needed on this unit by next spring.

A heavy roller was completed and used to roll clover fields.

All clover fields have been mowed 3 times so far, and are due for at least one more mowing before the fall migrants arrive.

Timbers were taken to the mill for cutting into dragline mat material.

The water level guages were not set up until July 12th this year because of high water levels and the press of other work.

Woody sprout growth from previous years' cuttings, were sprayed with 2,4-D, using 71 gallons of 2,4-D in water at rate of 3 gallons to 50 of water. Approximately 11 acres were treated, and results although fair, still did not accomplish what we expect. The Silver Maple is the hardest to kill this time, with many clumps still holding their leaves. Ash, willow, and cottonwood were most readily killed. We used a little ammonium sulphamate also, but did not obtain any satisfactory results to date. We will report more fully in the Sept. to Dec. Narrative Report.



The grain shed was clapboarded and new roofing shingles were added. This improves the appearance as well as making it more weather-proof. We had intended removing the lean-to shed if we received funds for a storage building this summer, but funds were not provided and we'll have to retain the shed until some more storage space is provided.

Roads were re-surfaced with gravel in the low spots and where the original surface had worn thin. Grading was also done at the same time with the towns borrowed grader.

Electric starting was installed on the D-4 Caterpillar tractor, repairs were made to the Oliver OC-3 several times (PTO shaft, and oil leaks), the Farmall M was repaired in the distributor, the Chev. pickup needed a new muffler and tail pipe, and the Willys was repaired at the universal joints, tie-rods, brakes, windows.

A large stone boat was built for hauling supplies about the marsh behind the Oliver OC-3 tractor. The sled has too narrow runners for hauling any weight in the marsh.

We blasted 2200 feet of ditch in Big Marsh Slough area in connection with project 622-R-1. This will keep the working area drained while we are working there. About 50 acres of brush have been cut to date, using the Oliver and the rotary brush cutter. A good proportion of this acreage was cut last winter on the ice, but it was cut too high, the ice being where it was. Consequently, there was anywhere from a foot to two feet to cut in order to get the brush down to ground level. There also was considerable new sprouting from the stems cut last winter. When a check of the area was made on May 17th, the water level was still several inches above the cut stems of the brush and all of the area was retarded from growth. It was noted that uncut areas were already completely leafed out. When it was checked on June 29th, the water had rededed until the ground was beginning to show here and there in the cut-over area. It had now started to sprout and there were green patches here and there. By the time we started cutting brush in this area on August 3rd, the sprouts had grown to between 1 and 2 feet. Following cutting in this area, the cut tops dried rapidly, so much so, that a fire could be started in the cut brush a day or two following cutting. This was during the long spell of hot, dry weather which prevailed at that time. If we get along enough spell of dry weather this fall, the cut brush as well as the top layer of ground will dry sufficiently to carry a good hot fire. So our success in holding this brush back now, depends mostly on the kind of weather we get during the next two months.

The ditch blasting was done after the brush had been cleared from the area to be blasted. (see photo) This would give us better drainage into the ditch as the spoil banks from the blasting would lie lower and not form so much of a ridge along the completed ditch.

We are doing our cutting on the lowest section of marsh first in case we get a rise in water later in the fall. If that happens, we can always move back to higher portions of the brushy area.

Considerable difficulty has been experienced with the Oliver OC-3 tractor, in that the power-take-off unit is not rugged enough to handle our brush cutter. We are continually having the shaft break, and this not only causes continual costly repair, but the work is halted until we can get a new shaft made and get it installed. It cost about half as much to make one as to buy the part from the Oliver people. A new shaft costs about \$40.00

True at PR also  
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Work was started at dozing out a cut between two channels in the new goose pen, in order to form an island in the center of the pen for nesting purposes. Several low spots along the various roads on the refuge have been filled, so as to make the roads passable in wet weather. Much of this work could not be done with the old type of tracks and blade which we used to have on our D-4 Cat. This new outfit will work in much wetter material and doze more material to boot. ✓

## B. Plantings

### 1. Cultivated Crops

The following crops were planted this spring on refuge fields. Shown also is the acreage of crops from previous year's plantings.

Field 1	Field 2	Field 3	Field 4	Field 5
*Buckwheat 16A	*Buckwheat 8A	*Buckwht 5A	*Buckwht 12A	*Buckwht 3A
*Millet 16A	*Millet 8A	Fallow 8A	*Millet 9A	*Millet 11A
Fallow 2A	16A	13A	*Clover 10A	*Corn 5A
14A			*Corn 3A	*Clover 10A
			Clover 7A	Clover 15A
*Planting of spring 1955			W.Wheat 2A	W.Wheat 2A
			43A	46A

The above acreages, it will be noted, do not in all instances agree with those shown on previous monthly reports. We found upon adding the acreages that we had planted in excess of the actual acreages in some fields. A good deal of the plantings within the separate fields were merely rough estimates. The above tabulation is correct.

All crops grew well with the exception of some corn and millet. Generally this was in low sags that do not drain readily.

The land which we have listed as fallow, was left unplanted because it was too late in the season to plant by the time we got to that particular section. The best portions are usually planted first, so that those we have left toward the end of the planting season, are the poorest lands or those that receive the smallest wildlife usage.

All new clover land was limed at the rate of  $\frac{1}{2}$  ton per acre, in addition to fertilization with 0-14-14 at the rate of 400 lbs per acre. Corn land was fertilized at the same rate with 5-10-10.

## C. Collections      None

## D. Receipts of Seed

All seed received during the period, was purchased locally. We bought 52 bushels of buckwheat,  $1\frac{1}{2}$  bushels of seed corn, 80 lbs of alsike, and 26 lbs of ladino clover.

The balance of the seed used in planting this year, was saved from last year's harvest. We plan to do this all the time, but we could not harvest the buckwheat last year because of wet soil conditions at harvest time, which made it impossible to get on the land with a combine.



## IV ECONOMIC USE OF REFUGE

We tried to sell our crop of clover hay to local farmers after it had grown so rank while we were doing our spring planting that it was too tall for mowing and leaving on the ground as mulch. We were practically willing to give it away in order to get it cut, but there were no takers. Many wanted it, but the extra work and expense of moving the crop across the river was the deterrent.

We finally tried something new to get it cut. Instead of just mowing it, which would have left a mat of cut vegetation on top of the ground to smother out the growth beneath, we rolled it first. This flattened the entire field, and then as the horizontal plants started to grow upright at the tips, we mowed it, cutting mostly just these tips. After several mowings, we have removed all of the long rank growth, and have not smothered out the clover.

It has come back fairly well, considering the rankness of the growth when we first started in on it.

A few poles have been cut for refuge use, but nothing has been sold.

We have not been advised of the sale of refuge furs shipped during the last period to the New York Auction Co.

A few free use permits were in force during the latter part of the period for the picking of scullcap on the refuge. This is used by drug companies for the making of medicines.

## V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Canada Goose Project

Our decoy flock of Canada Geese has increased slightly, from the 20 birds reported in the last Narrative to a present total of 22 birds. These must have flown in from the few we lost last spring.

We did not raise any young within the pen this summer as we had hoped last spring. These decoys came from Montezuma Refuge, where they had been raising several broods for the past few years. We had to wait until too close to their normal nesting season to move them the 300 miles to this refuge by truck, because of the weather conditions at the time. We should have better success next year, as then the birds will be used to their new home, and also we are enlarging the pen, and constructing an island within the pen. They always nested on the island at the Montezuma Refuge's decoy pen.

We have no definite information on any actual broods of geese having been seen in this area, but there were several wild birds in the area much later than the last migrants had remained. These were all paired, and acted as though they had nests or were hunting nests. We did not look for nests in this area, but kept away as much as possible in order to give these birds as much encouragement as possible. Last spring we found out that 2 broods had been seen the previous summer a short distance away from the refuge.

Last spring, our flock was most successful in calling the largest flock of migrant geese to our planted fields which we



had ever had. For a period of 10 or 12 days we had about 150 geese on our buckwheat plantings every day. They would leave during the morning or about noon for the open water of the Bay. Apparently they returned at night or early in the morning as we never saw them come in, but they were always there each day. Several smaller flocks were also called in throughout the migration period.

The addition to the goose pen, about which we spoke in the Development section of this report, will enlarge the present pen to approximately 8 acres.

The present pen of about 4 acres, has been planted to buckwheat and millet this spring, and the flock have been feeding on this planting all summer, thus making it unnecessary to feed them during this period.

### B. Duck Banding

Due to other more important work we have not been able to get our traps set up yet. We have been working at it the past several days, however, and should be able to trap some birds by next week.

We have been hindered by the loss of our TA laborer, whose appointment just ran out and we are still awaiting clearance in order to re-appoint him. We also have a new tract of land to post, word of which has just been received, and the writing of this report by the manager has left only one man at the refuge to do the work.

## VI PUBLIC RELATIONS

### A. Recreational Uses

So far this season we have issued 15 free use permits for use of the refuge. Two were for cutting of firewood along the river bank from dead and down timber, 1 was for passage through tract 9 to private property located north of the refuge, 1 was for the picking of herbs, and 11 were for the purpose of leaving boats at Mac's Bend and access to these boats for the purposes of fishing and hunting in the lake beyond refuge boundaries.

### B. Refuge Visitors

The following visitors were at the refuge during the period:

6/2	Ms Radway & A. Miller	Boston Office	Inspection
6/15&16	D. Wood & E. Abbiati	Boston Office	Land acquisition
7/28	A. Miller	Boston Office	Inspection
8/25	E. Abbiati	Boston Office	Deed for tract 10

In addition to the above, many visitors came to the office and the refuge in relation to hunting and fishing matters.



### C. Refuge Participation

Besides the many informal public contacts, the manager took a group of children from the Swanton "recreation Dept. on a tour of the refuge on July 18th.

### D. Hunting

There is no hunting on the refuge, but gunners are beginning to get their blinds ready all along the water boundary in the lake. They are later than usual this year in brushing their blinds, very few being completed so far. The Canadian season opens on the 1st of September, and several local hunters always hunt in Canada, which is only a few hundred feet north of the refuge in Missisquoi Bay.

### E. Fishing

Fishing success was for the most part, very poor this summer, along the refuge boundaries. No fishing is allowed on the refuge.

## VII OTHER ITEMS

### A. Items of Interest

The deed has finally been signed conveying 690 acres (tract 10) to the United States for addition to the refuge. It has not been posted as yet.

The state has liberalized the taking of raccoon, so that it is now legal to shoot them at all seasons of the year. This perhaps will have a beneficial effect on our worst predator.

### B. Photographs

A few shots of refuge activities and conditions are appended.

Respectfully submitted,

*R. H. Minns*  
Ralph H. Minns, Refuge Manager

September 9, 1955

Approved:

*Arthur Miller*  
Regional Refuge Supervisor

9-12-55  
Date

\_\_\_\_\_  
Regional Director

\_\_\_\_\_  
Date



3 -1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L  
(Continuation Sheet)

REFUGE Missisquoi MONTHS OF May TO August, 19 55

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	7/16 11	7/23 12	7/30 13	8/6 14	8/13 15	8/20 16	8/27 17	18			
<u>Swans:</u>											
Whistling											
Trumpeter											
<u>Geese:</u>											
Canada									60	none	?
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
<u>Ducks:</u>											
Mallard	16	16	16	20	30	40	50		2360	none	?
Black	170	170	170	180	200	300	400		21280	10	100
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal	10	10	10	14	14	20	20		1520	none	?
Cinnamon teal											
Shoveler											
Wood	250	250	250	260	280	300	400		28000	9	120
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye	15	12	12	6	8	8	8		1270	2	11
Bufflehead											
Ruddy											
Other											
<u>Coot:</u>											

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Flooded grain fields in early spring.</u> <u>Marsh and river after growth of aquatics matured. Wild rice</u> <u>areas in marsh at periods end.</u>
Geese	60	6	7	
Ducks	54630	878	231	Principal nesting areas <u>River ridges and along interior</u> <u>channels.</u>
Coots	:	:	:	
Based on 100% coverage of waterfowl areas.		Based on 50% coverage of brooding areas.		Reported by <u>H.H. Minns</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).



3-1750  
Form NR-1  
(Rev. March 1953)

# WATERFOWL

REFUGE      Missisquoi

MONTHS OF May TO August, 1955

[illegible]



3-1751

Form NR-1A  
(Nov. 1945)

## MIGRATORY BIRDS

(other than waterfowl)

Refuge MissisquoiMonths of Mayto August194 55

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Great Blue Heron	12	*	24	8/2	208/211	**			?	30
Eastern Green Heron	1	6/7	4	7/13	2	8/2				
American Bittern	6	*	12	8/29	10	**			?	14
Florida Gallinule	14	5/17	28	6/7	8	8/2			?	30

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove		2	8/29	only observation this period	
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle					
Duck hawk					
Horned owl					
Magpie					
Raven					
Crow					
Marsh Hawk	2				
Osprey					
* here in previous period					
Reported by..... R.H. Minns					

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
II. Shorebirds, Gulls and Terns (Charadriiformes)  
III. Doves and Pigeons (Columbiformes)  
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.



UPLAND GAME BIRDS

1613

Refuge Missisquoi

Months of May

to August, 19455

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse									6	No signs of any increase this summer.



## INSTRUCTIONS

### Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\* Only columns applicable to the period covered should be used.



## REFUGE GRAIN REPORT

Refuge Missisquoi RefugeMonths of May through August, 1955

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Corn(shelled)	28	0	28			8	8	20		20	
Millet, Japanese	78	0	78		58		58	20		20	
Winter Wheat	25	0	25		3		3	22		22	
Domestic Rye	8	0	8				0	8	8		
Ladino Clover *	0	26	26		26		26	0			
Alsike Clover *	0	80	80		80		80	0			
Corn (seed)	0	1½	1½		1½		1½	0			
Buckwheat	0	52	52		52		52	0			

(8) Indicate shipping or collection points Swanton, Vermont(9) Grain is stored at Refuge Granary(10) Remarks \* These seeds are shown in pounds instead of bushels.

\*See instructions on back.



## REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

**Report all grain in bushels.** For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.





R-6-1

A muskrat found sleeping on the edge of the floe ice  
in Missisquoi Bay.



R-6-2

Showing a typical feed platform in tree along edge of marsh.  
Note. one within a few inches of water, another about 4 ft. above  
water level, and a third almost hid behind left side of tree a  
few inches below the highest one. As the water lowers, the rats  
just use a lower limb. A rat just left the lower feeder.





R-6-3

Showing a few muskrat furs collected from the trappers out in the marsh during the last trapping season in April, 1955. These are picked <sup>up</sup> every few days during the season. Gov't share is shown. Water in amongst these trees is 3-4 feet deep at this time of year, and the roads serve as admirable canoe highways.



R-6-4

Flooded conditions around our headquarters buildings during high water period in April, 1955. Water in front of building at right is slightly over knee deep.





R-6-5

Two views of Black Tern nest in Goose Bay. This is definite proof that these birds nest on the refuge. The nests are just shallow depressions on floating masses of vegetation (small floating islands). The snaps were taken leaning out of a canoe as far as I dared, and holding the camera in one hand at arms length.



R-6-6





R-6-7

This is an almost pure stand of wild rice. It shows the height and density of this plant here. Some of the individual plants are almost eight feet tall and all are heavily laden with seed this year. This is the "road" out to the brushy area where we are clearing brush with the rotary brush cutter.



R-7-8

Propagation blasting for ditch in brush area to drain water from work site. About 150 feet of ditch was shot in this blast. Note strip through brush which we have cut before blasting. This is end view of shot and we are 500 feet from blast. Stone boat in foreground for transport of materials behind Oliver OC-3 tractor.